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VISIONARY DRAWING

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Cover
Hugh Ferriss, The Lure of the City, 1929. Detail.

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Editorial

Francesca Fatta

In the Drawing of Architecture, a large part of the production is devoted to reasonings on dreamed architectures, sketches and visions that open the door of the unconscious and desire. This is a Visionary Drawing that the editor of this issue, Paolo Belardi, has chosen to propose according to an expositive thread leading from the interpretation of a desired reality, to a dreamed hallucination of the consciousness or of perception.
If a hand equipped with a pencil is a skeleton key, as claimed by Vincent Van Gogh, and as mentioned in the call for this ninth issue, the hand-pencil-mind relationship also opens to the most fantastic and hidden of thoughts.
Today, in architecture, communication is made up of digital images. Photomontages, renderings, that become architecture themselves, a paradigm for its realization. Evident, in all this, is the connection with visionary drawing that imagines and prefigures scenarios of transformation finalized in this context to a concrete realization; but here arises the great difference between the utopia of the visionaries and the dystopia of the digitalists. In the constant dialogue and dialectic between represented forms and built forms comprising the architect's imagery, the world of represented forms has always been a sort of 'outpost' of the built world and, at the same time, an obligatory reference, since drawing is, necessarily, a paradigm for the project.
Moreover, drawing has an intrinsic value in representing a figurative world, whether desired or merely imagined, even for describing a reality that may never exist. Drawing is and remains an indispensable virtual tool for entering into reality, a clear intention of interpretation rather than an imitation of reality.
With these assumptions, the call for Issue No. 9 of our journal received a great response, thus proving that today, in the digital era, the visionaries still exert a great fascination, while confirming that Drawing, in its most significant interests, also embraces the design and visual translation of concepts, ideas and narratives. The Editorial Board received 36 abstracts, of which a necessary selection was made in order to arrive at the publication of 16 papers.

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From drawings attempting to represent 'possible architectures' to the visionary idea of fantastic realities, from Leonardo da Vinci's machines to Hieronymus Bosch's worlds, from Giovanni Battista Piranesi's prisons to Antonio Sant'Elia's verticality, from Gustave Doré's narratives to Archigram's utopian projects: all this is Visionary Drawing.
The following pages will explore certain aggregative, typological, conceptual aspects, most often deriving from the modern interpretation of historical facts, or inspired by contingent 'visions' following the thread of the theme, like a sort of archive, always richer in 'visionariness,' a wealth of memories and contemporaneity in continuous growth for reflections to be taken up again and deepened.
The Cover has been entrusted to Paolo Belardi, author of the call. Belardi is a member of the Editorial Board of *diségno*, and for the past two years has been a full professor of Architectural and Urban Design. Always interested in the themes of inventive drawing, in 2019, on the occasion of the 41st UID Conference in Perugia, he invited one of the most esteemed visionaries of the postmodernist generation, Arduino Cantàfora, (see *diségno* No. 6, 2020), and in a certain way anticipated our monographic tribute to Visionary Drawing.
In this issue, the general theme unfolds in three sections: *Urban Visions*, *Visionary Masters* and *Visionary Experiences*. In the first section, the drawings of architectural spatialities by the great protagonists of utopia are analyzed, from Baroque scenographies to the experiments of the environment concept artists; the second section aims to capture the visionary inspiration that subsists in the relationship between art and science, that is, how the two components are intertwined, at times one anticipating the other, in order to open breakthroughs marking the evolution of thought and art. Finally, the third section, *Visionary Experiences,* looks at the utopian and radical projects of the sixties, from the graphic codes of Pop Art to the language of science fiction comics, also dwelling on the different forms of connection between music and images and the narration of unexplored fantastic places.
The issue is completed with the columns edited by Valeria Menchetelli, who comments on the famous drawing *A Walking City* by the Archigram group; by Alberto Sdegno, who proposes a reading of the book *Delirious New York* by Rem Koolhaas; these are followed by the reviews of the volumes *Representation Challenges. Augmented Reality and Artificial Intelligence in Cultural Heritage and Innovative Design Domain*, edited by Andrea Giordano, Michele Russo and Roberta Spallone, *Realtà virtuale: disegno e design* by Daniele Rossi, *Adnexūs. Una indagine interdisciplinare tra immagine disegno e arte* by Alessandro Luigini, and *La rappresentazione del patrimonio archeologico attraverso procedure integrate di rilievo. Il sito dell'anfiteatro campano di Capua Antica. Applicazioni e metodi di analisi* by Domenico Iovane; and finally, an overview of the latest events sponsored by UID.
In the meantime, we have already started collecting contributions for the next issue (No.10), which will deal with Drawing in architectural archives.
May you enjoy reading and, above all, may visionary drawings always accompany us in our dreams and desires.

It's no Country for Visionaries (Anymore). Two Design Experiments Beyond U-topia

Paolo Belardi

"The visionaries form a separate, singular, confused order, in which artists of very different talents and perhaps also of unequal ingenuity take their place. At times they manifest the freest and most daring aspects characterizing creative genius, a prophetic power fully concentrated on the most mysterious domains of the human *rêverie*, and the effects of a particular vision that profoundly alters the light, the proportions and even the density of the sensible world. One would say that they are uncomfortable within the limits of space and time. They interpret rather than imitate, and transfigure rather than interpret. They are not content with our world, and while the study of the forms found in it satisfies most artists, for them their formal study is only a provisional framework or, if you like, a starting point. […] At first glance, it seems that they invent at random, by fits and starts, subject to the despotic whim of a bizarre inspiration, and we are led to consider them as travelers who have come from very far away, and by indirect routes." [Focillon 2006, p. 13]

In the opening lines of his famous essay, *Esthétique des visionnaires*, illustrated in the manner of a monograph with images taken from Giovanni Battista Piranesi's *Le carceri d'invenzione* (*Imaginary Prisons*) (fig. 1), Henri Focillon brings together, without spatial-temporal limits and without disciplinary hierarchies, the names of the greatest artists of the past: Michelangelo Buonarroti, Leonardo da Vinci, Honoré Daumier, Rembrandt, William Turner, Tintoretto, El Greco. A long list, but not exhaustive, to which we could reasonably add those of Hieronymus Bosch, William Blake, Aleksandr Nikolaevič Skrjabin and Antonio Sant'Elia or, moving on to more recent times, those of Morris Graves, Louis and Bebe Barron, Lebbeus Woods and Terry Gilliam. All great visionaries who did not 'see' things, but instead 'envisioned' things, in the sense that, by negotiating the limits between sensation and perception, they created a sort of 'controlled hallucination' capable of giving reality an intensity and depth that would other-

This article was written upon invitation to frame the topic, not submitted to anonymous review, published under the editorial director's responsability.

wise be unimaginable. In the same way with words, with notes and with stones, but above all, with marks. Because, since time immemorial, drawing has been the visionaries' primary instrument, since drawing, to paraphrase an acute remark made by Vincent Van Gogh, is a tool that allows us to spread out before our eyes, with immediacy (and at times even harshly), what lies beyond the boundaries of our physical sight, by opening the doors of 'another' world that we can see only by relying on our mental sight: today amplified out of all proportion by the advent of computer graphics, which has moved the threshold of the realizable even further forward, and has erased the boundaries between the real world and the virtual world. It is enough to think of real sensory simulacra such as immersive systems or even, for that matter, of that utopia-non-utopia that has been and continues to be the global village of *Second Life*. And the fact that *Second Life* is a happy place, but virtual (and therefore without place), implicitly underlines that the term 'utopia' is a neologism derived from ancient Greek which Thomas More coined in the early sixteenth century by hybridizing *eu-topos* (good place) and *ou-topos* (no place). From an etymological point of view, therefore, utopia should mean 'a good place with no place.' But here the first ambiguities arise and, with them, the inevitable differences in interpretation. Because, according to a negative interpretation, utopia is ìa place that does not exist, in an absolute sense,' while, according to a positive interpretation, utopia is "'a place that does not exist, in a relative sense,' meaning that even if at the present time it does not exist, it is not to be excluded *a priori* that, sooner or later, it 'could' exist. The history of architecture, even its recent history, is full of enlightening examples: "Frank Lloyd Wright's *Broadacre City*, Le Corbusier's *Contemporary City for Three Million Inhabitants*, Mies van der Rohe's *Farnsworth House*, *Milano Verde* designed by Franco Albini, Ignazio Gardella, Giulio Minoletti, Giuseppe Pagano, Giancarlo Palanti, Giacomo Predaval and Giovanni Romano, Louis Kahn's *Philadelphia Plan* and Maurizio Sacripanti's *Osaka Pavilion*, almost all of which remained on paper except for the Miesian project, are works that indicate new frontiers to be surpassed" [Purini 2017, p. 101] (figs. 2, 3). Just as, in the 1960s, Superstudio's *Continuous Monument* (fig. 4) and Archizoom's *No-Stop City* (fig. 5) indicated new frontiers to be surpassed: two provocations that at the time were cataloged in the realm of utopia, even from the point of view of feasibility, thinking that buildings superimposed on

Fig. 1. Le carceri d'invenzione, Tav. VII (Giovanni Battista Piranesi, 1761).

Fig. 2. Milano verde, perspective view (Franco Albini, Ignazio Gardella, Giulio Minoletti, Giuseppe Pagano, Giancarlo Palanti, Giacomo Predaval, Giovanni Romano, 1938).

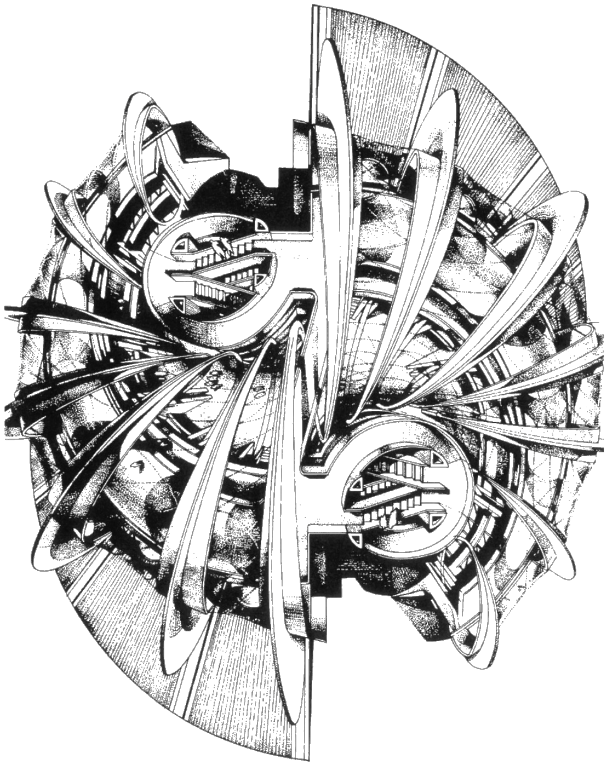
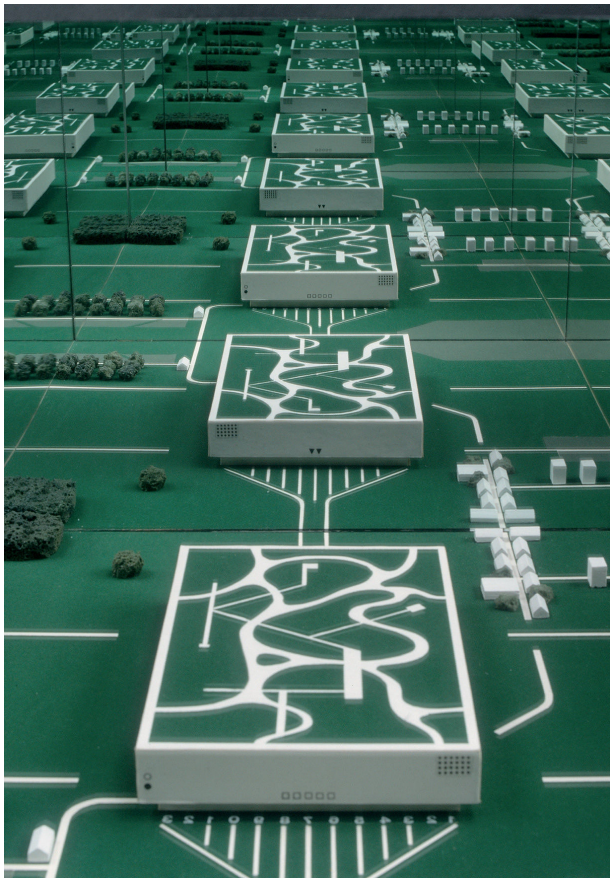


Fig. 3. Italian pavilion in Expo Osaka 70, perspective view (Maurizio Sacripanti, Andrea Nonis, Maurizio Dècina, Giulio Perucchini, Alessandro Latini, Achille Perilli, Renato Pedio, Giancarlo Leoncilli Massi, 1969).

those already existing and crusts of inhabited land could never be realized. While instead, after less than fifty years, many concrete interpretations do exist: in the first case, the *Sharp Centre for Design* by Will Alsop, in Toronto, and the *De Brug* by JHK Architecten, in Rotterdam, while, in the second case, the *ACROS (Asian CrossRoads Over the Sea) Building* by Emilio Ambasz, in Fukuoka, and the *Library of the Delft University of Technology* by the Mecanoo studio, in Delft. But that's not all. The fact that a courageous project is more or less utopian depends also, and perhaps above all, on the socio-cultural context's confidence in design culture. And perhaps this is why utopia, in the time in which we live (the dawn of the third millennium) and in the country in which we live (Italy), represents a component that is not only marginalized, but even risky. So much so that by now visionary experiments, as proved very recently by the book *Italian Collage* [Ferrando, Lootsma, Trakulyingcharoen 2020] (fig. 6) and by the exhibition *Città di Dio. Città degli uomini. Architetture dantesche e utopie urbane* [Molinari, Gallo 2021] (fig. 7), are confined to art books and art galleries. Because by now, in our country, contemporary architecture, even more so if visionary, coincides per se with the 'ugly,' while historical architecture, even more so if nostalgic, coincides per se with the 'beautiful.' This is the reason why the only utopian project endorsed by most would be that of rebuilding uncontaminated, bucolic places or, at most, of rebuilding the ancient city of Pompeii as it was, and where it was, and then embalming it and conserving it equal to itself. It is not by chance that today, in our country, there are two types of utopian projects: those that, obviously, will never be realized (projects that are not only accepted, but actually looked at with curiosity) and those that, instead, sooner or later, could be realized (projects that, therefore, are rejected and dismissed as subversive). This is demonstrated by the different outcomes of two design experiments carried out within the research activity of the Department of Civil and Environmental Engineering of the University of Perugia.

The first design experiment concerns the historic center of Perugia and, in particular, the area of Piazza Matteotti: an urban node that has always remained unresolved, from a functional as well as a figurative point of view. Where, however, the realization of the Minimetrò's 'Pincetto' station, as designed by Jean Nouvel, has opened new perspectives, prefiguring the possibility of extending the network of pedestrian paths leading to and from the city's acropolis by

Fig. 4. Monumento Continuo, perspective view (SuperStudio, 1970).



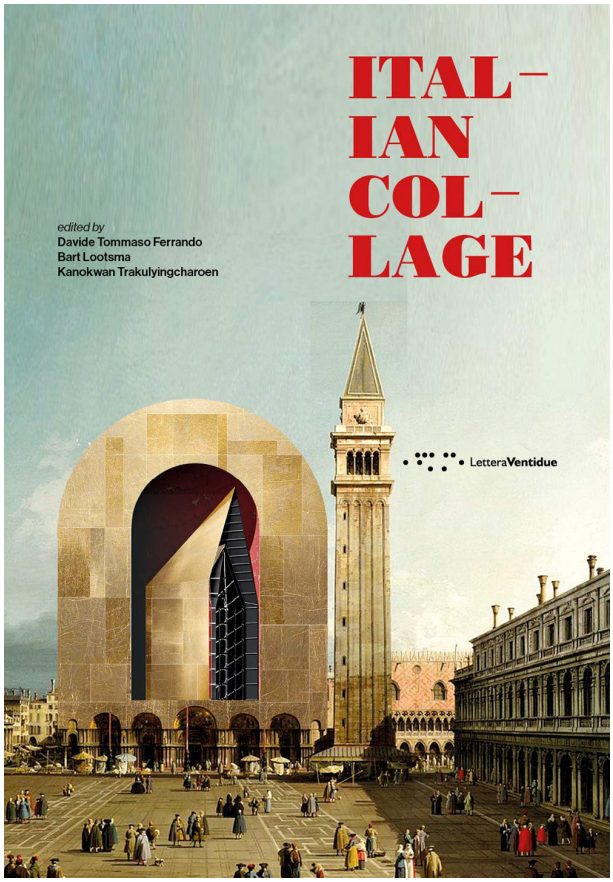


Fig. 5. No Stop City, perspective view (Archizoom, 1971).

Fig. 6. Italian Collage [Ferrando, Lootsma, Trakulyingcharoen 2020], cover.

excavating the ancient 13th-century terracing of the Piazza del Sopramuro, where the escalator ramps currently end. And, therefore, through the renewed physical contact with the cyclopean stones of the ancient Etruscan city wall (IV-III century B.C.) that, for almost eight hundred years, have been buried underground. In this context, the Fondazione Cassa di Risparmio di Perugia and Nova Oberdan Spa co-financed a research project (*Camminare nella storia. Nuovi spazi pedonali per la Perugia del terzo millennio*) [Belardi 2009] (fig. 8) comprising a cognitive study and a project design study: the first aimed at unveiling the archaeological secrets of a place substantially unexplored and, in any case, still mysterious; and the second, aimed at prefiguring the architectural values of the possible pedestrian connection between the Minimetrò station (planned to feature a number of mechanical elevators), an underground archaeological gallery (to be created between the Etruscan walls and the medieval arches) and the landing in the heart of the historic center, near to Corso Vannucci (to be protected with a daring glazed energy-producing canopy). The cognitive study, supported by specific historical research, was conducted with experimental methodologies (that involved the confluence of non-destructive remote inspection procedures ranging from laser scanner and georadar surveys, up to video-endoscopy), with direct visual explorations and comparative interpretations of ancient archaeological prospections in a highly probable conjectural reconstruction of the monumental pre-existences; the indispensable basis for the subsequent project.The Sopramuro underground archaeological gallery was designed by an interdisciplinary team organized within the Department of Civil and Environmental Engineering of the University of Perugia, while the glazed energy gallery of Via Mazzini was designed by Wolf Dieter Prix of the *Coop Himmelb(l)au* studio in Vienna and by Alessandro Melis of the *Heliopolis 21* studio in Pisa.

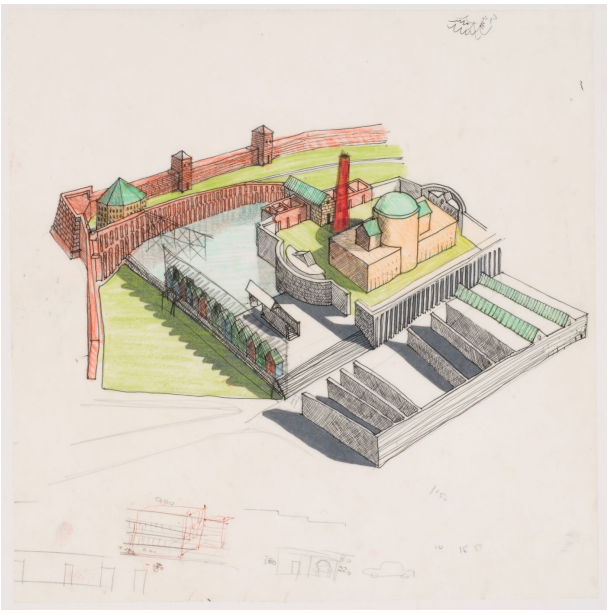
The second design experiment concerns the historic center of Foligno and with it, one of its most illustrious sons: Giuseppe Piermarini. In fact, in his city, the architect of the Teatro alla Scala in Milan and the Villa Reale of Monza has left no trace of himself: not a church, not a fountain, not a villa. While the hypothesis behind the workshop promoted by the universities of Bologna, Ferrara, Florence and Perugia with the support of the Fondazione Cassa di Risparmio di Foligno (*Disegnare Foligno tra storia e utopia. Omaggio a Giuseppe Piermarini*) [Belardi et al. 2010] (fig. 9) is that the pupil of Luigi Vanvitelli has, instead, left nine

Fig. 7. Città di Dio. Città degli uomini. Architetture dantesche e utopie urbane. Principio e fine (Pietro Carlo Pellegrini, 2021).

Fig. 8. Camminare nella storia. Nuovi spazi pedonali per la Perugia del terzo millennio, galleria energetica vetrata su via Mazzini a Perugia, infographic simulation (Coop Himmelb(l)au, Heliopolis 21, 2010).

Fig. 9. Disegnare Foligno tra storia e utopia. Omaggio a Giuseppe Piermarini, comparto n. 5, perspective view (Giovanni Vaccarini, 2010).

Fig. 10. Preliminary study for the exhibition Roma Interrotta, perspective view (Aldo Rossi, 1977).



traces: nine examples of ephemeral architecture (nuptial apparatuses, triumphal arches, celebratory catafalques), yet capable of virtuously orienting the growth of a city that at the time coincided with the walled city, and in which the central built area was surrounded almost completely by large green areas, as attested to by a cadastral map of 1819. While in the following two hundred years, the empty land surrounding the central core of the ancient *Platea Fulgineii* was saturated with more than 650,000 cubic meters. In this sense, the workshop recovered the visionary propensity of the exhibition *Roma Interrotta* [Argan, Norberg-Schulz 1978] (fig. 10), curated by Piero Sartogo on the occasion of the 1978 Venice Biennial, where nine young Italian architectural firms were invited to design the Foligno that doesn't exist, but that could have existed if Piermarini had opposed the definitive dismantling of his *folies* and had rebuilt them in his hometown, straddling the central historical nucleus and the urban perimeter walls, leaving in heritage an imaginary urban plan. Imaginary, but not useless, because capable of promoting an urban growth as different as it is virtuous. Demonstrating that even our historical era is capable of creating pieces of city that can compete with the historic city.

Two programmatically visionary design experiments, as both go beyond u-topia, but with different results. In fact, while the projects intended for the historic center of Foligno, due to the evident impossibility of their ever being realized, were welcomed favorably both locally and nationally, the project intended for the historic center of Perugia created not a few embarrassments. In the sense that it was received with great interest at an international level, but was unanimously condemned by the local press. Perhaps because, sooner or later, it could actually be realized. But unfortunately, ours is no country for visionaries (anymore). And perhaps it is not by chance that the writings published in this issue look for the most part to our past (from Pisanello to Gustave Doré, up to Giovanni Battista Piranesi) or to the rest of the world (from Norman McLaren to Katsuhiro Otomo, up to OFFICE Kersten Geers David Van Severen).

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A Walking City

Archigram Group

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A Walking City by Archigram Group: on the Utopian Dimension of Drawing

Valeria Menchetelli

An emblematic synthesis of the homonymous project developed in 1964 within the Archigram Group by Ron Herron (1930-1994) and Warren Chalk (1927-1987) with the collaboration of Frank Brian Harvey for the drafting of the graphics, the plate *A Walking City* is part of a series of drawings that prefigure the futuristic idea of a city organised in mobile mechanical units, imbued with a post-apocalyptic atmosphere and characterised by a programmatically utopian vocation. There are four versions of this drawing, differing in technique and size: the first plate, from which the others derive, is a colour collage measuring 800 x 350 mm, in which a sepia-coloured background highlights the urban nucleus in the foreground on the left. The plate title appears in capital letters below a thick horizontal black line and is accompanied on the left by the caption "Each walking unit houses not only a key element of the capital, but also a large population of world traveller-workers!" also in capital letters. A colour print measuring 420 x 200 mm, to which two additional black fields are superimposed at the top and bottom, and a black and white print measuring 420 x 300 mm, delimited at the bottom but not at the top by the white background, derive then from this first plate. This same drawing, in the monochrome version, is reproduced in print in blue ink (size 353 x 150 mm) and published on page 17 of issue 5 of *Archigram* magazine (Autumn 1964) –not coincidentally titled Metropolis– on a double-page that unfolds to the right. To the right of the title is added here the additional caption "This project by Ron Herron and Bryan Harvey exploits the most extreme context for a building so far in Archigram: an enclosed environment of colossal size that is mobile enough to traverse the world:

This article was written upon invitation to comment on the image of Archigram Group, not submitted to anonymous review, published under editorial director's responsability.

a prototype for a world capital perhaps" [*The Archigram Archival Project* 2010].
The magazine, whose short editorial life (ten issues in all, distributed at irregular intervals between 1961 and 1974) corresponds to an equally intense production of visionary images, is the means of communication through which the group of designers openly declared its constitution in May 1961. The name Archigram, which the group took on only after the magazine came out, derives from the crasis of the two words architecture and telegram (or according to some, aerogram), recalling the quick, rapid and succinct communication style that announces the birth of a new event [Prestinenza Puglisi 2019, p. 375]. The first issue of the periodical is in fact composed of only two self-produced pages, which open laconically with the words "This, the first Archigram, is a statement of the standpoint of the new Generation of Architecture" [*The Archigram Archival Project* 2010]. After this issue, the subsequent ones become more consistent and continue the progressive construction of a repertoire of urban models as utopian as they are unprecedented, embodying the reaction to the quiet and rational urbanistic approach of the English new towns: from the *Plug-in City* (1964), defined by an extensive technological infrastructure that constitutes the predisposition for the free grafting of autonomous housing cells, to the *Computer City* (1964), conceived as a network for the exchange of goods, people and information; from the *Underwater City* (1964), an immersed reticular habitat based on NASA technologies, to the *Instant City* (1968), consisting of a transportable parasitic kit capable of temporarily transforming any place into a city full of cultural events. The futuristic character of these ideas reflects in the linguistic and expressive register employed for their description, a "representative technique intrinsically linked to the meanings to be conveyed, through a graphic narrative that represents a way of staging their own vision of architecture in which the process counts more than the result" [Piscitelli 2020, pp. 3714-3716].
Originally titled *Cities: Moving*, a label that appears in some of its earliest representations, the *Walking City* project adheres to the overtly utopian canon that distinguishes the British collective's imaginative production, opening up a vision of a future city "in which borders and boundaries are abandoned in favour of a nomadic lifestyle among groups of people worldwide" [*The Archigram Archival Project* 2010]. Heir to the technocratic ideology expressed in previous years by Richard Buckminster Fuller and to the spirit of indeterminacy focused on in Yona Friedman's *L'architecture mobile* [Friedman 1958], the *Walking City* seems to solemnly wander in a world destroyed in the aftermath of a nuclear war [Frampton 1993, p. 332] and is condemned, directly or indirectly, by critics [Gannon 2008, p. 175]. Both Sigfried Giedion and Constantin Doxiadis "attack it for representing an 'inhuman' urban vision" [Banham 1994, p. 75], and even Peter and Alison Smithson dissociate themselves [Steiner, Landau 2000, p. 93]. However, this hostile character does not belong to Herron's project idea. In response to the comparison of the *Walking City* to a war machine made in the pages of the *International Times*, he is keen to point out that in his concept this city is "an object which moved slowly across the earth like a giant hovercraft, only using its legs as a levelling device when it settled on its site. To me, it was a rather friendly-looking machine" [Herron, in Banham 1994, p. 75]: a sort of enormous, placid technological insect, friendly and non-threatening.
The cultural context in which the project arose is declared once again by Ron Herron, who explains its genesis in these terms: "Walking City came out of the ideas of indeterminacy prevalent in the 1960s, particularly the idea of the city as a changing entity which could respond to the inhabitants' immediate needs. I took a slightly different direction and looked at the idea of indeterminacy of place – Walking City was the result" [Herron, in Banham 1994, p. 75]. The brief, ironic and provocative essay *Owing to Lack of Interest, Tomorrow Has Been Cancelled* by Warren Chalk in the pages of *Architectural Design* [Chalk 1969] clarifies the propensity towards experimentation through new expressive media, referring to fantasy imagery and to a language typical of mass culture [Steiner, Landau 2000]. The Archigram Group adheres wholeheartedly to this language, in search of an appropriate vocabulary [Zevi 1996, p. 431]: "It isn't necessary to be dreary to make a point, or to be profound to have something to say; some of the greatest insights in the world accompany a joke. And many of the mind-blowing ideas about futures in never-never-lands have originated off the pages of comic books and science fiction picture backs. Cartoons help discover the hidden realities of life, where straighter communications may fail" [Chalk 1969]. In this model of a city that is nomadic, transitory, interchangeable, imaginative, where chaos spontaneously regulates itself, the playful factor is dominant [Zevi 1996, p. 431], and the search for a practical dimension seems to take a back seat. The project

drawing, a physiological *medium* between imagination and reality, becomes here pure foreshadowing, shifting the balance between design thought and actual realisation of the idea towards a clearly utopist position. As affirmed by many, utopia is the distinctive feature that best synthesises the Group's work, which is mainly interested in a figuration appropriate to the space age and […] to the apocalyptic subtexts of survival technology [Frampton 1993, p. 332]. Archigram chose clearly, indeed ostentatiously the path of utopia" [Silipo 2005], which followed without hesitation, inventing a new catalogue of declaredly theoretical ways of living: utopia is an ambiguous term, perhaps applicable in a rigorous sense only to some of the Archigram Group's scenographies [Zevi 1996, p. 433].

Despite the controversial reaction to the project and its implicit values, the image of the *Walking City* soon took on an iconic value, becoming the symbol of a theoretical position and, more generally, of an entire era. More than twenty years later, the drawing of one of the urban units appears in the poster and the cover of the exhibition catalogue *Vision der Moderne* [Klotz 1986], organised in Frankfurt at the Deutsches Architekturmuseum. The evocative power of the Archigram Group's drawings, far-sighted outcomes of their own time and at the same time precursors of certain future evolutions of urban models and architectural thought results in the ability to synthesise a utopian dimension. A dimension that always animates man's aspirations, populating his imagination with futuristic, visionary habitats and feeding a significant strand of future architectural research. The legacy of the Group, which broke up in the early 1970s, can be seen in the work of its successors, first and foremost the Italian groups Archizoom and Superstudio, and in general in the approach of high-tech architects. A phenomenon that remained unmatched in the years to come, so much so that, half a century after the conclusion of that experience, Peter Cook himself states in a recent interview: "I think that we have probably never again had such a creative or exotic phenomenon in our lifetimes" [Cook, in Hobson 2020].

The drawings for the *Walking City* constitute a rich series: the one announcing the project is chronologically placed in an intermediate position since it represents the result of some preliminary studies aimed at composing the final plate. The irruption of the urban machines in the heart of a future New York, where these organisms coexist with pre-existing buildings that seem to have definitively abandoned their original function, is immortalised by choosing a realistic point of view at human height, as of an observer immersed in the scene. The drawing portrays the machines as they advance from the water towards the city; in the foreground, the respective telescopic arms connect them to each other to allow the transfer of materials, as in a pipe net system *ante-litteram*, metaphorically emulating a process of mutual nourishment. The framing is intentionally composed, as evidenced by two of Herron's study drawings, the first in red marker on paper (*Walking City Sketch From Ron Herron Sketchbook*), the second in pencil and pen on tracing paper superimposed on a photo (*Preliminary Layout Sketch For The Walking City In New York*, January 1963). The drawings of the *Walking City* set in New York are diverse; in all of them, the viewer's gaze sweeps closely over the scene, sometimes the viewer is placed in a position protected by a parapet with other human figures (*'New York' Sketch From Ron Herron Sketchbook*), other times the landscape is nocturnal and the urban machines tinged with coloured lights (*Walking City, New York At Night*). Even after the presentation on the magazine pages, the project continues to be developed and drawn. There are many drawings, both coeval and subsequent, relating to the detailed study of plan, elevation and section of the individual urban machine, also destined to become an iconic synthesis image. Similarly, there are numerous scenographic settings of the *Walking City* in different contexts, mostly realistic even if not unambiguously determined, such as in the desert (*Walking City In Desert*) or on the ocean (*Walking City on the Ocean*), but also in places suspended between reality and imagination (*Walking City Fantasy And Reality*), in non-anthropized landscapes (*Walking City, Mobile Capital City*), in atopic spaces (*Mobile City*, "Proposal for a nomadic city infrastructure in which urban utilities would not be tied to a specific location") or at rest (*Walking City At Rest / Night*). The project is also redesigned almost three decades later, on the occasion of the retrospective held in 1994, first at the Kunsthalle in Vienna, then at the Centre Pompidou in Paris [*Archigram* 1994] and finally, eleven years later, in Tokyo.

The imaginative power of Ron Herron's *Walking City*, with its atmosphere that still seems futuristic today, continues to inspire; many projects are based on it, not only in the field of town planning or architecture: for example, in 2011, the British digital art studio Universal Everything received an award at the *Ars Electronica* festival in Linz for a video that reiterated the title of Archigram's project, that stages the unstoppable walk of a machine with hu-

man features, technological and continuously changing in its geometries, advancing in a straight line towards the future [Marsala 2014]. Like the Archigram Group's many other prefigurations, which have clearly and intentionally remained on paper, *Walking City* testifies to the inexhaustible visionary energy that emanates from drawing, capable of nourishing critical thought, dream evocation and the utopian aspiration of man.

Note

The image *A Walking City* is taken from *The Archigram Archival Project*, run by EXP-Centre for Experimental Practice at the University of Westminster: http://archigram.westminster.ac.uk/project.php?id=60 (accessed 2021, December 3).

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VISIONARY DRAWING

Urban Visions

Contemporary Visionaries. Environment Concept Art's Imaginative Realism and Evocative Power

Barbara Ansaldi

Abstract

Imagining and creating new worlds has always been one of the deepest desires of mankind. Today as yesterday, the insatiable hunger of the creative genius characterizes the poietic activity of certain artists and architects who see the world in an imaginative way in order to give birth to original pieces of reality (or unreality). Reason and imagination freely interact in the artistic mind, decomposing and recomposing fragments of architectures, urban and natural landscapes to build new visions. The history of art is full of examples of visionary artists whose production was mainly devoted to the visionary representation of places such as the Baroque scenic designs by the Galli da Bibiena dynasty, the imaginary views by Piranesi and the masters of capriccio as well as the futuristic visions of Sant'Elia and Chernikhov. Similar experimentations can be found today in the work of environment concept artists operating in the entertainment industry: these artists create depictions of fictional universes characterized by an extraordinary evocative power, in which reality and imagination coexist. These contemporary visionaries can see beyond the visible, drawing from memory and fantasy, providing coherent and incredibly realistic pictures of imaginary places, to the point that they appear possible in the eyes of the spectator.

Keywords: concept art, imaginative realism, world-building, entertainment industry, visionary aesthetics.

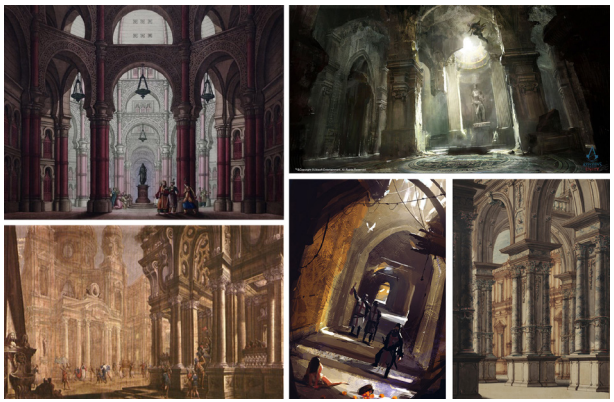
Introduction

"Anything that we can imagine can be transformed
into a visually convincing truth.
But even as we strive for verisimilitude
in our imaginative pictures,
it is really the invisible quality if believability
that we're ultimately trying to capture"
[Gurney 2009, p. 206]

Designing fantastic worlds and translating them into convincing bi-dimensional representations characterized by impressive evocative power and visual realism is an old and yet up-to-date artistic practice. The video game and film industry are growing fast, requiring a huge amount of multifaceted, talented artists who are able to shape and give life to fictional places, conveying a vision and setting the tone for the entire video game or film production. We are talking about the so-called concept artists, contemporary visionaries endowed with unlimited imagination, fine artistic skills and mastery of modern digital creative tools. Their visionary images are built by means of traditional graphic expression techniques (geometric perspective, aerial perspective, composition, value, lighting, theory of colour and chiaroscuro) and resorting to a wide range of artistic media. The evocative power of concept artists unfolds through perspective illusionism and rigour, monumental architecture, decaying ruins, infinite spaces, mind-blowing multiplying environments, endless landscapes, dizzying illusionism, unexpected encounters between distant ages, dreamlike background and unique

Fig. 1. Environment concept art by Jakub Różalski,

Fig. 2. Collage of theatrical sketches by Fratelli Bibiena and Sanquirico and two environment designs (top right: Assassin's Creed: Unity; in the centre: concept by Różalski).



light modulations. All these features build the visions of worlds which will host visual entertainment products: even though they only exist in the designer's imagination, these worlds look believable, authentic and coherent, especially thanks to a skilful use of perspective and an accurate reference study. Hence, concept artists stage either credible, dreamlike, unreal, utopic or dystopic fictional places that take shape right before our eyes, appearing as they could potentially exist (fig. 1). Environment concept art, just like the XVIII century theatrical sketches, the capricci, the piranesian carvings and Sant'Elia's city of tomorrow, are the result of the creative combination of natural and/or architectural forms. These images are able to unveil unknown layers of meaning, blending reality and imagination: they "stand out for their evocative power, and very often there is actually an evocation behind them" [Focillon 2006, p. 16].

Visionary artists across time

> "Close your bodily eye, that you may see your picture first with the eye of the spirit.
> Then bring to light what you have seen in the darkness, that its effect may work back, from without to within"
> [C.D. Friedrich cited in Hartley 1994, p. 29]

The need to give the products of imagination a visible and tangible form is always present throughout the history of art: "making realistic pictures from the imagination […] has always been at the center of what artists have done through history, whether they were painting pictures of Athena and Zeus or aliens and zombies" [Gurney 2009, p. 210]. This mainly concerns fictional worlds and imaginary places resulting from the poietic activity of the artistic mind which, by combining fantasy and reality, builds incredibly believable and realistic visions of places, despite being fictional. As the master of imaginary realism James Gurney points out, "as early as the Renaissance, artists perfected a step-by-step process designed to transform an imaginative idea into a convincingly realistic image" [Gurney 2009, p. 10]. Later on, the masters of Baroque and *quadraturismo* pushed forward the tradition of fantasy paintings, creating spectacular ceilings crowded with figures, creatures and architectural elements. The XVIII century was instead dominated by the dynasty of scenographers Galli da Bibiena and their renowned set designs in which they used to freely combine elements of late Baroque architecture with

suggestive theatricality and a monumental scale. Thanks to these amazing artists, the XVIII century theatrical sketches (bozzetti) achieved an unprecedented compositional, dynamic and spatial force: highly evocative fantastical spaces –which at the same time look surprisingly realistic– took shape on paper before being staged. The introduction of the *scena d'angolo* conferred the Bibiena' scenes an extreme dynamism and unlimited depth. The *scena d'angolo* was characterized by unusual angles and complex textures of diagonal lines which were able to make the eye of the observer bounce from one point to another, forcing it to wander around the setting (fig. 2). The angle position strengthens the illusionistic effect, also thanks to an efficient use of proportional scales so that every single detail of the painted scene is convincing [Giordano 2002, p. 21]. Such effects were further emphasized by extremely photographic angles: the corners and proportions of architectural elements are indeed located in the foreground against the light, an artistic device that was later taken up and enhanced at the beginning of the XIX century by Alessandro Sanquirico. In this way, the gigantic painted architectures seemed to stretch out to the horizon beyond the limits of the perspective window, while guiding the eye of the spectator towards the bright views of the painted backgrounds (fig. 2).

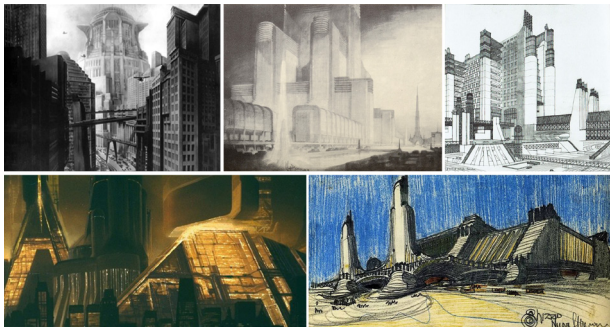
In this brief *excursus*, it is impossible not to mention XVIII century landscape art that, by leveraging on the *quadraturismo* tradition and perspective illusion, then evolved into capriccio, a refined imaginary veduta which expresses the artist's maximum creative freedom. In the capriccio, buildings, ruins and other architectural elements –either imaginary -fantastic or real-existent– are combined, dislocated, re-contextualized and revisited. According to Lucien Steil's definition, the capriccio is "a pictorial 'invention' creating an imaginary or 'analogue' reality by combining existing buildings or places with imaginary ones, shifting or re-organizing their locations and their groupings into uniquely suggestive visions" [Steil 2013, p. lvi]. It is not just a series of capricious, weird images but *capricci* instead follow the complex rules of figurative realism and representation, as well as coherent narrative and semantic. It consists of a dialogue between real and ideal, realism and fiction and, as Steil further points out, the *capriccio* "does not only serve to visualize, render and illustrate, but is dedicated fundamentally also to invent and to re-invent, to craft and paint in four dimensions (space, time, reality and imagination) architectural and urban visions, concepts and artefacts […], by multiplying layered relationships between buildings and spaces, city and countryside, history and politics, people and places, and so on, through a variety of narratives, images and scales, and within a dense metaphysical and mythological complexity" [Steil 2013, p. LIII]. Artists like Ricci, Pannini, Canaletto and Bellotto juxtapose familiar elements to unfamiliar ones, they modify their scale, combining them with fictional materials and assembling perspective-based pictures often in derogation from the geometrical-scientific method (fig. 3).

The suggestive angle perspective of the *bozzetti* and the visionary spirit of the capricci come together and harmoniously merge into the work of Piranesi, the unquestioned genius of visual trickery, the architect of dreamlike, mesmerizing images and maker of utopic visions of ancient buildings. Piranesi stages majestic and cyclopic architectures characterized by dramatic *chiaroscuro* contrasts, innovative angles and impossible scales. His architectural fantasies provoke a sense of loss, dizziness and instability

Fig. 3. On the left, concepts from Bloodborne (2015), Assassin's Creed: Valhalla (2020) and Assassin's Creed: Unity (2014). On the right, one of the Carceri (XVIII century) by Piranesi, Capriccio con rovine classiche (1723) by Canaletto and Parte di ampio magnifico porto ad uso degli antichi romani by Piranesi (1749-1750).

Fig. 4. Series of paintings called The Course of Empire (1833-1836) by Thomas Cole.

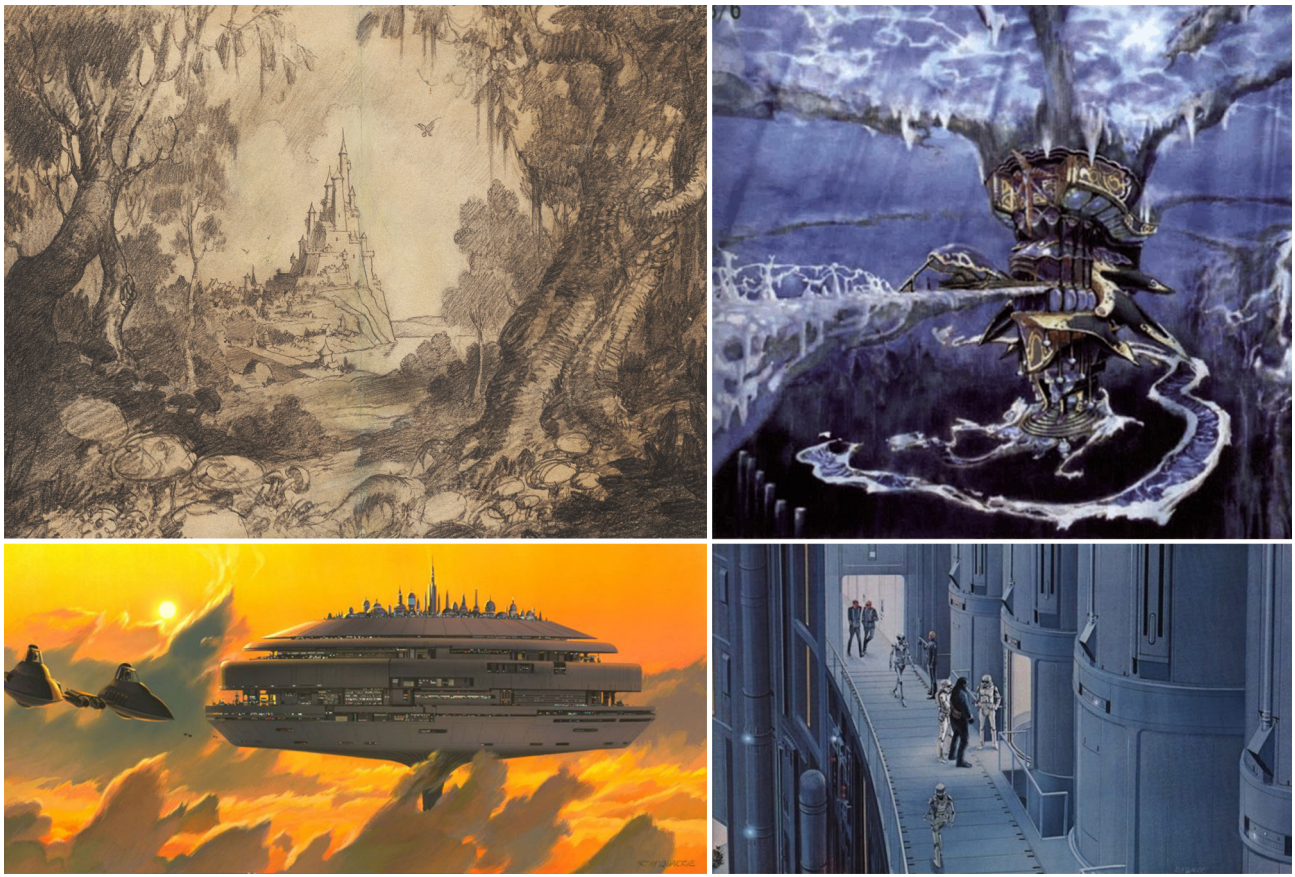
Fig. 5. Metropolis by Fritz Lang (1927); The Science Center by Hugh Ferriss (1929); Città Nuova (1913-1914) by Antonio Sant'Elia; concept art from Blade Runner (1982) by Syd Mead; Città Nuova (1913-1914) by Sant'Elia.



in the observer as in the famous *Carceri* series, an imaginary architectural adventure whose protagonists are aisles, beams, arches, walls, towers, hallways an d colossal platforms. These are places where the human figure is reduced to a mere background actor, whose only aim is to underline the cyclopic scale of the architecture and the dizzying width of perspective, amplified by a marked *sottinsù*. These gigantic masses, "perfect and phantasmagorical, overlap a chiaroscuro outline on the accurate and precise image of the object, giving them the esteem of illusion" [Focillon 2006, p. 50]. Piranesian architectures only exist in the drawings of their author: as a consequence, perspective serves as an instrument to render the artist's own visions in a visual and plausible form, which only exists on the bi-dimensional support. Even Romantic painters such as Turner, Friedrich and Géricault were moved by the spirit of the sublime to portray battles and shipwrecks known only to them from written accounts as well as spectral gothic nightmares and dreamlike landscapes: "the portray of a mysterious world, with an unusual and profound scale" [Focillon 2006, p. 15].

Romantic 'imaginative painting' [Gurney 2009, p. 11] in America was instead associated with the name of Thomas Cole, who produced a five-part series of paintings called *The Course of Empire*, which chronicled the growth and decay of a fantastical city (fig 4). Visionary aesthetics did not disappear with the onset of Modernism, but instead it flourished, transformed and revitalized in the XX century. Antonio Sant'Elia prefigured the architecture of the city of a sometime dystopic future, which inspired the famous series of drawing *The Metropolis of Tomorrow* (1929) by Hugh Ferriss, the spiritual father of *Gotham City* in the contemporary collective imagination. Sant'Elia was also the precursor of recurring futuristic city models in movies, ranging from *Metropolis* (1927) by Fritz Lang to *Blade Runner* (1982) by Ridley Scott. In the drawings carried out by Sant'Elia on the eve of World War I, the main protagonist is an imaginary city of tomorrow, "an immense and tumultuous shipyard, agile, mobile and dynamic in every detail" [Sant'Elia 1914] and a complex labyrinth of hybrid train stations, airports, skyscrapers, elevators, straights, underground galleries and metal catwalks (fig 5). While Yakov Chernikov's early architectural futuristic drawings were characterized by colored lines and refined abstract compositions, the Stalinist regime and World War II forced the Russian architect to leave the avant-garde movements, turning his architectural fantasies into darker, gothic visions. Moreover, Lebbeus Woods designed dystopic architectures resembling gigantic machines built with assembled recycled materials: his visions of cities overstepped the traditional notion of functional and rational architecture, opposing a form of creative destruction and re-construction. This brief investigation on visionary artists and imaginative painters throughout history is, of course, far from being exhaustive: however, the main aim of this paper is to highlight how the works of all the aforementioned artists share the same intent: cre-

Fig. 6. Concept art from Snow White (1937); concept art of the Temple of Macalania from Final Fantasy X (2001); two concepts from Star Wars (1977) by Syd Mead.



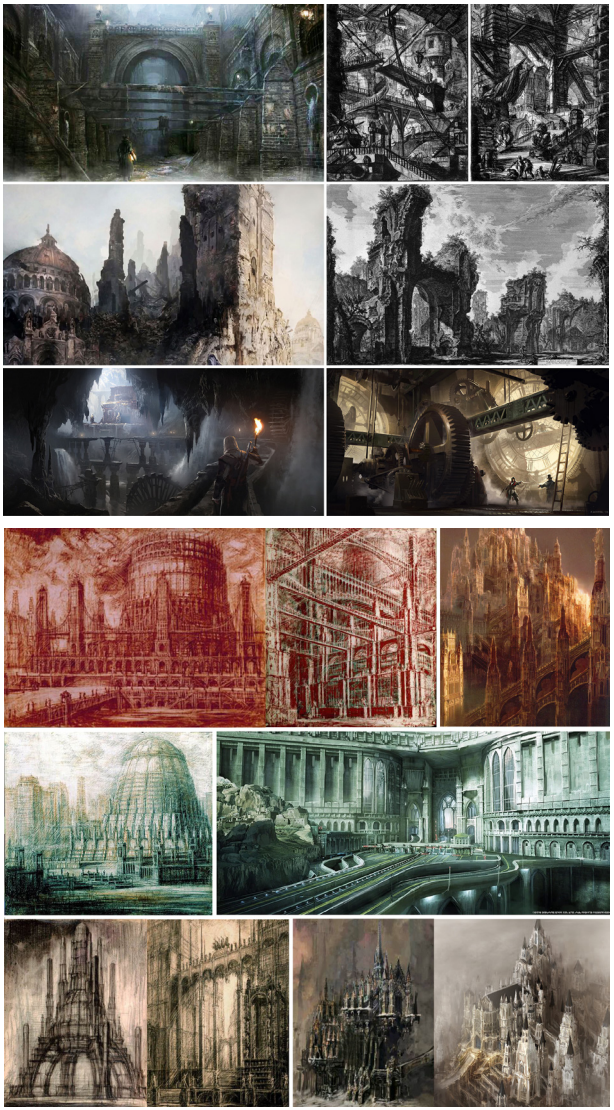
ating visionary representations of imaginary architecture and landscapes. Such visions are staged in a way that they appear as an authentic possibility: images and imagination, imitation and invention coexist in the same picture as these artists feel uncomfortable within the limits of space and time, since they are not satisfied with our universe [Focillon 2006]. The visionary representation of imaginary places, with all the described techniques and artistic devices, can be traced back until today in the works of environment concept artists, contemporary visionaries, and foreshadowers of imaginary places of our time.

Environment Concept Art for the film and video game industry

During the XX century, in America and Europe, new forms of visual entertainment like comics and animation emerged. In a very short time, "science fiction and fantasy films, computer-generated animation and video games eventually established themselves as culturally dominant art forms" [Gurney 2009, p.12]. To build their fictional worlds, visual and interactive entertainment giants started to employ countless talented artists capable of brilliantly combining a

Fig. 7. Left and bottom: concept art from Bloodborne, Dark Souls III (2016) and Assassin's Creed: Syndicate (2015). On the right: two engravings from the Carceri plus Rovine del Sisto (1765), both by Piranesi.

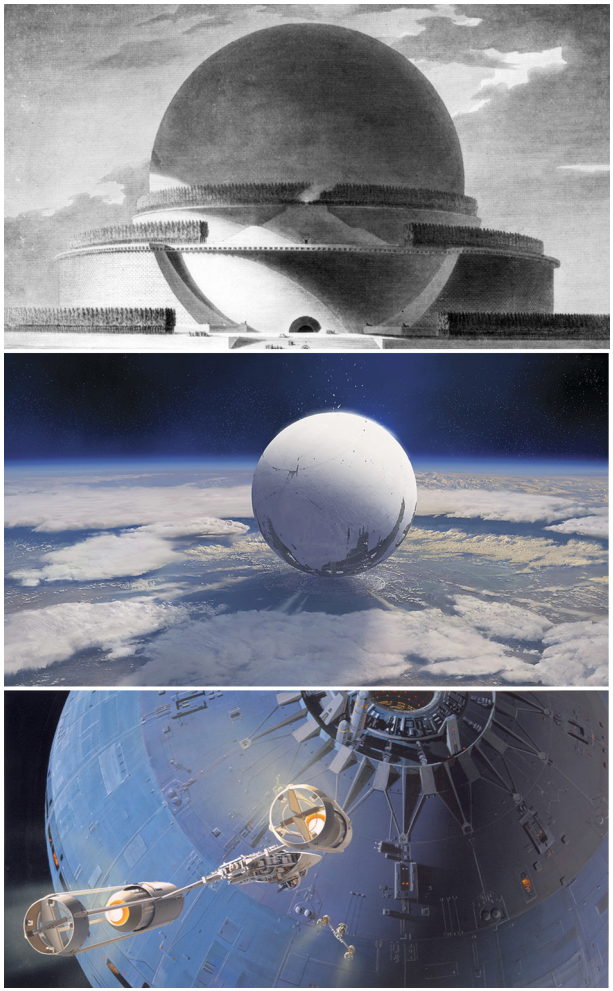
Fig. 8. Collage of architectural fantasies by Chernikhov (left); concept art from Dark Souls, Kinglsaive: Final Fantasy XV (2016) and Dark Souls III (right).



vivid imagination with refined and solid artistic skills. As of today, these artists go under the name of concept artists, a term which was apparently coined in the 1930s, during the production of *Snow White and the Seven Dwarfs*, the first famous Disney classic animated film by Walt Disney Animation [Ghez 2015]. However, their role was better recognized only in the 1990s thanks to colossal movie productions such as *Star Wars* (1977) and *Blade Runner* (1982) but also point-and-click adventure games such as *Monkey Island* (1990) by Lucas Arts and the renowned Japanese series of role-playing games, *Final Fantasy* (fig. 6). The term concept art, thus, refers to a form of illustration whose main aim is not to simply illustrate but to visually convey a concept, a design and mood of environments, characters, creatures, costumes, worlds, which provide the "visual architecture" of visual entertainment products (video games, films, TV series) [Ansaldi 2020, p. 980]. Hence, a concept artist plays the role of "visual problem solver" [Nelson 2019] among the visual development team. Environment concept art, as the term clearly suggests, is a branch of concept art that deals with the design and visualization of environments, landscapes, and architecture. The work of a concept artist fits into the pre-production stage, the most imaginative and explorative part of the entire development process. Their goal is to create impressive, realistic visions, giving the ideas of directors and game designers a visible form. These mostly bi-dimensional representations are so evocative and suggestive that they serve as a visual guide for the rest of the development team (3D artists, animators, VFX artists, lighting artists etc.) during all the following steps in the creative pipeline. Concept artists must be able to turn ideas into images, giving them a tangible and explicative form that conveys a precise vision around which all the efforts of the specialists involved in the production will revolve [Faini 2016]. Their imagination "not only is the power to create and unleash images, but also the capability to receive and to translate them as hallucinations: […] they don't simply 'see' the object, they envision it" [Focillon 2006, p. 15]. Environment concept artists combine, re-organize, overlap, transfigure, and reassemble fragments of architectures and landscapes never existed before or that could potentially exist as well as places belonging to past and present eras or to different geographical locations. This process gives birth to realistic and evocative visions of imaginary spaces, which is the goal of concept artists: they reach for a single credible, coherent, and convincing artistic vision.

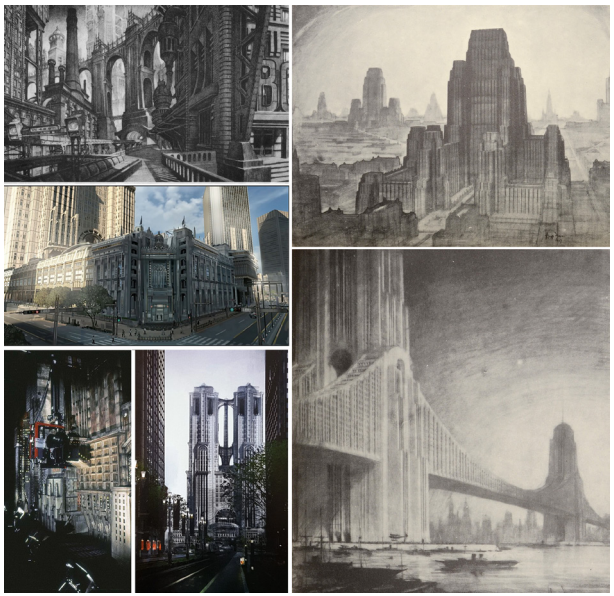
It is unquestionable to assert that there is a close continuity between the artists mentioned in the previous paragraph and the modern concept artists: concept art shares with the scenic bozzetto the role of "visual ambassador of ideas" [Pantouvaki 2010] for the development of the final product, while it shares with the other artists the visionary approach to representation and the creative combination of architectural, urban and natural elements. For instance, the influence of the piranesian imaginary on movies, comics and videogames is well known: we can mention Nolan and Myazaki' productions, François Schuiten and Moebius' comic strips as well as famous video games like *Ico*, the *Assassin's Creed* saga, *Bloodborne* and *Dark Souls*. Piranesi's *Carceri* with his infernal machinery like wheels, leads, pulleys, levers, chains, and scaffoldings undoubtedly have their counterpart in the settings of the mentioned video games, full of traps, elevators powered by ancient machinery, labyrinths and platforms intersecting in dark and cavernous spaces. The *Carceri* can enchant and disorient, making us feel as "lifted on a huge scaffolding or a fragile catwalk, suspended on an endless night, crossed by beams, cables and chains, full of shutters and funeral stones" [Focillon 2006, p. 51] (figs. 3-7). Environment concept art from *Dark Souls* and *Bloodborne* also shows clear resemblance to the work of Yakov Chernikov: the endless spires and buttresses of Anor Londo, Yahrnam and Lothric are an explicit reference to the late works of the Soviet constructivist. Many references can also be found in the imaginary metropolis of Insomnia from *Final Fantasy XV*: in these imaginary cities, order has been sacrificed after the encounter with the sublime, which allows the exploration of the unknown labyrinths of our mind [Barzan 2015] (fig. 8).
It is no coincidence that monumental projects of architects such as Etienne-Louis Boullée are an explicit inspiration for many pieces of environment concept art: Boullée's perfect spheres and pyramids look like big sci-fi buildings reminding of space stations or alien monoliths. A reference to the *Cenotafio di Newton* can be found in the *Halo* ring-shaped world, in *Destiny*'s Traveller as well as in the iconic Death Star from Star Wars. These empyrean structures all seem to refer to a transcendent truth: as it often happens with impossible structures, essential and perfect forms can generate a distant sense of pure grandeur (fig. 9)
The dystopian genre, both in films and video games, owns much to the futuristic urban imaginary created by Sant'Elia: as already pointed out, Fritz Lang and Hugh Ferriss were the first to understand its visual strength and in their turn

Fig. 9. Cenotafio di Newton (1784) by Étienne-Louis Boullée; concept art of The Traveler from Destiny (2014); concept art for Death Star by Ralph McQuarrie for Star Wars.



they both became the inspiration for many other sci-fi masterpieces like *Blade Runner*. Ridley Scott's transfigured Los Angeles definitely looks like a tribute to Sant'Elia's visions, just like many similarities with urban landscapes from *The Metropolis of Tomorrow* by Hugh Ferriss can be found in recent titles, like *Batman* (1989) by Tim Burton and *Final Fantasy XV* (2016) by Square Enix. Moreover, in the urban dystopias of Gotham City and Insomnia, various architectural styles are blended, gothic architecture and art deco in particular (fig. 10). Dystopic visions of a fictitious past are instead the trademark of the art of Jakub Różalski, the visionary Polish artist whose works inspired and shaped the imaginary world of the board game *Scythe*. Różalski stages a universe called *1920+*, an alternative vision of history, a timeline in which the age of the Polish-Soviet War incorporates sci-fi elements like dieselpunk or steampuk airships and, most of all, mecha, giants war robots or machines controlled by people that abruptly break into peaceful idyllic landscapes. Such images remind of Lebbeus Woods's mechanical architectures which climb or cling to buildings and landscapes (fig. 11). As Woods stated, these artists are at war with their time, "with history, with all authority that resides in fixed and frightened forms" [Woods 1993, p. 1].

Fig. 10. Collage. In the left column, top to bottom: concept art for Batman (1989) by Tim Burton; concept of Insomnia for Final Fantasy XV; set for Batman by Burton and a frame taken from Kingslaive: Final Fantasy XV. On the right, two drawings from The Metropolis of Tomorrow (1929) by Ferriss.



Building visions through referencing and thumbnailing

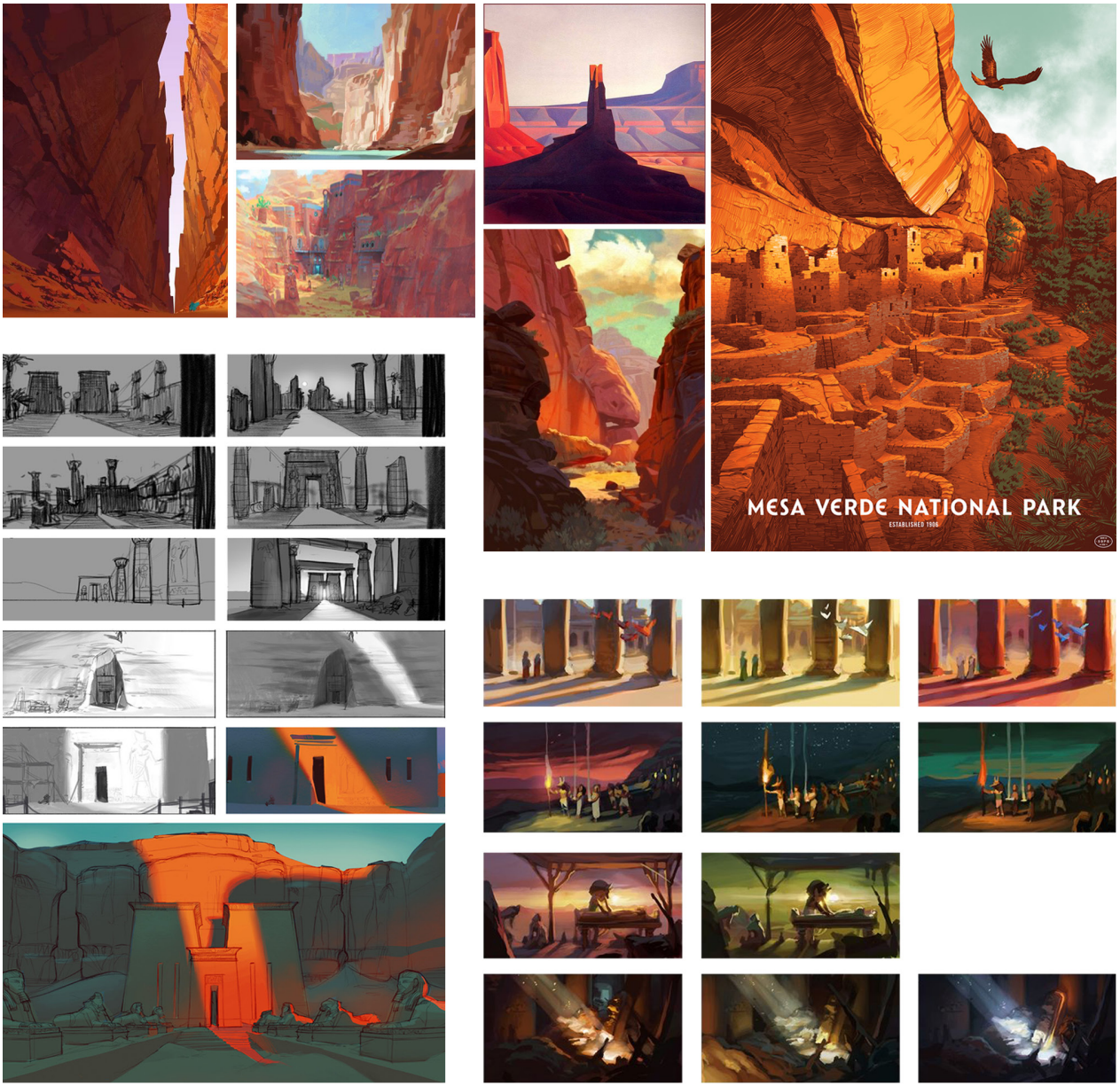
> "The obsession of the visionary artist turns out to be creative: it needs to enter the sensible world, taken as a starting inspiration as well as a destination […] which can be transfigured but still respected. This is the origin of its fertile innovative power and its tendency to oppose representation and suggestion" [Focillon 2006, p. 65]

Building visionary pictures of fictitious spaces and places hardly ever is the product of pure imagination: as already stressed, knowledge of reality and imagination constantly interact in the artist's mind. The visionary images of concept artists always have their roots in the real world, although they may be more or less hidden and deep. As Focillon argues, "this phenomenon is not pure: there's observation, reconstruction, […], evocation and intersection of images" [Focillon 2006, p. 17]. Indeed, environment concept artists constantly train their ability to create convincing representations through the study of references and the iterative practice of thumbnailing (or thumbnail sketching) (fig. 12). The embryonic stage of the creative process of a concept artist is based on a thorough search of references (referencing): such formal study is for them "a starting point for evocations that –beyond space and time– can awaken the rarest harmonies, both in their genius and inside of us. Sometimes these visions are enough for themselves, sometimes they overlap with the universe, expanding and deepening it" [Focillon 2006, p. 18]. This implies a constant update of their visual repertoire of ideas in order to facilitate the process of evocation and combination of real-life elements in a creative, original and meaningful way. References such as photos, illustrations, drawings, and inspirations are usually collected into mood boards focusing on a specific theme; mood boards fuel creativity and stimulate the flow of ideas, serving as visual databases of forms and aesthetic themes to draw from. These libraries of references are basically the virtual, digitalized version of the precious heavy folders containing all kinds of visual inspirations in use by artists before the digital age: drawings of histori-

cal periods, artworks by other illustrators, photographs, travel diaries and collections of images piled up during years of research and personal annotations. Concept art is therefore the result of the inventive combination of natural and/or architectural forms: it adds imagination and fantasy to the traditional representation of landscape and architecture. As Gurney argues, "in most fantasy or science fiction, some things are completely invented but the majority of elements […] are no different from what we see around us every day" [Gurney 2009, p. 140].
The so-called thumbnail sketches are instead tiny, loose, scribbly sketches used to plan the composition of the final image. Keeping them small avoids getting too caught up with detail during the first exploratory stage of the creative process, so that it is instead possible to consider plenty of ideas and variations in little time. This allows to focus on the tonal structure, technically called value composition (or value sketching), which is the foundation of any picture [Gurney 2009, p. 31]. "Value sketching" consists in laying out –in grey scale– the composition's main masses (foreground, middle ground and background elements), relating to the distance of the surfaces of scene objects from a viewpoint, where further surfaces are darker and nearer surfaces are lighter. This provides a depth map of the environment, supported by aerial perspective which further clarifies composition and spatial organization. This stage can be basically considered as a visual brainstorming for which different ideas are quickly explored through small thumbnails where the main shapes and masses are sketched in a clear and concise way. The variation on the same theme allows saving time and effort by identifying the most convincing solutions which deserve to be further analysed and developed while abandoning the weaker ideas. It's a crucial preliminary study aimed at controlling the final image composition, in order to shape the overall atmosphere of the evoked environment. Thumbnail sketches are laid out following the traditional principles and rules of composition, which are aimed at guiding the observer inside the environment. These sketches also provide a preliminary light study (lightning) of the scene. Indeed, light embodies both the evocative power and the ordering force that are so dear to visionary artists. Through thumbnailing, concept artists can eventually explore multiple alternatives for light sources (punctual or diffuse) and their intensity, while also testing possible

Fig. 11. Concept art of The Vault from Half-Life: Alyx (2020); Zagreb Freezone (1991) and Projects for Sarajevo (1993-1996) by Lebbeus Woods; cover of Scythe by Jakub Różalski.

Fig. 12. Examples of referencing (top), thumbnailing (left) and lighting studies (bottom right).



light effects (reflections, glares, contrasts etc.) and arrangements. The emotions conveyed by the final image are indeed strictly linked to the interplay of light and shadow: light "can make whole worlds come to life or fade away" [Focillon 2006, p. 27]. The point of view is accurately chosen to reinforce the unfathomable aura of mystery that envelopes the origin and purpose of the place depicted in the artwork. The piranesian human figure is again present within the represented sceneries with the sole purpose to better highlight the majestic scale of the breath-taking environments. Finally, the most convincing ideas are brought to the next stage to guide the choice towards the final image, which will result in an extremely evocative and suggestive picture.

Conclusions

The purpose of this paper is to trigger a debate on Environment Concept Art, an art form through which imaginary places are invented and graphically rendered in the film and video game industry. Thanks to the endless potentialities of human imagination, the graphic-artistic language becomes the language of creation and of visual expression of narration. Working as a concept artist is now a widely acknowledged job for which many training courses are active both in Italy and abroad: however, very little has been discussed about the theoretical aspects and educational-methodological opportunities of this artistic phenomenon which draws on visionary aesthetics and on the work of many notable visionary artists from the past. As Chernikhov stated, "architectural fantasy stimulates the architect's activity, it arouses creative thought not only for the artist but it also educates and arouses all those who come in contact with him; it produces new directions, new quests, and opens new horizons" [Chernikhov 1933, p. 11]. Concept art adds the fantastic dimension to the annotation of real-life data by intersecting knowledge of reality and imagination: this results in decomposing the visible world to reassemble it into a new whole. Visionary artists "help us defining art as a heroic obsession, to see aesthetic imagination not only as a simple predisposition to perceive, organize, fix and externalize but mostly as a power of transfiguration, that seeks out and spontaneously creates its own technique" [Focillon 2006, p. 65]. Spaces and places which only exist on an imaginative level, eventually appear possible and believable thanks to an evocative and coherent representation supported by the illusionistic power of perspective. Concept artists' visions forge the mood, atmosphere, and sense of place of the fictional universes that host and fuel the cinematic action or the gaming experience. As the boundaries between motion pictures and video games are increasingly blurring, whatever direction the new forms and technologies of entertainment will take "they will need artists who can translate concepts and ideas

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The Nearby Galaxy. Project for Four Forests and Settlements in the Markermeer, OFFICE Kersten Geers David Van Severen

Laura Mucciolo

Abstract

In 2007, OFFICE Kersten Geers David Van Severen presented the project OFFICE 37 – A Green Archipelago, *a dwelling prototype involving four forests with their respective settlement systems on the artificial Marker lake in Holland. The four forests were represented as islands (or barges) occupied by a dense mesh of trees in parallel rows and at a distance of 10 meters from each other. Within the forest a system of partitions, parallel to the* dispositio *of the plants, replicates the structure and articulation, translating the materials and thus determining the spaces for the human settlement in the form of a variation of a courtyard-house; vast voids interrupt the anthropic and plant mesh, deriving into two compositional possibilities, both based on subtraction: settlement along the fringes and central settlement, accommodating in this way collective functions, all indicated with the comprehensive term 'care', theoretical variation of the space for' curing' (care/cure).*
The representation through a mutually reciprocal rationale of the spaces (black-exterior, white-interior) generates a shift in the reported signifiers, declaring by way of a series of images that are preliminary to the project, of collages which become true and proper tools within the process, to already be on a journey: the 'controlled hallucinations' are the results of the inquiry concerning both 'sensation' and 'perception'. OFFICE has imagined another galaxy, one nearby, the one next to us.

Keywords: project, settlement, forest, OFFICE Kersten Geers David Van Severen, visions.

Introduction

"Should architecture deal with architecture?"
[Geers et al. 2017, p. 7]

If visionaries "interpret rather than limit, and transfigure rather than interpret", they possess instruments which are in some way off-axis with respect to the common feeling of their time, to such an extent that they live in this sort of detachment, even when standing on the same spot as others, reporting what they have seen and heard, through scenarios that are hard to believe: they are considered as 'travelers' returning from territories about which precious little is known, and what is known has been learned through their eyes. Beginning with the gamble of dwelling on water, *OFFICE 37 – A Green Archipelago* introduces in the debate some themes that have been translated into architecture through 'deconstructed' representations: the lake painted in © Lucas black and the proposal of long strips in Superstudio white. The suggestions concern the construction of a dwelling balance that looks to the future, rather than to the minimum necessary for satisfying the requirements of the project: anticipatory visions of contemporary trends, cloaked with the exploratory thrust that characterizes the project as a research activity.
The identification of the soil to preserve, the human settlement articulated according to rationales which are no longer urban, although still using the dictionary of the city (*polis*, courtyard house); the human presence as settlement necessity and the application of collective instruments as centrip-

Fig. 1. Bramante, Church of Santa Maria in San Satiro, (Milan), 1482. Central nave and False Choir.

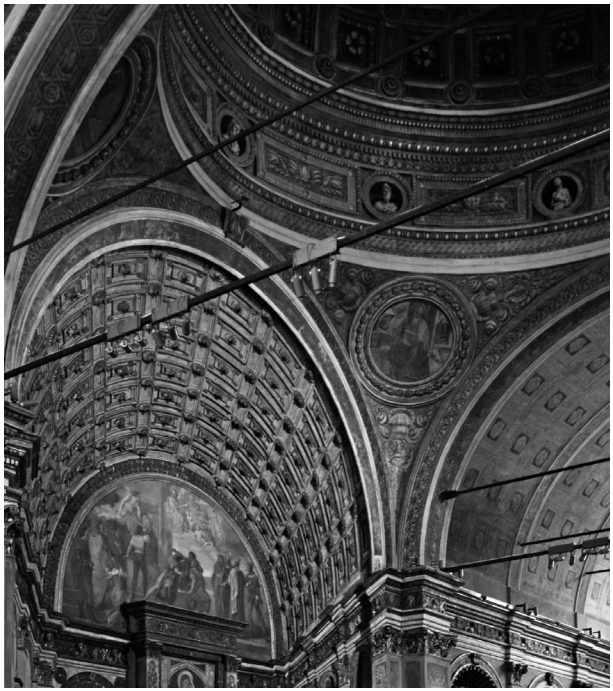


Fig. 2. Bramante, . Church of Santa Maria in San Satiro, (Milan), 1482. Detail of the False Choir.

etal condition of the settlement. These are the theoretical cornerstones of the project. Introducing theories is a practice in support of the operative component of architectures which, left to their own devices would only say themselves, or rather, would let the discussion regarding the project that defines additional fields of research die out; in this way the project is forced to take on other burdens, to carry out other erasures, to signify more than just its presence against gravity. Becoming theories, for some projects, means investing and being invested in them, giving life to tangible documents of existence. Codifying experiences of the project and observing the validity of the multiple possible tools for attaining it, thus constructing a 'way', actions that challenge applied theories, in other words, at certain moments verifying their premises, three of which can be identified here: 'before the project' (without perception), 'during the realization of the project' (opportunities), and 'towards the end of the project' (what end?).

Questions of method: a library of projects

'Before the project' (without perception). The fundamental division of dwelling into two practices, to accumulate and to let go, drives you into a corner. Experiences escape this choice, they accumulate anyway, without the voluntary possibility of giving them up; experience is made (of spaces, of constructions, of hypotheses) and this emerges overwhelmingly when thinking about space, when defining margins and stage sets in which something, sooner or later, will happen. Before the project is a plural space of added times: they always begin twice, first in a far-away time, even in the womb, and then when their perception is acquired. Positions in space, accumulations, destructions, absences, moments which individually have no meaning, yet acquire it through the collective reading, in the act of being together ordering again the pieces on the table.

During the execution of the project. The opportunity (often fortunate, always rare) is the recognition of a transposition into a fair copy, of a concrete possibility for reasoning by spaces built through the use of tools. The use of these instruments verifies infinite paths for following projects which have not yet seen the light, all ghosts that are instrumental to the ultimate project.
'Toward the end of the project' (what end?). 'Toward' is a time, and especially a spatial direction, such as that which *une Architecture* had in 1923, an indication, not too precise, of a geographical point that marked the epilogue of the stories and, consequently, of the projects. Often there is no end, the end of a project rarely coincides with the end of its probable worksite, with its execution; often projects, especially those that were never realized, follow each other and return onto the worktable, changing positions, roles, appearances, confirming their usefulness as episodes in processes of applied research.
'Before the project'. The launching of studio OFFICE Kersten Geers David Van Severen took place when there was still no physical ship, yet the premises that united by necessity the two authors were taking shape in a reconstructed Los Angeles, an imaginary city distorted by redundant presences, "a fascination for a strange technicolor place" [Geers, Van Severen 2019, p. 182]. Los Angeles, visited in 2002 on the occasion of the project entitled *OFFICE 5 – Showroom* [1], for the co-authors of the studio gathers together the entire decade that goes from the late Nineties to the early years of the 21st century: the possible America (past and future), Mies' forgotten collages [2], the Madrid school with Ábalos e Herreros [3], the Rome-Prato-Milan inventions by Bramante, Ruscha's gasoline stations and Hockney's swimming pools.
'During the execution of the project', opportunities. The 2007 competition required theoretical and design-related reflections regarding the possibility of the 'cure' envisaged into the future (understood, in the words of the competition as 'health-care', 'cure' and 'care'), in fact including the need or not of the hospital space as a space for curing; the discussion involved the recognition of the state of illness as a temporary and cyclical episode in the life of an individual, which entailed the progressive loss of significance of the hospital as it had been understood up to that moment.
A search for design principles that can respond to the needs of the contemporary, challenging the use of static and obsolete spaces, based on the need to merge areas of care for large numbers of individuals working for collective masses, defining density differences with respect to the scale of the settlement (whether urban or non-urban).

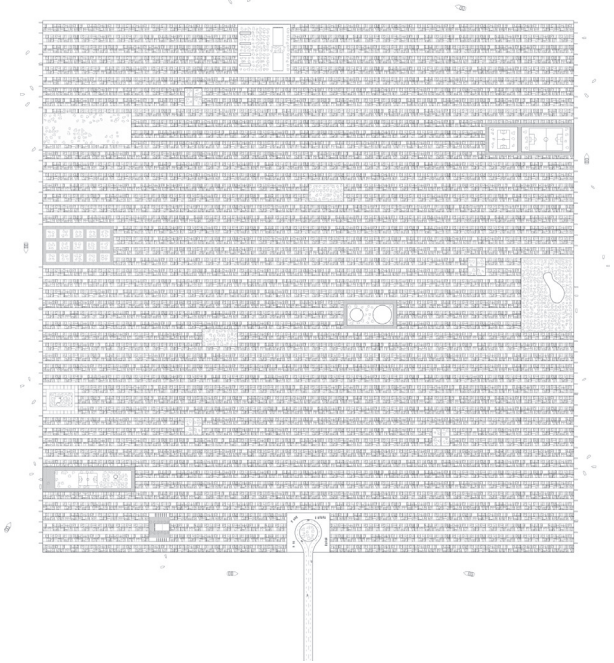


Fig. 3. OFFICE Kersten Geers David Van Severen, OFFICE 37 – A Green Archipelago, 2007. Masterplan.

Fig. 4. OFFICE Kersten Geers David Van Severen, OFFICE 37 – A Green Archipelago, 2007. Detail of a barge plan.

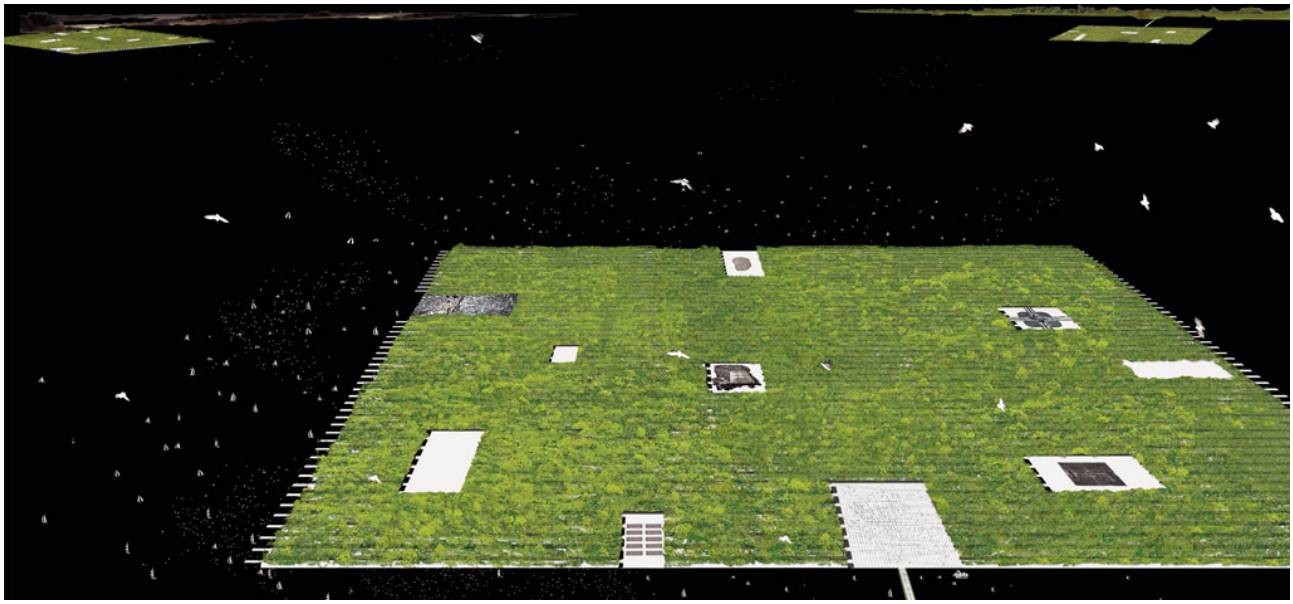


Fig. 5. OFFICE Kersten Geers David Van Severen, OFFICE 37 – A Green Archipelago, 2007. Overview.

In terms of the competition, the premise is the interpretation of the space for care [4]; OFFICE reorders the reasoning, replacing the subject of the project, the space of dwelling, in which 'cure' is solved with additions, within the space of the house, of new areas that take on (for that nucleus) functions which once were collective and now have been abandoned. The overturning of the functions entails a transformation of the architectures: a collective spatial environment that is incapable of fulfilling its role for an increasingly larger public (hospital), is substituted with the exponential multiplication of gradually reduced spaces that serve minimal nuclei and determine new extensions to the space of the house (courtyard house), proposing an additional task which dwelling must attempt to address.
The proposal entitled *OFFICE 37 – A Green Archipelago* has interpreted the project through three hypothetical conditions that refer to an equal number of theoretical dynamics: 'inventions', 'settlements', 'images'.
'Inventions'. The identification of new territorial contexts located elsewhere with respect to already built territories, to be created from scratch using as new ground the artificial Marker lake, surrounded by land which resulted from a land-forming operation (reclamation). These new platforms are measured in kilometers, interrupting the relationship with the meter, and in a certain sense with a measure that man can be capable of perceiving: the nature of the reference, although not declared, is that of the floating barges, in the extension within the project of the spurious grammar of mooring, in the invention of a territorial ramification that, by necessity, extends so as to favor the settlement, in those places which would be impossible to inhabit without architecture.
Between the pontoons arranged in the form of an archipelago and the artificial lake there exists a relationship equal to that which exists between content and container: each island of the archipelago uses the water as a frame, highlighting the extraneous nature of Cyclops' rafts while legitimizing their presence; conversely, the rafts add new conditions of depth to the flat horizon of the lake. Between container and content, the relationship which already exists in the construction of Bramante's 'fake' choir on the back wall of the church of Santa Maria in San Satiro, Milan is reaffirmed (figg. 1, 2). The depth set in play by the barrel vault with the coffered ceiling

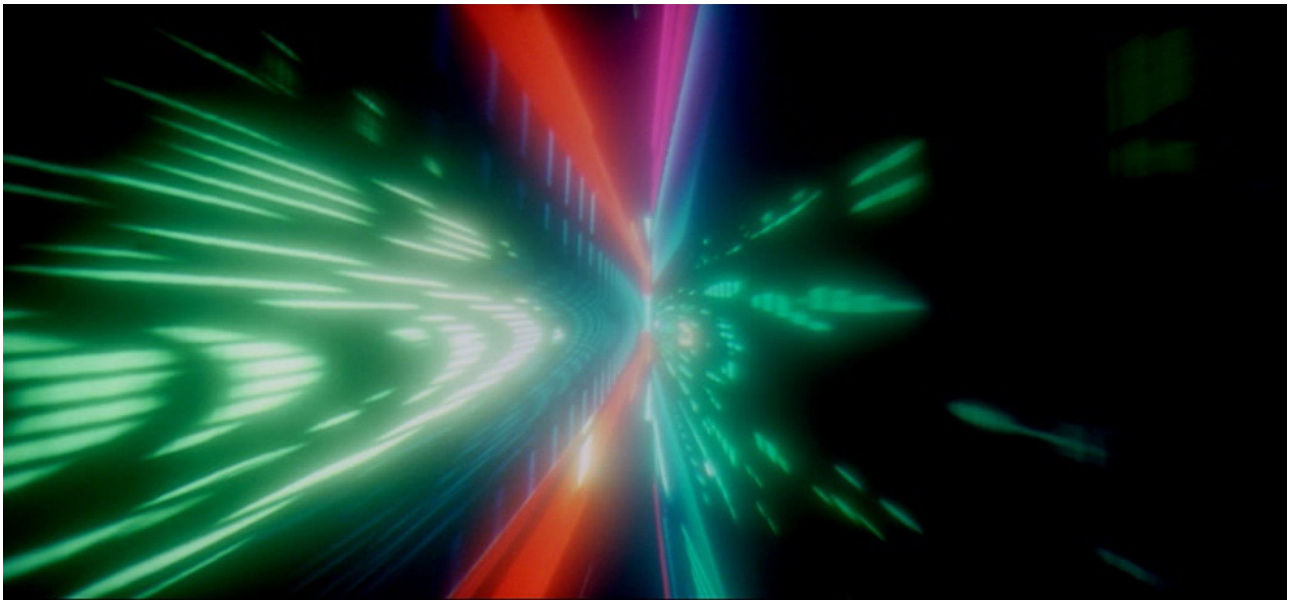
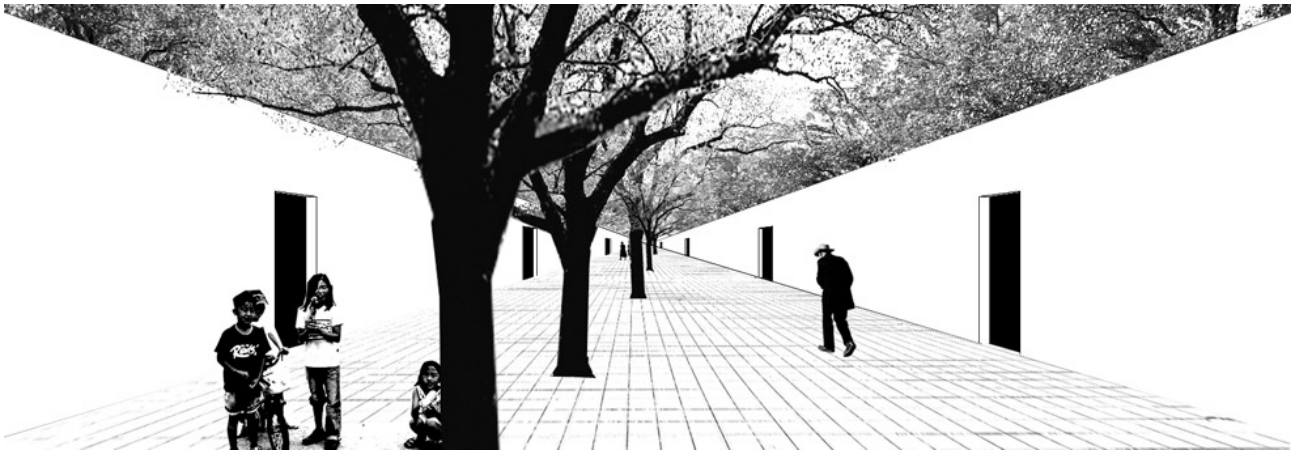


Fig. 6. Energetic luminous sequence from Jupiter and Beyond the Infinite, from the movie 2001: A Space Odyssey (S. Kubrick 1968, USA/UK).

determines space contexts which would be impossible if not by way of an invention; the approaches to the wall break the illusory relationship, giving meaning to the word 'fake' and they open a waltz of diagonal steps in the direction of the sculptural work so as to verify the relationship between the wall and its axis.
The white holes in the grey lake (fig. 3) identify four potentially deep areas whose spatial features cannot be revealed at the planetary scale; also here, the approach (which takes place through a 'zoom-in', by way of further readable project scales) reveals the inconsistent depth and the very clear, repetitive and 'almost' flat composition.
The reference, in this case, is not to be understood as a listless celebration or as a re-evoking of themes, but rather as the use of Renaissance-related references, which become an adaptation of the spatial theme into new configurations, articulating at the level of the plan a naval battle between giants.
'Settlements'. Proceeding by scalar enlargements, the structures of the barges, 1.5 kilometers long, connected to the mainland by way of a single road, is revealed: a serial composition based on the alternating repetition of double rows of courtyard house per settlement and anonymous strips (with set heights and fronts), used for slow traffic, for moving within the island: at both ends of the barges docks are located for access by water. Vast voids (square rectangles) within the structured and saturated space are taken for housing 'collective' spaces (such as covered swimming pools, parks, public and commercial spaces, sanatorium, cemetery etc.).
A precise *dispositio* of trees is placed in the middle of the strip, articulating the geometrical relation of the barge and defining a translation into plants of the partition which, as a continuous front, is interrupted by 'green' pauses.
The presence of anthropic plants is a plinth for the barge, in the *Overview* image: the composition of the project, or of its parts, is not understandable, only the structured turf which governs the space, in which the 'green' color clashes with the black lake on the background, despite the fact that the sign of the anthropic presence has been established (fig. 5).
The project, which originates as a proposal for the interpretation of the space for 'care', clearly becomes an alternative to urban space; new grounds to be colonized, the response of the project through a controlled density dwelling type (every

barge is intended for a maximum of 10,000 inhabitants) with shared collective spaces (both the large voids in the barge and the strips which, as anonymous and reiterated interiors, determine an architectural scene to inhabit). The adjective 'visionary', which we are analyzing here, and which in this specific case lingers on the project's drawings and communication, cannot but refer as well to the insight of a space that –already fourteen years ago– challenged the reiteration of spaces that were no longer usable for rather concrete reasons –soil, materials and their restoration, maintenance, re-use– (such as, precisely, hospitals, etc.), and especially the need to move and settle as a collective; an overcoming of the urban is proposed through the ex-novo construction of territories, as a necessary alternative for settlements. "the future is not as much about the territory within the boundaries of the islands […], as it is about really engaging with the systems in which the islands float. […] You can employ relatively small-scale platforms to transform vast territories, as opposed to actually design[ing] vastness" [Callejas 2013, pp. 50, 51].
The core of the project, the sense of the archipelago, does not concern so much the project of ungoverned areas (terrain, vagues, vastness) or their boundaries, as much as the introduction or identification of architectures in middle spaces which, as mediators, allow inhabiting (in this case extra-urban, sub-urban) also places where dwelling would appear to be impracticable.
Going beyond the imposition of the orderly, safe 'zones' of the Modern, indeed generating noise –attractive noise– through the intermingling of parts and ages, a new state of art is envisaged, which no longer mentions the city, but rather a settled and 'isolated' collective, a community that is organized into islands which, albeit loosely, are in relation to each other.
The project, already in its name, anticipates the exercise of the 'usage' to which OFFICE continuously refers, retaking part of the title of the project *The City in the City: Berlin as a Green Urban Archipelago* (1977) [Ungers et al. 1977]. This truthful quote would make almost any additional narrative inappropriate, what does deserve to be further analyzed in depth is the evident scientific method which, apparently is anything but scientific. This anticipatory capacity, which in the past also belonged to augurs and haruspices, includes the possibility of making predictions, anticipating trends, constructing projects capable of grasping directions that have already been undertaken; OFFICE's dowsing activities, through the reassessing of projects which have 'guessed' a direction, insists precisely on assuming that path as the basis for bringing about a revision that is capable of constructing new historical stages. "This lesson is made mostly of simple drawings. The reason behind this is that science, before being experiments, measures, mathematics and rigorous deductions, is mostly visions. Science is mainly a visionary activity. Scientific thought feeds on the capacity to 'see' things in a way that is different from how we saw them before" [Rovelli 2014, p. 31] [5].

Fig. 7. OFFICE Kersten Geers David Van Severen. OFFICE 37 – A Green Archipelago, 2007. Street.



As said above, the thin thread of dust that links drawings, projects and visions regard the scientific models which prepare the research activity to see –in other words, to accept the vision– as an anticipatory fact, that is not the result of divination, but rather of training, that is increasingly reproducible, and for this same reason, scientific. The mere possibility that a theme (such as the archipelago, in this case) has traversed eras, minds, environments, roles, cities, projects, architectures, confirms the effective utility of the tool, capable not only of anticipating trends, but also of changing shapes, of allowing adaptations, precisely like the cells in the body.
The merit of studio OFFICE lies in this ability to practice variation, in a formal inclusion that is not lost in empty formalism, and in the admissibility of models as applied research, independently of the eras in which they appeared.
'Images'. The communication of the project refers back to technical devices which had been used also by Bramante: the plan of the barge, although not equipped with conditions of axial symmetry, is presented through the crafty design of the 'half' plan [Geers et al. 2017, p. 84]; this method, already used by Bramante for the project of St. Peter [Borsi 1989] is used in order to save space without repeating itself, implicitly declaring a scale issue (sought for) in the project; the authors operate in conditions that cannot be overlapped, but they are rather parallel, in which out of scale and solid-void relationships coincide –although in the absence of a central 'pivot' space in the case of the project *OFFICE 37*– so as to adopt similar resolutive devices as forms of communication of the architectures.
In the same way, the order is disrupted in the transition from two-dimensional black/white drawings to the representation of the project through 'collages'. The 'collage' is a constructed scene that resolves, anticipates and prefigures in a plausible, albeit somewhat 'bizarre' or 'imprecise' manner some 'pieces' of the project, and which due to this role places itself at the opposite pole of the diagram. If diagrams, more so than the project, look to a range of possibilities, to the project as 'option', within which space remains valid and fulfills the required functions, the 'collage' is a "perspective representation of a true and proper architectural project, previously anticipated in its parts with drawings that are aimed at defining its features in plan and elevation" [Bruschi 1977, p. 39]. This pre-figurative direction, that of "resolving architecture through 'painting', through a prevailingly visual image that is dynamically active in space; of transposing, that is, the concrete given into fantasy, transforming it into an apparition, a spectacle" [Bruschi 1977, p. 44] referring back to the same intentions of the *Prevedari* engraving, giving the impression of space in its realization, in its 'solution'. Bramante, devising images of spaces 'out of necessity', adopting tools which he already possessed in order to translate them, as Borsi points out, he "comes to architecture by way of painting" [Borsi, 1989, p. 49], thus also OFFICE adopts these methods, determining a 'way'.
The pictorial influence (Hockney, Ruscha), the transposition of the pictorial imaginary as a device that makes up for the structural lacks (as in the case of Ábalos e Herreros), the rediscovery of Bramante [*Bramante* 2015] as a 'borrowed' architect, constructor of ghosts on the imaginary Rome-Prato-Milan motorway, re-situate the experience of the studio, identifying as in Bramante [6] not a 'language' (in other words a codification of ordered, structured, reiterated conditions), nor a 'manner' (in other words an ensemble of self-celebratory, and on occasion ego-referential, conditions), but rather operations that are adopted, 'used', appropriated and re-used 'out of necessity', updating which re-interpret a 'way' of proceeding within the discipline of the project.
The use referred to is not a gentile but rather a tribal practice, which re-proposes actions, spaces, projects, objects ready for use, without any sugarcoated distinction between the parts or special protection cases for historicized contexts; everything is rediscovered as ready to be used and re-used, catalogued with an ordering will (as communicated by the numbers assigned to the projects) and at the same time, upset by the chaos of these same codes, which follow an unresolved numbering system [Borasi 2017, p. 10]; everything is equal to that which stands next to it in the shelving unit of the studio: Bramante side by side with project *OFFICE 5 – Showroom*, Kircher under *Exodus, or the Voluntary Prisoners of Architecture*.
On the shelves of the office based in Bruxelles, cultural and architectural references can be found, sedimented, which help to place the authors' interest in other authors and architectures in greater detail, better circumscribing works and areas in a denser context: America and Mies [Geers 2011] [7], Stirling [Geers 2014], Rossi [8], Bramante (as in this case), constitute research experiences that, if apparently disconnected, identify intervals of time and spaces of works adopted as models and cultivated until they become essentials accumulations.
The accumulation principle that accompanies usage does not produce systematic collections with an accurate method, whose purpose is to astonish, there are no glass protections for the reference, the aim is not to build museums of

the past, but rather *libraries of projects*, tracing back in time 'good' examples to tap from and whose purpose is resolved through usage, which often has more to do with a continuous disorder than with rigid ordering hierarchies.

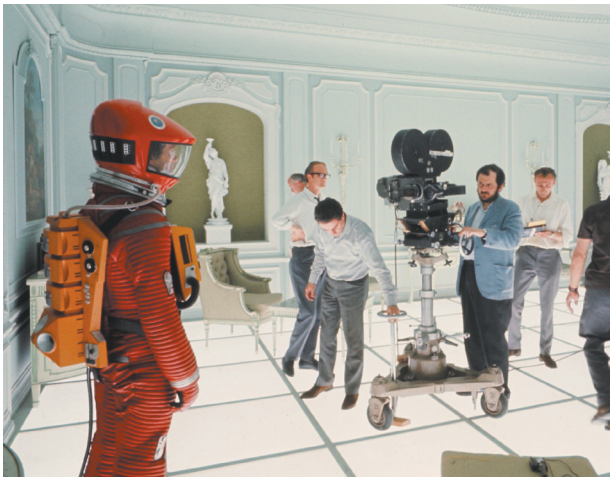


Fig. 8. David Bowman in a spacesuit exploring the room, scene from Jupiter and Beyond the Infinite, from the movie 2001: A Space Odyssey (S. Kubrick, 1968, USA/UK).

Fig. 9. Elderly David Bowman eats dinner in his room, scene from Jupiter and Beyond the Infinite, from the movie 2001: A Space Odyssey (S. Kubrick, 1968, USA/UK).

In the nearby galaxy: two postcards

The above-mentioned conditions of representation see the meanings slip through the 'collages', true illusory apparatuses, major points in which the narrative of the project clashes with more daring territories, which ask the vision to become anticipation.
The previously clarified intentions bring back from the past and from the present, also in this case, practical solutions, coherent narratives that can be adapted to narrate a complex, structured, rigid project, without abstractions, yet equipped with the sin of fantasy.
The two proposed images are complementary readings which frame a bird's eye view of the barge and a very low perspective along the very long strips that are the attire of both the collective and private spheres.
The project, as interpreter of a settlement condition that looks to the future, proposes, above all through images, the transmission of an illusory charge.
An essential component of the postcards produced (only two) is the relationship, at two levels and between black and white, through the use of imaginaries represented by way of chromatic hierarchies which refer back to alternative and opposite contexts, capable of identifying specifically re-configured realities.
The first image, entitled *Overview* (fig. 5) is a bird's eye view of the eastern barge, and whose point of view is very compressed, to the extent that it also includes in the frame the faraway presence, like ghosts, of the other barges. This image is constructed through two opposite actions, the barge dominated by a brilliant 'green' (tree vegetation), while the water of the lake, represented with the use of the color black, interrupting the link to reality (the water is not truly black, and the boundary between water and sky is erased). The result of these two choices, in favor of reality and against it, make it possible to transpose the meanings: what is represented is no longer a lake, but rather 'another' space, known to memory thanks to cinematography, and more similar to a galaxy than to a wetland. The (presumable) interest lies in the necessity that the authors had, expressed through the use of the color black © Lucas, to highlight the perspective towards the future. By obscuring the background, an energetic luminous sequence from *Jupiter and Beyond the Infinite* [9] (fig. 6) fluctuates on a dark canvas without borders. The rarefaction of the boundary between the lake and the sky accentuates even more the extraneous object on the foreground (the barge) which,

thanks to a pictorial technique (the full color as a backdrop) becomes a small-large spaceship, where the ships and boats that orbit around it become, without the need of a leap of imagination, satellites and space junk.
As with galaxies, the distinguishing element is the spaceship, or rather the positioning with respect to it that the space establishes: interior or exterior, exclusively.
The exterior is no longer the space to be inhabited but only an area of transit, of mission or mistaken territory, recalling the long interludes of the *Millennium Falcon* in flight or, in the film *Gravity*, the incident on the outside of the spaceship. The exterior is a dangerous space, which cannot be traversed alone (thus renewing a nomadic condition of settlement), the undecipherable nature of the risk that is inherent to this space recalls a color that is equally symbolic, that black which "in concealing, reveals" [Marini, Corbellini 2016, p. 371].
The choice of the color, although apparently casual, finds confirmation of truth also in the second postcard entitled *Street* (fig. 7). The apparent dangerousness of the exterior is contrasted by the interior (of the ship/barge), framed by the strip.
The inhabitants, both plants and animals, which to this point had been imagined only as green, are now imbued with a celestial white aura [Marini, Corbellini 2016, p. 92] that nullifies the existing chromatic nuances. The anonymous spatiality of the *Street* is characterised by a 'famous' [10] flooring and by unknown openings on its fronts. It is in the pervasive white and in the traces on the ground that the scenic architecture of this space could be identified, mounted precisely for allowing the humans that settle in it to recognize it, not considering themselves to be in a foreign land, guests on a spaceship: through repeated spatiality chosen 'from archives' (*Supersuperficie*) a deceit is concealed (precisely as in the case of *Bowman's room*) (figs. 8, 9).
In this case, the aim that is communicated through the use of color, leads us to reconsider the 'exterior' and 'interior' possibilities of space, in which the exterior –true and proper– understood as something that lies outside the project, stops existing, is cancelled, removed, painted black, as if wishing to underline its absence, its charring, its disappearance. In contrast, the interior space 'staged' through graphic codes from the past, highlights a great complexity in terms of scenic imagery; it is the only territory in which it is possible to live, and is therefore set up, programmed, and strictly designed to be inhabited.

Conclusions

The need for a spatial alter ego introduces into the narrative the bi-univocal components of black and white, as a graphic communication choice, which transpose the perception of known spatial contexts (galaxies) that are unusual or have been altered. The transposition of the chromatic variation, at the level of the project, identifies two spheres, the 'exterior' and the 'interior', in which the project develops.
The reflection on the vision as a condition of the near future, capable of representing a re-configured reality, does not begin with the project, but rather in other sets of elements, and only arrives to the project at the end, through the re-evaluation of these two territories; the words by Lacaton and Vassal, from their poem/testament, *Il fera beau demain*, are enlightening in this sense: "Construire par l'intérieur […]. L'usage: déplacements, sensations, perception intérieure, appropriation" [Lacaton, Vassal 1995, u.n.] and assume a structure of complex meanings, if taken in relation to the project.
'From the interior' is not only a space but also a way in which to proceed for defining and narrating architectures: the importance of the 'interior' events in a sense downgrades the exterior as architecture linked to the project, cancelling the relationship with the facade and with the surroundings (which explains the use of the color black for *OFFICE 37*); 'from the interior', instead, determines the possibility of a 'nomadic' and anonymous project (such as the barges) in which the exterior fulfills aerodynamic functions, rather than those linked to strictly 'anchored' architectures; 'from the interior' takes place the form of dwelling that is temporary occupation, thus becoming a synonym for appropriation and not of property.
'From the interior', in conclusion, is both what was being communicated by Superstudio's *Monumento Continuo*, and what Kubrick and others represented, and which finally reached the architectural project through the use of the visionary image, representing the future always from a threshold, from the interior of a womb that has changed color, shape, aim. If, apparently, "the studio's (OFFICE) buildings are machines for making images" [Woodman 2012, p. 7], these images –cheap and 'frivolous' for being the only driving force of a studio that is quite prolific in the production of projects– reveal to be, above all, research tools that transverse the field of the project crosswise (art, cinema, painting), so as to inquire into its boundaries and propose future attributions.

Notes

[1] "Soon afterwards, they [Geers, Van Severen] found themselves flying to Los Angeles to work on a project with a decadent, very Hollywood programme (the kind they would never again encounter in their European commissions): the transformations of a Venice Beach bungalow into a furniture shop and occasional residences [we are referring to the project OFFICE 5" [Borasi 2017, p. 10].

[2] For more information we invite the reader to look at [Beitin, Eiermann 2017].

[3] Geers and Van Severen, both graduates at the University of Ghent, met when they were at ETSAM in Madrid, in this period they became acquainted with the work of Ábalos e Herreros. In 2014, Giovanna Borasi invited three architecture studios, including OFFICE, to interpret the Ábalos e Herreros archive fund (AP164) donated in 2012 to the CCA (Canadian Centre for Architecture) by the authors themselves, the outcome being the exhibition *Out of the box* curated by OFFICE, Juan José Castellón and SO-IL. The relationship between the two studios is an intermittent one, which, starting from the sharing of a method 'out of necessity', in the common adoption has generated rules and tools, updating the method from time to time to the need. The opportunities for comparison between the studios have taken place in different cities, in changing roles and different institutions, using the usual means of communication: the image of the project. Drawings and collages conveyed a scientific way of proceeding.

[4] This competition anticipated the theme *Hospital of the future* presented by O.M.A. (curated by Reinier de Graaf) for the 17th International Architecture Biennale of Venice titled *How we will live together?* directed by Hashim Sarkis, held from 22 May to 21 November 2021, at the Arsenale, Venice.

[5] The quotation is, moreover, reprinted under the entry 'visionary' along with the definition of the Treccani Dictionary [Marini, Corbellini 2016, p. 621].

[6] The words '*linguaggio*', '*maniera*' and '*modo*' refer to chapter III of Borsi's text entitled *Il 'modo' di Bramante*.

[7] Reference is made not only to the graphic translation but also to a deeper connection [Geers 2011].

[8] Published in 2021, the book *The Urban Fact. A Reference Book on Aldo Rossi* [Geers, Pančevac 2021], as a grantee projects by the Graham Foundation, in which the authors attempt to reconnect an 'unusual' authorial trajectory using twenty-three projects by the Milanese architect.

[9] We are referring to the final chapter of the film *2001: A Space Odyssey*, dir. S. Kubrick, 1968, USA/UK (figg. 6, 8, 9).

[10] We are referring to the image by Superstudio, *Gli Atti Fondamentali, Vita (Supersuperficie), Viaggio da A a B*, 1971; but also, to the flooring in David Bowman's room in the film *2001: A Space Odyssey*.

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Luigi Pellegrin: Visions of Infinity

Marco Carpiceci, Fabio Colonnese

Abstract

The architecture and the complex, prolific, and multifaceted figure of Luigi Pellegrin, a French-born Rome-based architect, are investigated here through some of his drawings that embody the vision of a world that does not exist but which, at the same time, appears within the reach of an evolved society. The discovery of a manuscript of notes for a lesson, accompanied by some photocompositions, and the personal memory linked to one of his unpublished drawings constitute the starting point for investigating his architecture. The authors here discuss his privilege with drawing, formed in the university lectures of Vincenzo Fasolo; the perspectival section, the main device of his project communication; and the semantic connotation that the position of the observer and the perspective structure seem to add to the reception of his projects.

Keywords: Luigi Pellegrin, perspective section, utopia, photomontage.

Introduction

On April 20, 1992, Luigi Pellegrin (1925-2001) handed over the notes of an architecture lesson held at Sapienza in June 1990 to prof. Laura Borroni [1]. These are 28 'archaic' photocompositions printed in A3 format in color, with one of those Xerox photocopiers that in the early 1990s finally allowed the mechanical reproduction in color at low cost. The photocompositions are extremely heterogeneous and embrace a broad spectrum of contents. They contain fragments of newspapers, photographs of Wrightian interiors, isometric views of utopian projects from the years of the Russian revolution, pictures of models of tensile structures, renderings of futuristic space stations, some key figures from Le Corbusier's epic and many illustrations taken from books and magazines of biology, archeology, anthropology and paleontology aimed at reconstructing the rocky habitat of primitive men, the monuments of archaic civilizations or the wonders of contemporary technology. Beyond the 28 photocompositions, 7 pages of notes presents visual maps, enriched by some occasional diagrams.

Some of these 'slides' are commented on by extremely concise and evocative sentences or by diagrams and sketches that highlight some specific aspects but there is no direct reference to his projects. Yet, the contents of the lesson, which will flow into the introductory pages of one of the two monographs published posthumously [Cardosi et al. 2003], find a significant side in the visionary architectures that Luigi Pellegrin had begun to draw on

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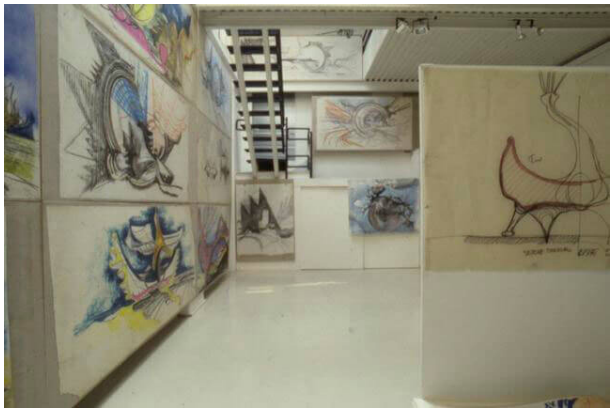
large-format sheets since the mid-1960s, in a period in which the birth of his children is intertwined with his fervent professional activity in the field of first residential and then scholastic architecture. It is immediately necessary to clarify that there are at least three levels in Pellegrin's design and graphic production: conventional buildings, often equipped with experimental components specially designed and patented to enhance spatial and construction quality; large urban and territorial infrastructures, in which he often tests his revolutionary principles with concrete sites and programs; and the cosmological visions, partially revealed during a solo exhibition in 1992 [2], which deeply interrogate space, earth, nature, and mankind (fig. 1).
Among these three graphical production levels there is a subtle game of communicating vessels and a continuous transfer of ideas and forms that guarantee freshness and continuous innovation to its architectural proposal, even in the case of conventional buildings which, with Pellegrin, are never that 'conventional'. From this point of view, his approach could be reminiscent of Leonardo da Vinci's, often intent in producing all the possible alternatives useful for solving a certain problem until losing interest in the problem itself and getting lost in the effort to catalog the world. But Pellegrin is careful to maintain an iron discipline and a systematic methodological doubt that leads him to reconsider every aspect of his proposals.

Fig. 1. A view of the exhibition Luigi Pellegrin: at the gates of architecture, June 16th - September 30th, 1992, Galleria Studio Stefania Miscetti (Photo by S. Miscetti).

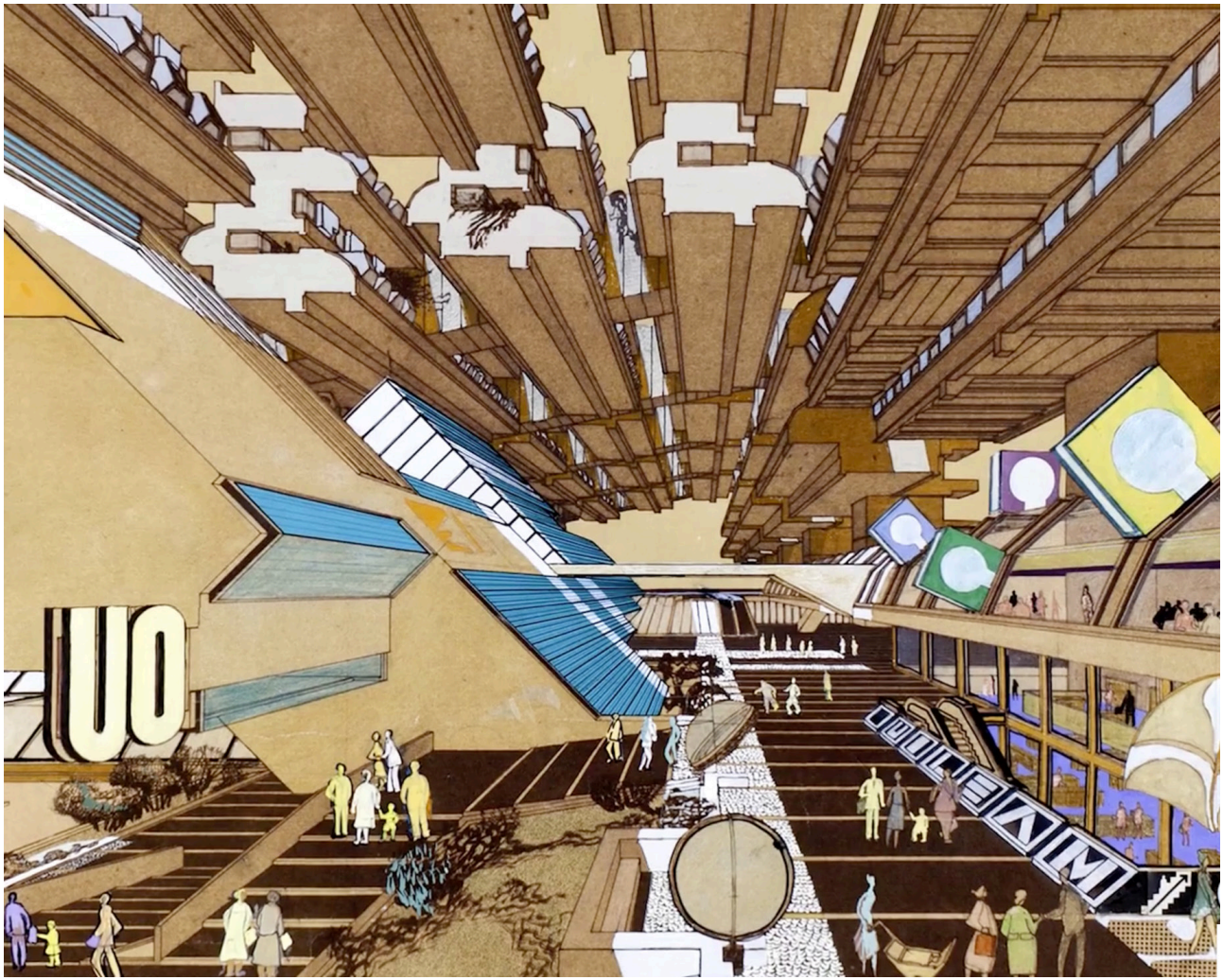


With the exception of a few articles in the magazine *Architettura Cronache e Storia* and some essays on the beloved Louis Sullivan and Frank Lloyd Wright [Cardosi et al. 2003, p. 249], Pellegrin was only occasionally interested in publishing his personal ideas on architecture, rather leaving his projects and buildings to express themselves on behalf of him. Nonetheless, he loved to theorize and write, often with a language that Prestinenza Puglisi defines as "cryptic, abstruse and hermetic" [Prestinenza Puglisi 10 2018; Prestinenza Puglisi, D'Ambrosio Zevi 2001]. Certainly, he preferred to turn to an audience of individuals who exalted his histrionic skills as *maître à penser*, testified by the enormous esteem of friends, colleagues, and students that persists over the years. Rereading these unpublished autographed notes of Pellegrin by having his 'visions' in the eyes, exactly twenty years after his death, means crossing the threshold towards a world, or rather, towards an idea of mankind, society, and the future that appears dramatically lost, forgotten. Although, paradoxically, technological progress seems to provide the conditions for the feasibility of some of these 'visions', the socio-political evolution seems to have made them even more utopian and unattainable. While other 'visions' produced in the same years, such as those of Japanese metabolist architects, seem at least to influence the architectural production of contemporary authors such as Rem Koolhaas [Koolhaas, Obrist 2011], Pellegrin's cultural legacy and his holistic, humanistic, and, in some ways, environmentalist design yearning are poorly studied and apparently limited to the few who have had the opportunity to know him and contribute to keep his memory alive, especially online. From this point of view, his drawings, now mostly kept in the Centro Studi e Archivio della Comunicazione (CSAC) at the University of Parma and MAXXI, are the main opportunity to get in touch with his ideas. For this reason, by describing his notes and some personal memories about him, this contribution investigates some of his drawings not only in relationship with the contents but also to the formative reasons and the material choices that distinguish them, such as the graphic techniques or the method of representation, which it is strictly that of the perspective section, bearer of meanings collected over centuries of architectural drawings.

Gazes into the future

Exploring Pellegrin's 'visions' implies going into the technical specifics of a practice, that of architectural drawing, which

Fig. 2. Luigi Pellegrin, Perspective view of the project for the ZEN district in Palermo-Cardillo, 1969. Detail of the commercial street covered by the modular houses [Cardosi et al. 2003, p. 72].



in the last century still had a highly artisanal dimension and which could influence compositional and representative choices.
The first drawing chosen is a perspective view of the competition project for the ZEN district in Palermo-Cardillo in 1969, colored with felt-tip pens, pastels and tempera on a blueprint darkened by the passing of time (fig. 2). In this case, the central perspective has a strong 'immersive' potential, aimed at suggesting the point of view of someone observing the large shopping arcade under the residential nuclei from a walkway similar to the one visible in the distance. The 'immersive' quality of the design is enhanced by the renunciation of revealing the section which also served to construct it, but which would have dampened the attention towards the interior space. Although it is not strictly a perspective section, the planes parallel to the picture plane provide the true shape of the section generating the solids that shape the void, as well as the centrality of the prefabrication as a technological support for its production. This also happens because the architecture itself is conceived as an extrusion starting from a directrix figure on a vertical plane that Pellegrin does not renounce to denounce in the composition.
A second group of drawings, practically contemporary to the first, belongs more decisively to the visionary sphere. For the presentation of the *Vettore habitat a scala geografica*, as part of the so-called *Componenti infrastrutturanti lineari*, Pellegrin chooses the photomontage technique, which has been associated for decades with the artistic avant-gardes and revived by radical groups such as the beloved Archigram. Starting from the standard section of these suspended tubular infrastructures (fig. 3), intended to house transport as well as residential, productive and leisure areas, he derives different perspectives, with a sinuous or straight course. The structures, seen both from above and below, are drawn in ink on transparent paper and, through radex printing on another sheet of transparent paper, are inverted with respect to the vertical axis to also obtain mirrored versions. Subsequently, the external parts are colored with Letraset screens and Pantone type nitro markers, while the interiors are left blank, to increase the detachment from the surroundings and highlight the abstraction inherent in the representation technique of the perspective section. Finally, the different portions are cut out and pasted onto photographs, first in black-and-white and then in color. The photographs show different terrestrial landscapes, from the desert to the Alpine peaks passing through the narrow Andean valleys and the Great Wall of China, an ante-litteram example of similar linear infrastructures (fig. 4). Thanks to a careful planning of the graphic process, originated from a few drawings built in perspective, Pellegrin created renderings that show several possible configurations of the infrastructural system. The absence of textures and cast shadows, certainly aimed at the readability of the layout, leaves the architecture in limbo, in a sort of hyperuranium, despite the photographs in the background (or perhaps even because of them).
The pages of a posthumous monograph [Cardosi et al. 2003] show the digital retouching on the 1970s drawings used for highlighting the sectioned parts in red, adding the texts, and perfecting the rendering of some components with a more mechanical and effective chiaroscuro; but not only. Pellegrin also took advantage of new digital technologies to create a new application of the *Vettori* in the multifunctional hyper-urban core of 2001. It is a sort of micro-city protected by a spherical shell with a reticular structure. The canonical tubular systems emerge from this huge boule-de-neige, this time scanned and glued directly into the digital rendering, in turn placed on an Andean photographic background (fig. 5). This example, on the one hand, confirms the enormous curiosity he had towards techniques and instruments of representation, which led him to never bind himself to a single standard and recognizable form of expression but to experiment continuously, always leaving the center of the work to the contents; on the other, it demonstrates that the project

Fig. 3. Luigi Pellegrin, Disegno del Vettore habitat, 1969, drawing [Cardosi et al. 2003, p. 152].

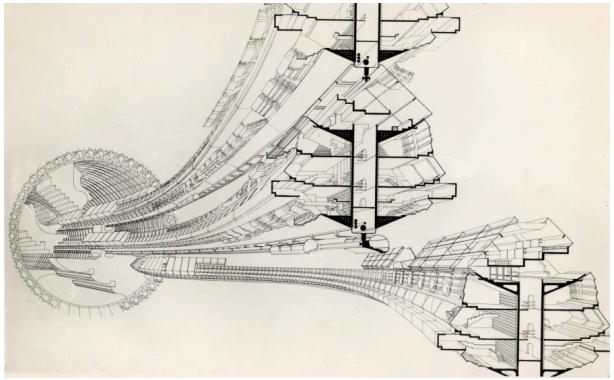


Fig. 4. Luigi Pellegrin, Vettore habitat a scala geografica, 1970-2000, photomontage. Note the digital photo editings to some secondary cylindrical elements [Cardosi et al. 2003, pp.155-158].

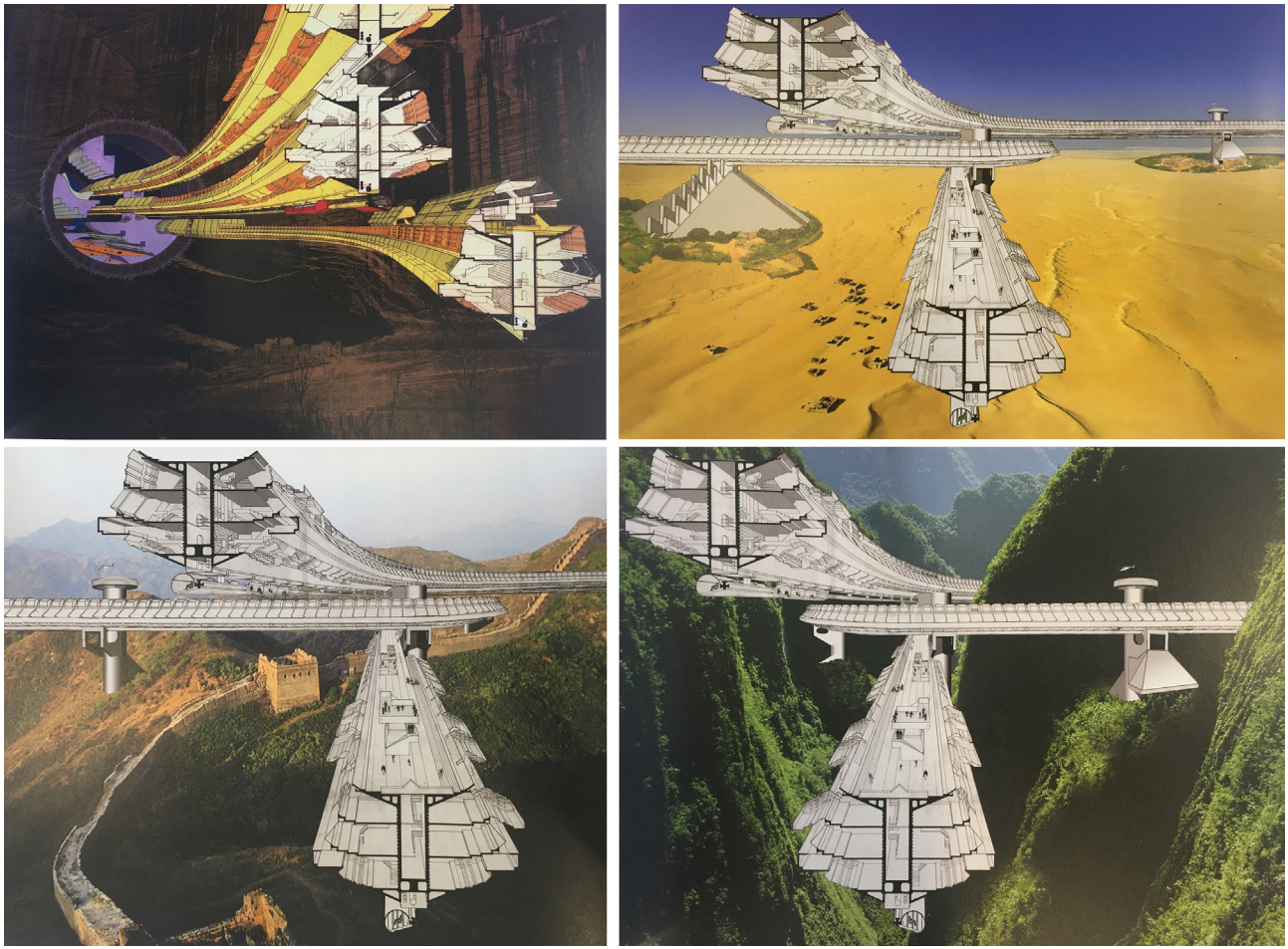
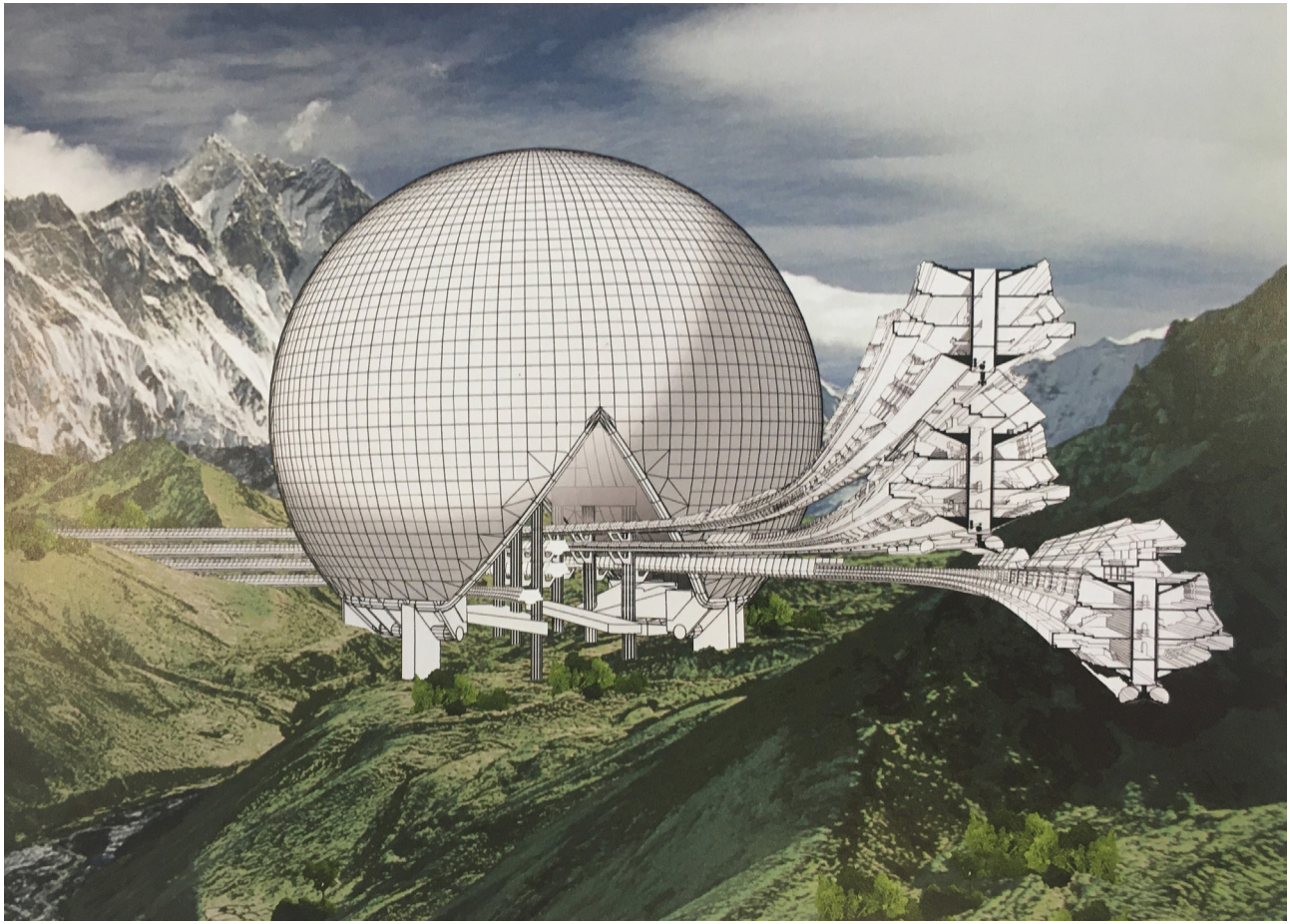


Fig. 5. Luigi Pellegrin, the Vettore inside the multifunctional hyper-urban core, 1970-2000, photomontage [Cardosi et al. 2003, p. 239].



never ends, as Pellegrin also repeated, and that even after decades it is possible to return to apparently well defined structures and, under the pretext of giving them a new graphic appearance, further develop their spatial and functional definition.

One design, one way

A third kind of drawings, those that are properly 'visionary', constitute a reserved and, in some way, hermetic area of Pellegrin's production, which often challenges the codes of architectural representation. Despite the immediate fascination that some of them may arouse, these drawings require a sort of initiation within his conception of the world, of which they are, after all, arcane illustrations, not too differently, in close contexts, from the painting of Fabrizio Clerici or from the futuristic visions of Angus McKie. This initiation can only be produced by a story, such as Pellegrin's fabulous narrative. Therefore, the authors have chosen to present an unpublished drawing of his through a first-person story by one of the authors (Marco Carpiceci) who defended his academic dissertation thesis in Architecture in Rome in 1983 with Pellegrin as supervisor.

For a brief period in the 1950s, the architects Alberto Carpiceci and Ciro Cicconcelli shared an office. It was a place where the two supported each other, perhaps because, being independent personalities, they were not very familiar with teamwork and tended to avoid a 'communitarian' involvement. A young bud of the architecture of the time, Luigi Pellegrin began to collaborate in the office. Ciro had invited him because he esteemed him and considered him a valid promise for Italian architecture.

The young Pellegrin had a gift that fascinated and also characterized Alberto: the visionary design. Pellegrin drew the perspectives of many projects, especially of his 'tutor' and he always did it with a sense of emotional and spatial involvement. Despite a few of perspectives from above, or pseudo-axonometric views, most are perspectival sections. In such drawings, the observer had to immerse himself to probe the space, receive emotions, look for a direction. They provide not only a physical direction represented by a point of view and a directionality, but also a path intended as a mental and emotional way. This peculiar graphic approach to space would have addressed him towards his peculiar architectural 'vision', which is often represented by a 'dorsal' structure and a continuous 'vertebral' variation that defines the range of variability and the connection between the axis and the place, the environment the anthropic structure interacts with.

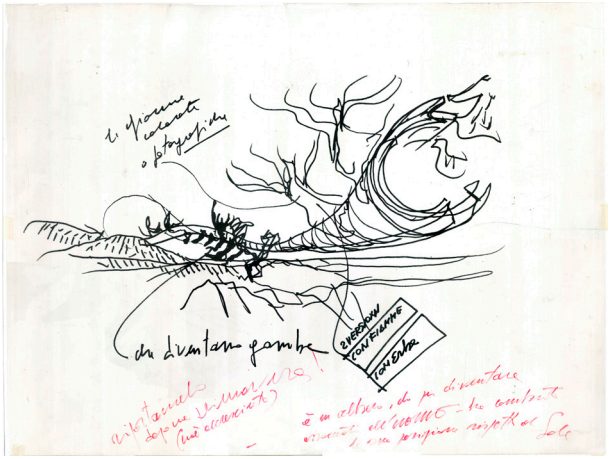
My acquaintance with Luigi Pellegrin was gradual, overwhelming and decisive.

In 1970, I had enrolled at the Art School in via Ripetta, because, in addition to my passion for mathematics, I had good drawing skills, having been 'raised' with a sheet of paper in front of me and a pencil in my hand. During the high school, I had studied Drawing from Life with my uncle Lorenzo Ferri, a sculptor and painter; Descriptive Geometry with Edmondo Fumanti; and Architectural Design with Emilio La Padula. In 1974, therefore, I enrolled quite naturally in Architecture. The first years passed without particular stimuli and problems, except for Orseolo Fasolo's course of Descriptive Geometry. I had studied the matter for four years but I had never known the revolutionary (for me) technique of perspective with the direct method. The real turning point, however, came in 1980 when I decided, together with other colleagues and friends, to prepare the exam of the course of Interior Design with Giancarlo Capolei, which turned into an initiation to the 'way to organic architecture'. The tutor was Ennio Rolli, a talented and Pellegrin-oriented architect. At the time, I was preparing the thesis with Pasquale Carbonara, who was anything but a promoter of organic architecture. The creative drive of Ennio, who was constantly supervising my design activities, had led me to design for suspended dorsal structures and ribs made up of supporting walls, until one day the good Carbonara told me: "Marco, in my life the only hanging object I designed is a chandelier, but in the Faculty, there are people who make their lives of this type of architecture. One of these is Pellegrin".

As I walked away in despair, I made my mind that Pellegrin was to be my thesis advisor. From that moment on, there were no others. I had the exam of the course of the fifth year of Architectural Composition with Maurizio Sacripanti, but already under the guidance of Luigi Pellegrin. Then, the great adventure of the thesis started. Pellegrin's office (or rather the *bottega*) was in via della Croce. The reviews never took place during the day. I used to have my dinner and then, around 10 p.m. I went to his office with the drawings drawn up for the revision. There was no queue there, no waiting-room. Everyone was immersed in Pellegrin's world. Everyone was called to 'swim' towards world visions that the mind instinctively understood and shared, while ignoring the path necessary for their acquisition. We talked about projects and topics from the most

concrete and material to the most abstract. Then, after midnight (sometimes even a few hours later), Luigi said to me: "Then Marco, show us what you've done". He looked at the drawings and then began to scribble on them and talk about the relationship between man and architecture, between trees and houses, between mother and children, between earth and men and women. It was clear that the thesis would be only a moment of transit, but not of conclusion, of a long path.
One day, he took an acetate copy of a drawing of him (fig. 6), took a red marker and wrote to us: "It is a tree, which to become associated with man, has changed its position with respect to the sun"; and beside him he added: "Bring it back to me after a spring" (that is, increased).
Finally he said to me: "Get it and go"; and I took and went, happy. That drawing was the way to go, it was a path in form and content, it was the signifier of the work I had done up to then and it would have been with me and within me my whole lifetime. That drawing was the icon of Pellegrin's design. It didn't matter if the design would often have moments of stalemate before starting over and renewing itself; it would have been like a helicoid, in which at each turn it seems that one has returned to the starting point but is actually higher.
Since 1991, that drawing has been watching over me from the wall of my University office.

Fig. 6. Luigi Pellegrin, Untitled, 1983 (Coll. Marco Carpiceci).



Thinking and drawing

This storytory illustrates the maieutic and immersive approach that Pellegrin adopted with his students and which is also found in his lecture notes. The opening words read: "Laura [Borroni] asked me: you are talking about the method of designing. –I said– no! It cannot be taught. I believe I should talk to you [students] about how to prepare to be able to design". And speaking of his academic beginnings, Pellegrin places drawing at the center of his formation: "1946-1947 –Vincenzo Fasolo– no books –no words– large drawings on the blackboard [–] axonom [etrical] sections (the style was not a priority)" (fig. 7).
Pellegrin's university initiation to architecture, or at least what he believed to have marked him most, was not literary or verbal. His idea of architecture was certainly influenced by the experience of accompanying his carpenter father on the construction sites where he worked, such as that of Armando Brasini's Complesso del Buon Pastore in Rome, but in the classrooms, it was largely visual. The drawing was the inception, in particular the drawings that Fasolo traced with chalk on the blackboard or with charcoal on the yellow pouncing paper. This custom of large format drawing was certainly shared by his mentor Bruno Zevi, who submitted his undergraduates to the drafting of large-scale drawings on meters-long sheets in order to stick them on the wall and see them from a distance or, on the contrary, to allow a complete immersion of the visual field, along the wake of the large canvases that Rothko painted in the same years with the same goal.
Throughout his life, this kind of drawings mediated the double process of formal assimilation of the external world and the manifestation of his inner world. His direct reference to the axonometric sections that populate the lessons of Vincenzo Fasolo [Fasolo 1954] appears quite significant. Fasolo entrusted an important didactic role to the process of freehand graphic construction of complex architectures starting from the plan and the section directly in the three dimensions, generally in the form of axonometric view or bird's eye perspective, forcing the students to an organic knowledge of buildings and a control of the space of representation.
This form of representation was introduced as a tool for studying ancient architecture by the French historian Auguste Choisy, who aimed at a particular mental involvement of the reader. Almost combining all the methods of representation in a single image, which, «agitated [*mouve-*

mentée] and animated like the building itself, replaces the abstract figuration fractioned in plan, section, and elevation. The reader has in front of his eyes, simultaneously, the ground plan, the exterior of the building, its section, and its interior disposition» [Choisy quoted in Yve-Alain Bois 1989, p. 114]. Choisy's tactile drawings show that the cross section is a graphic device capable of producing a virtual movement of the building and in the building. In particular, axonometry is not only "the perfect tool to express the temporality of the construction process with maximum clarity, showing the different phases on a single figure (as in *L'art de batir chez le Romains*), or to return the historical mutations of a building typology (such as in l'*Histoire*) […] but it also serves as a substitute for the storyboard to declare the temporality of perception, precisely because it does not refer to a predetermined point of view" [Bois 1989, pp. 114]. Similarly, some of Pellegrin's visions, in which the architectural organisms seem to constantly move and change in the illusory depth of the perspectival space, allow the reader to take a journey into an alternative reality thanks also to their size and the level of detail of some parts, which invite the reader either to focus on single parts or to 'browse' in all directions.

Perspective sections

Among the drawings published by Fasolo, some are perspectival sections, constructed from a vertical profile of the architectural organism. This idea of the cutting plan of a building that reveals its spatial matrix dates back not so much to Raphael and his *parete di dentro*, derived from the concept of *spaccato* developed by Giuliano da Sangallo in his drawings after the Roman collapsing buildings and intended to replace the *scaenographia* in the famous Vitruvian triad [Guillerme, Vérin 1989]. Rather, it dates back to the practice already widespread in the medieval construction site of metal or wooden *modani* (moulders), which materialized the guiding figure useful to the stonecutters in profiling the individual architectural components. This same idea of section as profile, albeit in its horizontal arrangement, surfaces in Bramante's Parchment Plan, which marks the conscious return to Roman 'concrete' spatiality and is found in the pages that Sebastiano Serlio dedicates to the architectural orders in his Book V.
The section plane for Pellegrin is never generically arranged in space to randomly 'slice' its serpentine *Vettori* but always appears perpendicular to their bodies, as if it were directing their progressive extrusion into space, vertebra by vertebra. It is precisely in this sense that Pellegrin adopts the section, projecting it into the productive sphere of industry, in the wake defined by the young Le Corbusier and polemically taken up by radical groups, such as Superstudio or Archigram. In contrast to the Cartesian architecture, necessarily defined by the combination of floors and pillars and which he also adopts on a daily basis in the construction sites of his many built architectures, Pellegrin is inspired by the production and formal dynamics of engineering, exasperating the Le Corbusierian principles to safeguard the land and 'overhang' the built forms and shapes immense tubular ducts that contain the infrastructures and float on pristine landscapes. Like pieces that slide on long aluminum extrusions, whose corrugated profile also serves to ensure adequate static performance, the individual housing units and social 'thickeners' not only have mobile structures and variable configurations but are temporary elements destined to be replaced when the technological evolution will justify their updating.
The perspective development of the section obviously has various operational, visual and semantic consequences. Paul Rudolph, who established himself above all in the 1960s and certainly inspired Pellegrin in several aspects, draws groundbreaking perspective sections in ink to present his projects, as an alternative to models that, in his opinion, "cannot indicate the details and materials in a leg-

Fig. 7. The first page of Luigi Pellegrin's notes (Coll. F. Colonnese).

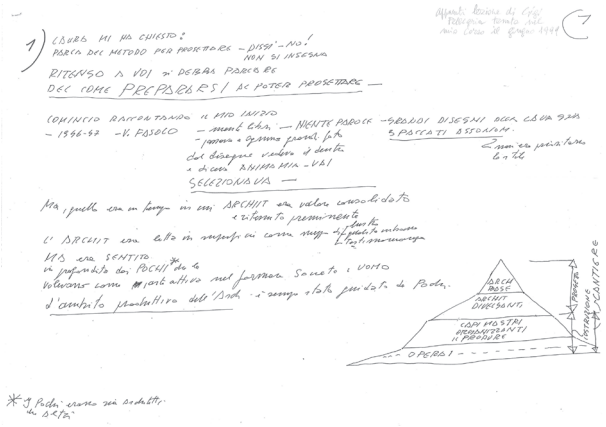
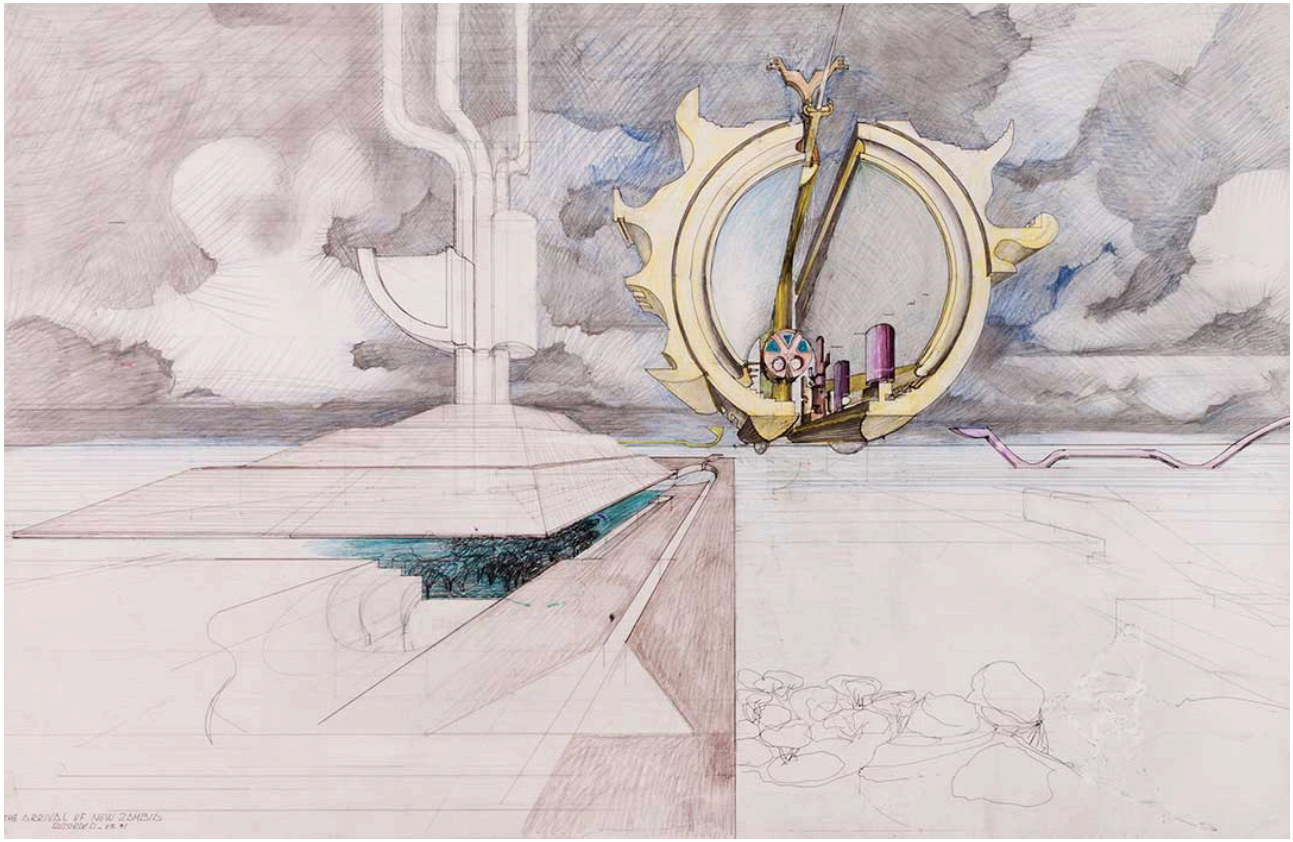


Fig. 8. Luigi Pellegrin, The arrival on new Zambia, 1991 (Private Coll.).



ible way" [Rudolph quoted in Forty 2021, pp. 287]. In this sense, the perspective section appears above all as a geometric-spatial investigation tool for the architect, which almost naturally becomes the device for communicating the project, too.
If the section guarantees an exact proportional and metric knowledge of the architectural matrix of apparently complex and variously oriented structures with respect to the picture-plane, the location of the point of view and, consequently, of the main vanishing point, is the geometric and narrative key that guides both the setting of the drawing and its reception. The spatial data represented appear more visible and formally stable near the vanishing point and are gradually hidden and distorted as one moves away from it, leaving many questions about the organization of the 'peripheral' environments. This choice hierarchically orders the rooms revealed by the section and emphasize the interior spaces favored by the position of the vanishing point, while small human figures attribute a general scale to the structure. At the same time, the presence of the vanishing point indirectly refers to the presence of a gazing eye, and therefore of a man or woman who, implicitly accepting the invitation of Pellegrin's eye, takes its place, turnig into a witness emotionally involved in architecture. The beholder's contribution is also required to integrate the missing or only suggested parts, given that Pellegrin, even when proposing photomontages, does not seek the photorealistic, purely optical effect, but makes the representation explicit, providing a mental and tactile dimension that invites to an «interpretative cooperation» [Eco 1979].
The centrality of the gaze is also testified by the fact that Pellegrin rarely either articulates the perspective structure of his visions or questions it. He constantly moves in the scenario offered by the central projections and, apart from the sinuous trajectories of his *Vettori*, he does not seem interested in multiplying the vanishing points and, with them, the spatial directions of the architectural bodies, like Paolo Uccello painting the Deluge –to enlarge the temporality of the visual story– or like Hans Vredeman de Vries to demonstrate the technical opportunities of perspective. Even where an idea of cosmological chaos seems to surface, the natural and artificial architectures of his visions are arranged in order by his gaze like troops in front of a general or orchestral in front of the director, serenely aligned to the perspective grid, ready to carry out the directives of the demiurge (fig. 8).

As he wrote to the young Carpiceci, after all it is just a "tree" that, in order to associate itself with the human community and their vital needs, overturns its horizon and develops horizontally (thanks to the gaze of a man capable of operating this overturning and to imagine a profoundly different future).

Conclusions

Luigi Pellegrin's 'visions' describe a world that does not exist (yet). They speak an alien language and, as such, can only be described superficially by continually resorting to analogies and metaphors. At the same time, they embody the myth of Prometheus and update the signs left by an archaic humanity that did not yet know time and space.
His macrostructures develop along a line of thought that binds together religion, anarchy and positivism, the centrality of the human being and the sacredness of the soil and of nature as a whole. Occasionally, these macrostructures are translated into concrete proposals for specific places but they retain a sense of belonging to the world of ideas. This link, on the one hand, feeds his achievements, despite a thousand compromises; on the other hand, it often prevents him to win competitions and even a hypothetical realization. The space of his visionary architectures is first and foremost paper, large sheets of paper, to be marked with all the breadth and energy coming from the body, as he had learned from Vincenzo Fasolo's lesson.
Pellegrin is aware that he is designing for a man who does not yet exist. He does not limit himself to assembling standard housing units but rethinks of the human habitat to the root, with an inclusive curiosity that uses the tools and approaches of the anthropologist, the economist, the biologist, the paleontologist. This omnivorous curiosity forms his vision of architecture and is imprinted on his architectural visions, often characterized by a 'backbone' structure, with a marked directionality of the path, and by a continuous 'vertebral' variation.
This spatial conception is perfectly reflected in the form of his graphic expressions. The 'main' design is usually a perspectival section, which combines the vertical section, the formal guideline of the 'macrostructural' extrusion, with the experience of vision. In this type of representation, Pellegrin investigates the space as if it were inside, in a sort of ante-litteram virtual reality. While his gaze

projects his design will on all the visible, he seems to appeal to the observer, who is recalled to a presence, a commitment, and an active participation, without which these visions are destined to remain as such, figuratively stimulated by the central vanishing point, by the large format and by the level of detail of the drawings.

Credits

The material of Pellegrin's lecture and the unpublished drawing are in the possession of the authors. This article is the result of the joint work of the two authors; in particular, Carpiceci edited the first part, up to "A drawing, a way", while Colonnese edited the second part, from "Thinking and drawing" onwards.

Notes

[1] The delivery date is shown in pencil at the bottom of the cover page. From what is written in pencil, the lesson was certainly repeated in 1999 and, probably, at other times in the 1990s. The material reached the authors thanks to the generosity of engineer Giovanni Dominici, a friend of Laura Borroni. On her death, the engineer took charge of her private archive and arranged, according to her wishes, the donation of her architectural books to the Baldini State Library in Rome, where, a fund in her name was created in 2015. There was a deep friendship between Luigi Pellegrin and Laura Borroni, certainly cemented by the common passion for Wright and by the fact that she lived in an apartment on the second floor of the villa Cecilia designed by Pellegrin himself at the end of the 1950s and was personally involved in the maintenance of its internal and external parts, as confirmed by the other tenants.

[2] *Luigi Pellegrin: at the gates of architecture*, June 16 - September 30, 1992, Stefania Miscetti Studio Gallery, via delle Mantellate, Rome [Miscetti 1992].

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Solid Utopias. Views and Models in Urban Experimentation in the 1960s

Nicolò Sardo

Abstract

This contribution presents an analysis of several design experiences developed primarily between the late 1950s and early 1970s which constituted a true international trend where the issues of representation constituted a visionary thought that proposed original architecture and urban forms.
The communicational devices aim to clarify the diverse formal characteristics, often highlighting a 'possible realism'. Modifications, superposition, and experimentation are thus reflected in the processes of representation. Graphically, the choice fell mainly on the means appropriate for solving complexity and innovation: the use of collage and photomontage fundamentally adheres to meeting these needs.
The contribution of models is also effectively highlighted with the inclination of plastic figuration to oscillate between the abstraction and simulation of reality. There are models that, emphasizing realism and with the goal of mitigating the most imaginary nature of innovative urban hypotheses, are presented somehow as the anticipation of reality and a testimony to their possible 'buildability'. The model itself, with its special characteristics, often becomes a research tool; many examples contain references to the historical avant-garde, even through an aesthetic search that manages to combine experimentation with communication of the design thought.

Keywords: utopian architecture, experimental architecture, architectural models, architectural representation.

Introduction

Starting in the middle of the Fifties –with developments that would last until the 1970s– numerous project designs were dedicated to clarifying visions aimed at redetermining the urban space: a diverse group of designers presented new ideas ranging from defining experimental buildings to the proposal of 'new cities' [1]. The trend was so widespread that it was called the 'utopia international' by Manfredo Tafuri: "*una vera e propria accademia dell'utopia*", where, especially in the results most related to technological development, an "*ironica nostalgia del futuro*" was clear [Tafuri 1979, p. 347]. That the development of these reflections was expressed especially in urban hypotheses is not surprising since utopian thought has always viewed the city as the chosen place [2].

The crisis in many of the assumptions of modernism found a fundamental turning point in 1956 upon the tenth International Congresses of Modern Architecture (CIAM) held in Dubrovnik [3]; no less important was the focus on land use that had grown out of concern for the increase in population being analysed at the time. Among the concepts developed in many of the reflections, particular importance goes to 'mobility', which would be proposed by various authors, ranging from the definition of the individual living unit to concepts related to entire 'mobile' cities [4]. The extreme focus on these issues would also promote the formation of international groups that would serve as basic support for the debate. In 1958, Yona Friedman founded the Groupe d'Étude d'Architecture Mobile

(GEAM) [5] and in 1965, the French critic Michel Ragon formed the Groupe International d'Architecture Prospective (GIAP) [6].
Thus, the visionary position had to necessarily trace out new procedures to express a variety of reflections that found their equivalent in the visual richness of depiction [7]. Publishing became a necessary issue and led to the authors' use of often unconventional strategies to convey the design thought, and unusual architectural forms also required the authors' special dedication to using the tools of representation: "*Si le projet que nous venons de tracer en quelques grandes lignes risque d'être considéré comme un rêve fantaisiste, nous insistons sur le fait qu'il est réalisable du point de vue technique, qu'il est souhaitable du point de vue humain, qu'il sera indispensable du point de vue social. L'insatisfaction grandissante qui domine l'humanité entière arrivera à un point où nous serons tous poussés à exécuter les projets dont nous possédons les moyens; et qui pourront contribuer à la réalisation d'une vie plus riche et plus accomplie*" [Constant 1959, p. 40].
The need to use different devices for representation therefore emerged, which occurred through blending and the integrated use of various tools that sometimes tied these experiences to the historical avant-garde. These experiments viewed the tools of visual communication as an essential ally capable of making often complex and surprising concepts clear or at least plausible. Amid the developing spread of new urban ideas, it also became important to rely on editorial strategies that would frequently lead to the creation of numerous publications promoted by the same actors [8].
When representing projects, there was an oscillation between the display of an objectivity suitable for presenting a 'possible realism' and a desire for abstraction that pursued ideogrammatic clarity when presenting the hypothesis. Special attention focused on the choice of visual criteria with which the projects were illustrated: alongside explanatory orthographic views, the main choice fell on perspective views, sometimes included within real contexts through the extended use of collage and photomontage. It is not unusual to see how a new aesthetic was also developed in depiction, where it is possible to observe iconography deriving from the imagery of illustration, science-fiction cinematography, and comics.
With regard to systems of representation, the use of models [9] was accompanied by drawing, contributing significantly to clarifying the design ideas and their dissemination [10]. The models show the facets of a superposition that highlights the intrinsic formal and functional complexity of the project. As better 'analogues' to the built architecture, they hold the capacity to project the observer into a possible future, proposing a multiple code capable of satisfying both knowledgeable users and non-experts.
The models sometimes make all their 'sculptural' essence emerge, and they often acquire an aesthetic strength that overcomes the urgency to represent a construction or urban hypothesis with precision: the self-referential nature of their construction adheres to the need to declare their own autonomy as a three-dimensional object. It is therefore not unusual to find formal contiguity between some models and the most overtly artistic experiments [11].
Thus, the model may confirm the abstract perfection of the idea; or it can become a multiform, unstable tool in which the superposition of materials –recalling collages or photomontages– is the mark of a developing thought. This expression directly recalls the complex social assumptions that are nearly always inherent in the integrated idea of the project: a new urban nature somehow also assumes a 'new' resident.
Nevertheless, what remains is the idea of a model as an evocative device that allows the view to assume ever different distances and perspectives. There is no required view as in graphical representations, but the presentation of an essential visual interaction suitable for sparking the observer's imagination. Nor is the nature of the material a secondary element; the choice of materials is essential and participates in the spirit of the project. It also seems important –in models such as graphical representations– to maintain elements that, even in the most extreme proposals, allow observers to find conditions referring to their own perceptual experiences.
A recurring theme in many proposals for the urban structure is stratification: new structures are superimposed on the existing city [12]. In creating the models, this aspect is paramount, finding different solutions ranging from schematic representation of the building to the use of cartographic depiction as a base. The model is basically the synthesis and goal of the project itself. "As the most synthetic instrument for communicating, the relief model has itself become a project: however absurd, it soothes the neurotic and exorcizes almost certain failure" [Branzi 1974, p. 7] [13].

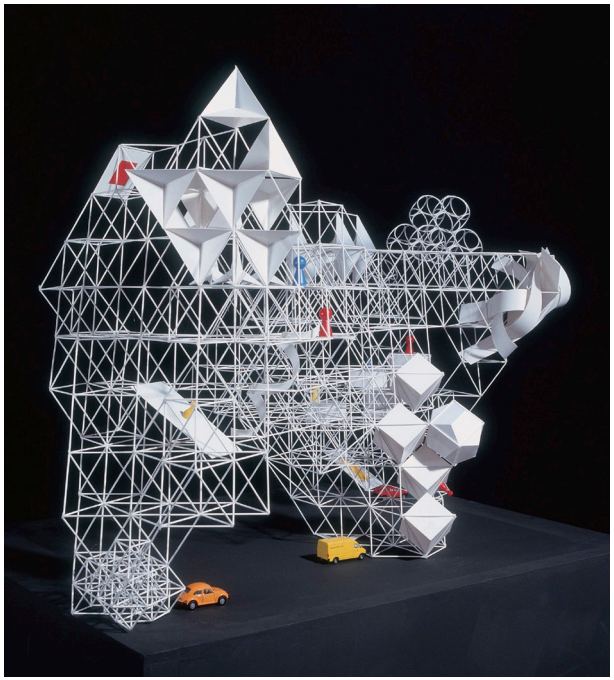


Fig. 1. Eckhard Schulze-Fielitz, Raumstadt, 1959, model: <https://www.noosphe.re/post/150392453927/eckhard-schulze-fielitz-raumstadt-1959> (accessed on 2021, August 10).

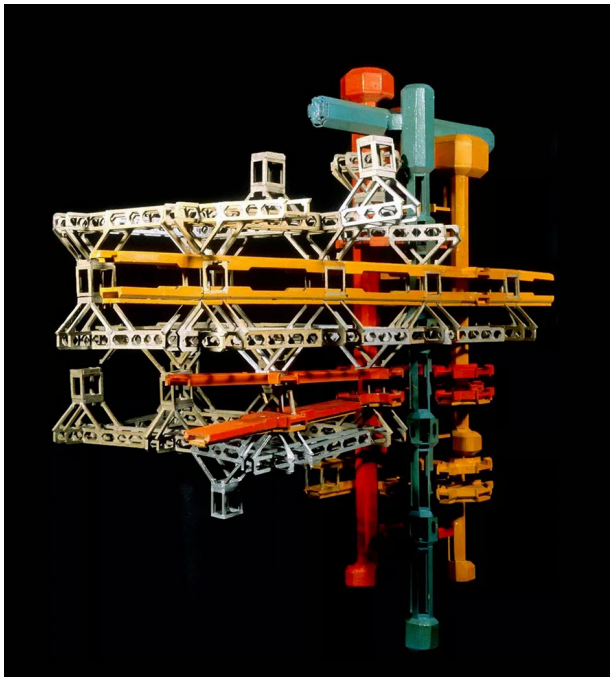


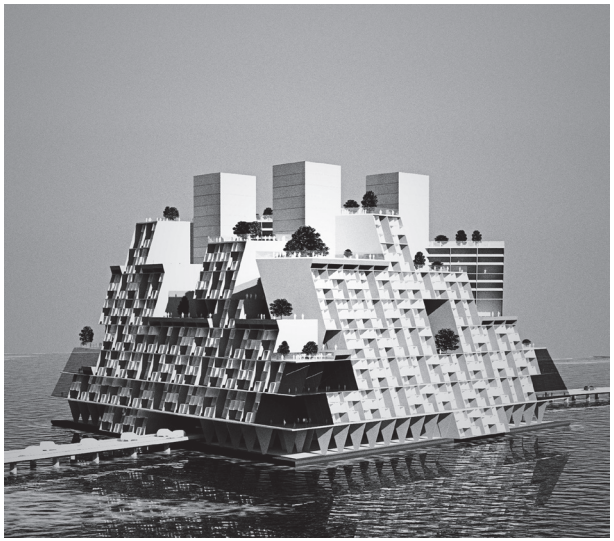
Fig. 2. Eilfried Huth and Günther Domenig, Stadt Ragnitz, 1963, model: <https://www.frac-centre.fr/> (accessed on 2021, August 10).

Models and new urban forms

The model participates in redefining these architectural and urban reflections with its specific nature as a representation capable of adhering to the formal and abstract assumptions in the project. The figuration exhibited by models oscillates between ideogrammatic schematism and an inclination to simulate reality. The imaginative character of the proposal is often tempered by an accentuated concreteness, and the model, with its material presence, constitutes a possible anticipation of the construction.
The project specifics are often exhibited by highlighting a geometry that strongly fixes the ideal of the design thought: compactness, symmetry, and regular forms such as triangles, squares, and circles constitute many of the design hypotheses and are also highlighted by the models. The first examples of models of experimental cities in the 1950s include *Spatiodynamic* City (1952), developed by Nicolas Schöffer together with Claude Parent and Ionel Schein. Here, the land is schematically reproduced with a plan representation and the structures are defined chromatically to highlight the compositional logic.
The compact, unitary form of the model –even with accentuation of the most abstract features– lends the project a particular symbolic strength. Particularly important examples include sculptural models such as those by Hans Hollein for his *Stadt* (1960), *Ville du Futur* (1960-1963) by Marino Di Teana, and *Compact City* (1963-1964) by Walter Pichler. With the same character, the model created by Frederick Kiesler in 1958 for *Endless House* [14] requires special mention.

Fig. 3. Richard Buckminster Fuller e Shoji Sadao, Triton City, modello, 1968: <https://www.behance.net/gallery/29713 07/Richard-Buckminster-Fullers-Triton-City-project/modules/27977871> (accessed on 2021, August 10).

Fig. 4. Arata Isozaki, Clusters in the Air, Shibuya, model, 1960-1962: <https://medium.com/built-horizons/metabolism-s-spatial-flexibility-in-the-21st-century-d7cef8aaaf84> (accessed on 2021, August 10).



Models for urban megastructures [15] are also particularly fascinating. Starting in 1960, Walter Jonas designed his *Intrahaus* [16], an inverted cone-shaped urban construction. The metal, wood, plastic, and acrylic model is also particularly defined with colors. One feature of many megastructures is the ordering grid that is often resolved in spatial network configurations [17]. Also with regard to models, some of the most interesting examples include projects by Eckhard Schulze-Fielitz such as *Raumstadt* (1959), (fig. 1) [18].
The Austrian architects Günther Domenig and Eilfried Huth presented their urban structure *Stadt Ragnitz* (1963-1969) with a wood and plastic model (fig. 2) in which color plays a fundamental role in highlighting the constituent elements and their complex functions [19]. The megastructure also describes *Instant City* (1966) by Stanley Tigerman, a linear city composed by pyramid-shaped constructions. The built model, which presents just two units, was later photographed and multiplied with the use of mirrors [20].
A particular approach was implemented by Geoffrey Alan Jellicoe with *Motopia* (1961), a city featuring roadways built above the roofs. Both the detailed model and the perspective views designed by Gordon Cullen illustrate the project in a 'reassuring' way, attempting to convince people of its buildability [21].
The sea is an ideal place chosen to locate megastructures, whether urban expansions over the water or veritable floating cities. One of the most interesting projects situated on the sea is *Thalassa* by Paul Maymont (1963), which imagines an extension of the Principality of Monaco. In addition to its particular circular structure, this elegant model represents the surface of the sea with a translucent blue plane on which the construction rests, where the connection with the coast is highlighted [22]. A true artificial island off the coast of Monaco was instead reproduced in the model for the project designed in 1966 by Édouard Albert and Jacques-Yves Cousteau [23]. The idea of floating megastructure is also present in *Triton City* (1968) by Richard Buckminster Fuller and Shoji Sadao (fig. 3), an urban expansion located in Tokyo Bay. In addition to an urban model that clarifies the relationship with the existing city, a large detailed model of one of the residential units was also built for the project.
The Japanese Metabolists made important use of models and nearly all their urban projects are presented with these devices. One of the main references is certainly the

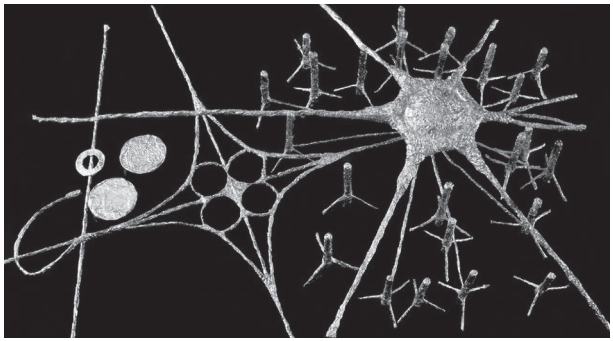
large model for the plan of Tokyo Bay (1960) developed by Kenzo Tange [24]. Wood was chosen for the model of *Clusters in the Air* (fig. 4), an urban hypothesis developed by Arata Isozaki at the beginning of the 1960s. This basic, elegant construction highlights the particular structures in the urban agglomeration [25].
The characteristic design attitude of Archigram [26] was certainly tied primarily to graphical representation –with the use of collage and photomontage– as the chosen tool to represent their proposals. From nearly all their works, however, there is no lack of interesting examples of models, from the most schematic and chromatically defined, such as *Plug-In City* (1966) by Peter Cook, where the focus is on highlighting the fixed structure with respect to the mobile, transitory elements, to particularly detailed models as in the case of *Montreal Tower* (1967), also designed by Cook [27]. The most fascinating models made by the group include the one made with wire and sheets of aluminium for *City Interchange* (1963) by Warren Chalk and Ron Herron (fig. 5).
For Paolo Soleri, models had an ability to prefigure his constructions in an extraordinary way. With their large size and attention to detail, the models for his Arcologies (fig. 6) [28] have an impact that strikes and excites the observer, who is catapulted into a unique perceptual experience [29]. Another important aspect of Soleri's models is often their material consistency, which simulates the visual effect of his completed buildings [30]. The large cardboard models such as the one for the megastructure *3D Jersey* (1968) are also impressive.
Just as for Nicolas Schöffer the difference in scale is often ephemeral and his models of urban structures overlap with experimental sculptures, the creation of 'histograms' (1969) in the work Superstudio (fig. 7) likewise creates a sort of short circuit between architecture and model. What they establish is a process in which the modular grid allows objects to be defined with the same logic despite the scale or decor of the larger structure [31].

Models and design experiments

Models are also an active tool for experimentation that combines conformational aspects with those that are more properly representative; the material itself, with its shapes and materials, is therefore one of the assumptions of the search. The experimental aspect is often echoed in

Fig. 5. Warren Chalk and Ron Herron (Archigram), City Interchange, 1963, model: <http://archigram.westminster.ac.uk/project.php?id=39> (accessed on 2021, August 10).

Fig. 6. Paolo Soleri with the model of Babelnoah (Arcology), 1967: <https://uxdesign.cc/hexahedron-paolo-soleris-utopia-in-context-375866438d52> (accessed on 2021, August 10).



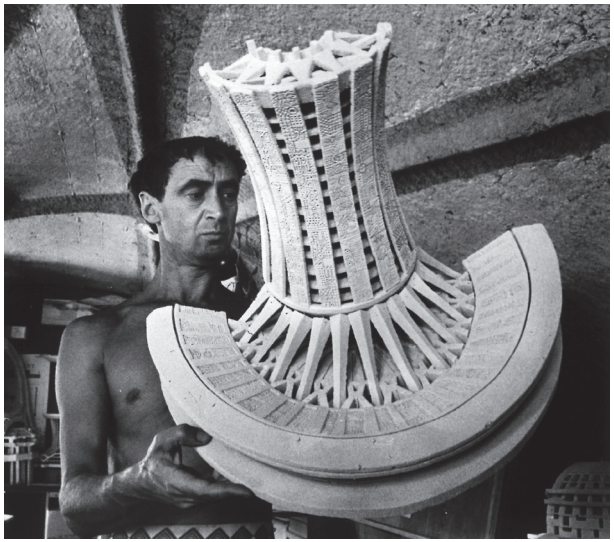
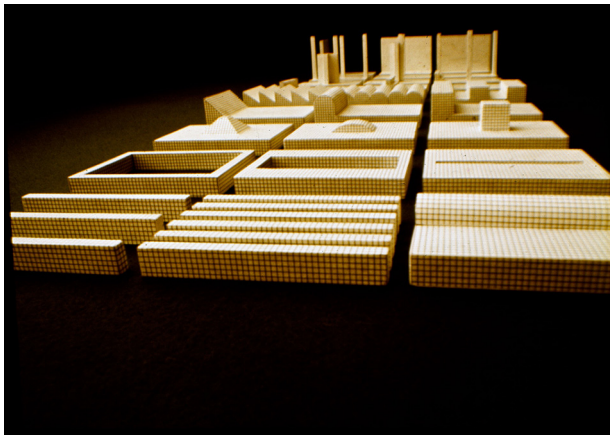


Fig. 7. Superstudio, Istogrammi, models, 1969: <https://insideart.eu/2015/10/30/super-superstudio/> (accessed on 2021, August 10).

Fig. 8. Yona Friedman, Ville spatiale, model, 1959: <https://www.frac-centre.fr/> (accessed on 2021, August 10).



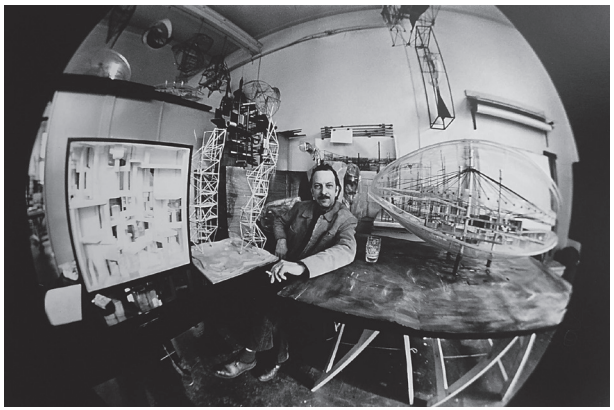
the use of '*objets trouvés*' or in proximity to artistic practices such as 'ready-made'.
An interesting area in which the use of models is particularly widespread relates to the representation of experimental residential hypotheses, which find an important precedent in studies made by Richard Buckminster Fuller [32]. With models, innovative houses, mobile dwellings, and housing cells find the perfect tool to display their features, even thanks to the use of dimensions that allow the details to be depicted precisely. From dwellings by Ionel Schein [33] such as *Maison tout en plastiques* (1956) and *Cabines hotelières mobiles* (1956), to *Maison de vacances volante* (1963) by Guy Rottier, the models clarify the structural qualities such as lightness and flexibility and the common characteristics tied to possible modularity. The development of housing cells was also investigated in models for projects by Pascal Häusermann (*Cellule*, 1960) and Chanéac (*Cellules polyvalentes superposables*, 1960-1971), as well as in the various hypotheses developed starting at the end of the 1960s by Antti Lovag for his *Maisons Bulles*. In 1969, Wolfgang Döring also presented some models of his Capsule Houses.
For Yona Friedman, the technological approach [34] unfolded in continuous experimentation from the constructive and formal points of view, starting with his profound criticism for many of the assumptions of the Modern Movement. The models for his projects are often characterized by their 'unfinished' nature, for their capacity to represent a process rather than a defined form. In Friedman's work, architecture, its representation through models, and the sculptural work of the author intersect and blend around the key concept of '*sculpter le vide*'. Everything highlights a vision of architecture where social substance is closely tied to the form; the indefiniteness of the models and their 'imprecision' [35] also represent a flexible urban structure ready to be modified and filled with inhabitants (fig. 8). Also important is Friedman's ability to choose the materials, often recycled, with a view to clearly defining different urban hypotheses. The 'light' character of his models and the lively approach play a fundamental role in favoring participation, which the author holds particularly dear: an open, expandable grid hosts living units that users may organize and 'decorate' as they wish [36].
New Babylon by Constant is probably one of the most important examples of the use of models for representing the experimental reflections of this period [37]. Constant's

is one of the most radical thoughts, even in defining new social forms. It is solidified in a complex urban structure for which the models made by the artist are the ideal tool for their dissemination. The use of materials such as steel, aluminium, and acrylic [38] contribute to defining an image unique to the realizations. He also commonly uses '*objets trouvés*' such as bicycle spokes, which become a cable structure in the model for *Spatiovore* (1960) (fig. 9). *New Babylon* is also a perfect example in which the desire to convey an innovative idea –Constant did not consider his project utopian– finds the perfect means in the integration of different tools and methods. The models are supported by a body of particular drawings, and the models themselves are also presented through photographs and a film directed by the author himself [39]. In *New Babylon* –as in *Ville Spatiale* by Friedman– expansion occurs through stratification that overlaps the existing fabric like a 'new skin'. The models manage to perfectly describe this logic just as they precisely represent the complex system of connections that mark Constant's hypothesis. Suspended structures –which certainly derive from one of the icons of modernity: Corbusier's framework– find their extreme development in New Babylon. The utmost attention was placed on the construction of models: they should be capable not only of depicting the formal characteristics of the project, but also manage to prefigure the perceptual approach in building the spaces [40]. This also gave rise to Constant's requirement to use models as the basis for photographic images [41]. Rather than leaving the model open to view, the idea was to control and guide the observer's gaze by means of snapshots 'selected' by the author and solidified through careful control of lighting and depth of field. The photos of the models [42] were adjusted with ink, colored pencils, and watercolors to create graphical representations.
The models by the Austrian group Coop Himmelb(l)au stand out for their creativity, which makes them independent products. The model for *Cities with Pulsating Frame* (1967) (fig. 10) uses different materials to highlight –even with reference to the imagery of space flight– a strong symbolic character that shows the elements of the city as parts of a living body. The result, however, is certainly disorienting due to the extreme distance with respect to the figurative customs of the urban space.
At the apex of experiments in depiction, the fascinating models of the urban concepts by Merete Mattern are worth mentioning. Projects such as those for the expansions of Bratislava Petržalka (fig. 11) and Ratingen West, both from 1967, combine the hypotheses of megastructures with an expressionist aesthetic with strong visual impact [43].
It is important to consider how models continuously bring the visual aspect into play. Observers are guided in their observation and sometimes, as with Constant, it is photographs that mediate between the user and three-dimensional product [44]. The model also serves as an opportunity for optical tricks. An outstanding example is the use of mirrors as 'multipliers' in the model for *No-Stop City* (1971) by Archizoom to extend the urban image to infinity (fig. 12).
Nor is the use of photographic reproduction unusual in models as an element of collage or other creations. Beyond Constant's use of images of models, a unique example is the work of Peter Cook, who, in the collage *Dirigeable Instant City M3* (1969), uses the photograph of the model of the *Zeppelin* –made by Archigram for an installation– as a component of Instant City.

Conclusion

"I believe that there are […] utopias that have a precise, real place, a place that can be located on a map; utopias that have a determined time" [Foucault 2006, p. 11]. Thus

Fig. 9. Constant in his studio in Amsterdam. On the right the model for Spatiovore (1960), 1968 (Ph. Nico Koster): <https://stichtingconstant.nl/documentation/constant-amongst-his-models-ii> (accessed on 2021, August 10).



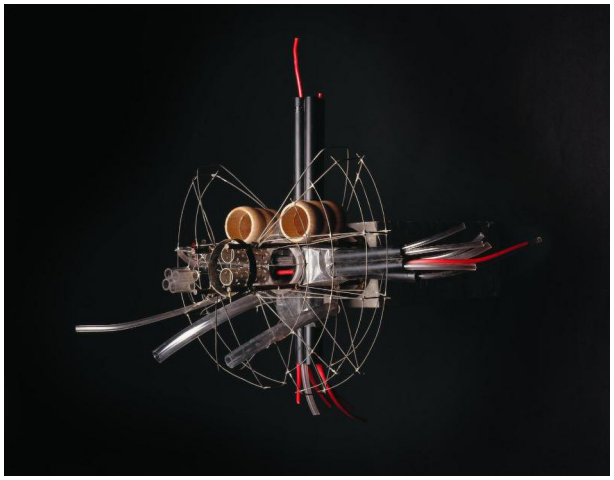


Fig. 10. Coop Himmelb(l)au, Cities with pulsating frame, model, 1967: <https://www.centrepompidou.fr/fr/ressources/oeuvre/c7p5K6K> (accessed on 2021, August 10).

Michel Foucault describes "heteropias", veritable "different spaces", "located utopias". This is perhaps the true character of many of the urban hypotheses discussed here, which are nearly always located in real places and often intersect with or overlap them. Models are a story made physical with this essence, and the examples described also testify to the importance of these products within this particular trend that, while changing direction in the course of just a few years, also had an important impact on the development of design thought in later decades.
In proposing original urban hypotheses, it is undeniable that the model is defined by its physical nature and capacity to highlight itself with a visual strength that elicits special sensations in the observer. While sometimes 'controlled', the view never aims to be passive; the goal is always to evoke surprise, but always making the observer an active subject that interacts with the product.
The physical reality of a model lies in the visionary essence of the buildings especially as an evocative object, although, as was seen above, it is common to observe a push towards a reassuring realism contributed to with the same tools of representation.
Sometimes ambiguous objects, models have often marked their self-sufficiency in stamping themselves with any need to pre-visualize the possible future construction of the work. They find strength in their autonomous existence capable of causing the observer to reflect, and presenting an "objection to all other spaces" [Foucault 2006, p. 25].
What remains of utopia today? Has it meant developing new structures and new forms of living? Any possible 'optimism' about future opportunities has certainly disappeared. Even the virtual nature of digital drawing has occupied the ideal space of experimenting with urban thought. However, the push to think about new urban conformations does not seem to have vanished completely. In recent years, Arata Isozaki designed *Mirage City* (1995), a return to the idea of urban expansion over the sea on an artificial island [45]. At the Venice Biennale in 2004, the Austrian firm Ortner & Ortner presented *Sea City*, where even in the features of the model the urban structures located off the coast of Tel Aviv recall proposals by Hans Hollein.
Both projects fall in line with the architectural and urban experiments developed during the years covered in this contribution. What appears, however, is a sort of coolness stemming from substantial disenchantment, and a sort of push towards the 'spectacle', 'irony', and 'nostalgia for the future' now seems to have completely disappeared. What remains is a knowledgeable reflection that, aware of the complexity of the urban reality, has abandoned the search for any all-embracing seduction.

Notes

[1] For a historical and critical ovierview of the trend, see Brayer 2003; Rouillard 2004; Schaik-Máčel 2005; Friedman 2006; Busbea 2007; Ley-Richter 2008; Koolhaas-Obrist 2011.

[2] Cfr. Eaton 2001.

[3] At the conference, Charles Péré-Lahaille and Guy Rottier presented their project for a *Cité Mobile*.

[4] Cfr. also Roy 2008b. In this regard, see also Friedman 1958.

Fig. 11. Merete Mattern, Urban expansion of Bratislava Petržalka, 1967, model [Elser-Cachola Schmal 2012, p. 319].

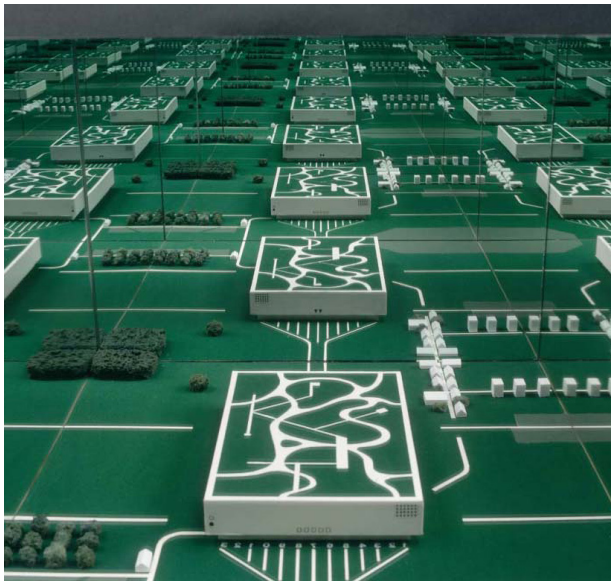


Fig. 12. Archizoom, No-Stop City, 1971, model: <https://www.frac-centre.fr/> (accessed on 2021, August 10).

[5] Members of the group from its foundation were Jean Pecquet, Roger Aujame, Jerzy Soltan, Georges Emmerich, and Jan Trapman. They were later joined by Frei Otto, Eckhard Schultze-Fielitz, Gunther Gunschel, Makowski, Werner Ruhnau, Gunther Kuhne, Masata Otaka, Erik Friberger, Camille Frieden and Paul Maymont. The group was dissolved in 1962.

[6] The GIAP saw the participation of Yona Friedman, Paul Maymont, Pascal Haüsermann, Walter Jonas, Ionel Schein, and Nicolas Schöffer. Ragon was also important for the spread of new ideas through a series of popular books that presented innovative projects developed in those years, with particular attention for the situation in France and where the images of models were widespread. See Ragon 1963; 1965; 1966; 1968.

[7] Cfr. Jungmann 1996; Riley 2002; Sardo 2014.

[8] Cfr. Colomina, Buckley 2010; Buckley 2011.

[9] For more information on the use of models in modern and contemporary architecture, see Sardo 2004; Healy 2008; Elser, Cachola Schmal 2012; Quantin-Biancalani 2020.

[10] In the early decades of the twentieth century, there was no shortage of important models of innovative urban projects, such as the one for *Plan Voisin* (1925) by Le Corbusier or *Broadacre City* (1932) by Frank Lloyd Wright. Following the Second World War, an important example –also for the great influence it held over the authors examined here– is the model of *City Tower* in Philadelphia that Louis Kahn conceived in the mid-1950s. The reasons for its spread also include the fact it has been exposed at the *Visionary Architecture* exhibition at the MoMA in 1960. This exhibition was probably the first testimony of the attention developing at the time. In addition to Kahn's model, the models for *Bridge City* (1960) by James Fitzgibbon and Endless House (1958) by Frederick Kiesler were also exhibited.

[11] Important cases include works by Nicolas Schöffer; cfr. Schöffer 1969.

[12] Among others, the projects *Cluster in the Air* by Arata Isozaki, *Ville Spatiale* by Yona Friedman, and *New Babylon* by Constant were developed in this way.

[13] See: Branzi, A. (1974). Un plastico d'oro (Radical Notes no. 16). In *Casabella*, n. 390, p. 7.

[14] More than 30 years earlier, Kiesler had already shown his visionary thought with the project for *Raumstadt* presented in a large model at the 1925 *Exposition internationale des Arts décoratifs et industriels modernes* in Paris.

[15] With regard to megastructures, see Dahinden 1972; Banham 1976.

[16] Cfr. Jonas 1962.

[17] For their development, studies by Richard Buckminster Fuller, Robert Le Ricolais, and Konrad Wachsmann were important.

[18] In addition to the model created in 1959, which had a grid structure and white pyramids, another was made in 1966 featuring the use of colored elements. Another interesting model by Schulze-Fielitz is the one for *Study for an Urban Agglomeration* (1964).

[19] The project, already ideated in 1963 for the Austrian municipality of Ragnitz, was presented in 1969 at the *Grand Prix International d'Urbanisme et d'Architecture* in Cannes, where the jury held, among others, Louis Kahn, Jean Prouvé, Robert Le Ricolais, Jacob B. Bakema, Henri Lefebvre, and Bruno Zevi. Cfr. Stanek 2011, p. 42.

[20] Another interesting project by Tigerman for which a model was made is *Urban Matrix*, where once again the shape used for the large units is an (overturned) pyramid.

[21] Cfr. Jellicoe 1961.

[22] Another project of urban expansion over the sea, again for the Principality of Monaco, was for an artificial peninsula developed in 1966 by Manfredi Nicoletti.

[23] Cfr. Marrey 1998.

[24] With regard to Tange and the Metabolists, see Lin 2010; Koolhaas, Olbrist 2011.

[25] Other projects in the Metabolist group that are important for the models created, are *Agricultural City* (1960) and *Cluster City* (1961) by Kisho Kurokawa and *Unabara* (floating industrial city, 1960) and *Marine City* (1963) by Kiyonori Kikutake.

[26] The manifesto of Archigram –composed of Peter Cook, Warren Chalk, Ron Herron, Mike Webb, and David Greene– was presented in 1961. With regard to their work, see Cook 1972; Crompton 1998; Simon 2005; Roy 2008a.

[27] Other examples of particularly detailed models include those for Sin Centre (1958-1962) by Webb, *City Synthesis* (1963) by Crompton, *Living Pod* (1966) by Greene, and *Control and Choice* (1967) by Cook, Crompton and Herron.

[28] Cfr. Soleri 1969.

[29] For expositions, elevated structures were built to observe the models from above.

[30] Cfr. Soleri, Davis 1984.

[31] The group consisted of Adolfo Natalini, Cristiano Toraldo di Francia, Gian Piero Frassinelli, Alessandro Magris, Roberto Magris and Alessandro Poli. With regard to work by Superstudio, see Lang, Menking, 2003; Gargiani, Lampariello, 2010; Mastrigli 2016. On the 'radical' trend in Italy, see Pettena 1996; Migayrou 2001.

[32] Cfr. Emili 2003; Hays-Miller 2008.

[33] For more information about Schein's work, see Berselli 2015.

[34] The influence of Konrad Wachsmann is important.

[35] The choice of materials and their assembly are also indicative of his approach: for his models, Friedman uses paper, paperboard and wire, but also recycled materials such as blocks of polystyrene, Indian bracelets, rolls of paper towel, pieces of wood, etc.

[36] For Friedman, there is naturally no shortage of examples of particularly defined, detailed models, as in the case of the 1963 project for *Ville Ponte* on the English Channel.

[37] With regard to Constant's work, see Constant 1974; Sadler 1998; Careri 2001; Zegher, Wigley 2001.

[38] Acrylic was Constant's chosen material; before *New Babylon*, he had already used it at the end of the 1950s for the Spatiovore project.

[39] To disseminate New Babylon, Constant created a periodical in 1965, De New Babylon Informatief. The four issues were published for expositions; the last was presented for the 33rd Venice Biennale in 1966.

[40] In exhibiting his models, Constant experimented with light and sound.

[41] Cfr. Wigley 1998.

[42] Another interesting point is Constant's use of some traditional photographic techniques and large-scale printing to lend greater visual impact to his representations. Cfr. Roy 2008a, p. 305.

[43] Cfr. Elser, Cachola Schmal 2012, pp. 317-322.

[44] With regard to photography and models, see Deriu 2012.

[45] In the project, the island is situated in the South China Sea, off the coast of Macau.

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Flying Cities. Hetherarchy, Macroscopy and Stratifications in the Marginal Drawings of 1960-1990

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Abstract

This work aims to investigate the essential principles and generative systems of imaginary drawing with particular reference to the production created between 1960 and 1990 and depicting flying, dynamic, suspended, floating architectures, free from any law of physics. The hand and the drawing can see things that the eye has not yet seen, materialize the impossible, conceive something that, perhaps, could exist only in the distant future and on distant mental planes: these creation depict spaces that can exist only on paper (hence "paper architecture"). These architectural 'evocation' drawings, however, also have a real design value and, although far-fetched, represent the object of a profound research carried out by several visionary authors-artists-architects such as Ron Herron, Peter Cook, Constant Nieuwenhuys or Yona Friedman and later Raimund Abraham, Lebbeus Woods and, in some proposals, Aldo Rossi. All these authors mentioned above investigate the marginal design but with different purposes, values and models therefore the graphic results vary a lot. In the space of the sheet of paper where everything is possible, the compositional and aggregation principles of architecture become a virtuosity free from the physical limitations of the reality in which we live, a space in which the authors, fascinated by the sky, even come to make buildings and cities hover in the air.

Keywords: macroscopies, heterarchy, paper architectures, marginal spaces, Flying Cities.

"These are really the thoughts of all men
in all ages and lands, they are not original with me,
If they are not yours as much as mine they are nothing, or next to nothing,
If they are not the riddle and the untying of the riddle they are nothing,
If they are not just as close as they are distant they are nothing.
This is the grass that grows wherever the land is and the water is,
This the common air that bathes the globe"
[Whitman 1891] [1]

To think of marginal drawings

To think of marginal drawings is to seek legitimacy in invention, a fixed point where to anchor the pure creative will, a trait (and a practice that is actually essential) that belongs to a no man's land. The marginal *Disegno* has a clear contact with the disciplinary and operational action of the architect's project, it lies in the rethinking of models capable of articulating, or even demanding, new maps (infrastructures) including the hetherarchy and macroscopy which collaborate in a common action in the design of the margin.

These concepts, in turn, allow the introduction of a perceptible and observable code as a map of a macroscopy.

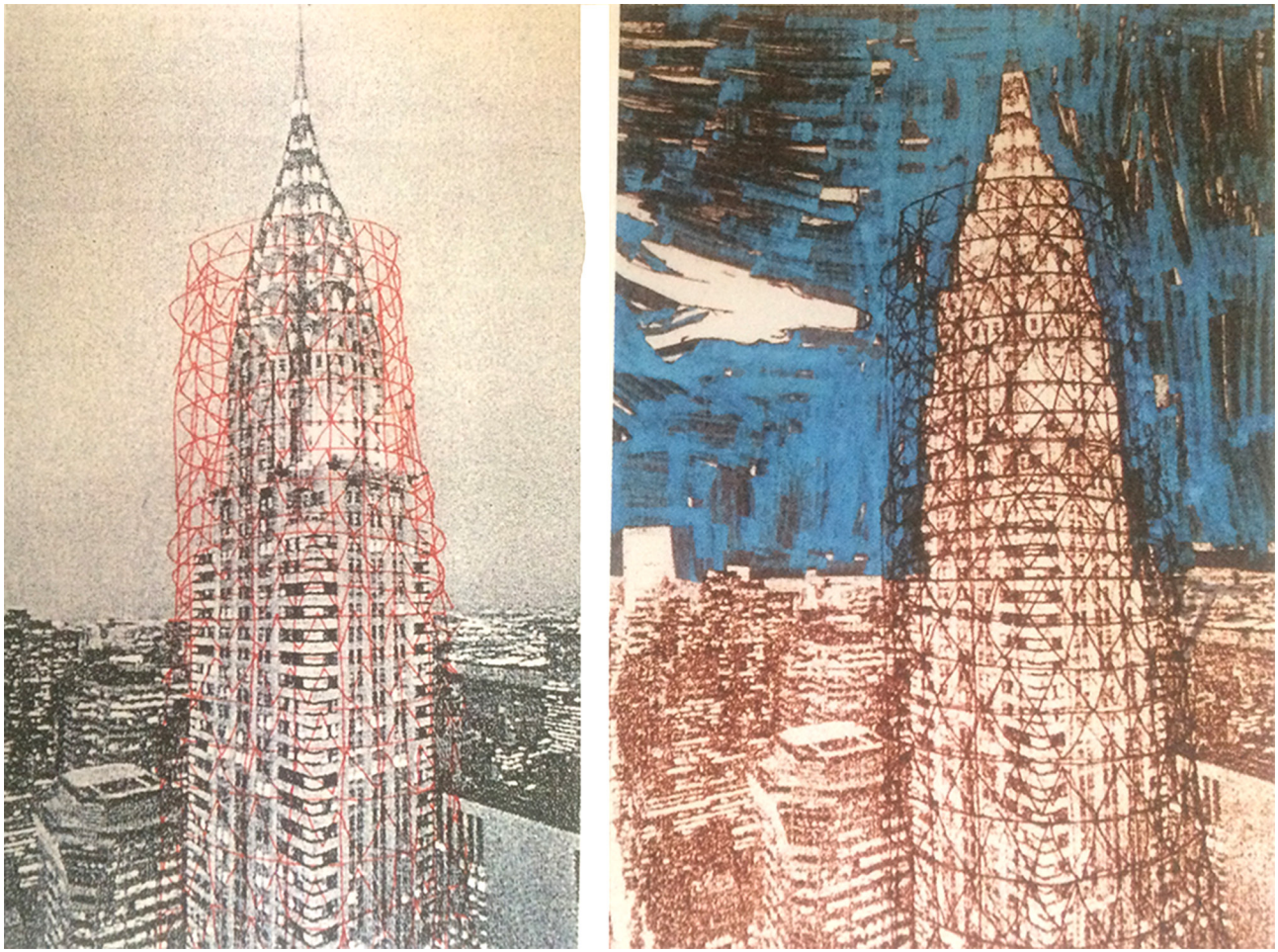
The revealing of the marginal expression, especially close to the architect's design, is the speculative hypothesis. This type of design is almost always present in the architectural practice of the designer. The expression of such thinking takes place through the oscillation, drift or exchange between the central and peripheral idea; it takes place in the space designed by the project, regardless of its visual

configuration. There is something in between, something for which the practice of architecture derives from this representation, born from the interaction and exchange between the two floors.
The marginal design becomes something that illuminates the decentralized presence, produces a path, a possibility and, understood as a random genesis of the moment, builds, through successive transformations, romanticized visions of places and spaces and the diffusion of manipulable forms and compositions.
The individual strategy of this marginal place is also found in Alvar Aalto and in his search for an abstract condition (peripheral/marginal) for the redemption of doubts, uncertainties or imponderability and can be explained by E. H. Gombrich referring to the creative relationship of a conscious state in Paul Klee «far from starting with a firm intention, he let the forms grow under his hand», adding that this idea of scratching lets something "acceptable" [Gombrich 1999, pp. 217-219] emerge determining a complacency for having outlined "something" regardless of where it takes it.
In this way, through the process of idealizing at the margin, a consequent transformation of the manipulated compositions is determined, realized in the synthesis between spaces, in indefinite places perceptible through the stratification of levels of which the material thickness of the design is evidence of the rethinking, disseminated by the gesture and the existence of new layers.
The same rethinking manifests itself in the matter of new structures that give multiple densities to the substance of thought and of the project itself; this new layers materialize on the space of the sheet in order to rewrite the thickness or predict the density; the middle way, what can be and what will never be.
The decisive existence of idealization on the margin according to Aalto, but also according to many other architects, therefore attributes an abstract basis to the condition of risk inherent in this type of drawing; the activity of configuring peripheral spaces in which the contamination of the drawing and its representation of the inner imaginary takes place, reflects the search in the architectural framework of the necessary time delay, giving it a notion of periphery and consequently, touching the limit of the weightlessness of the margin.
Marginal design thus establishes new perceptions, new forms that are transmitted from the plane of the designed space to the deliberate deviation, in the transforming and emerging condition without style or deterministic concepts; the drawing develops only as a result of successive approximations, a creative process by which the sketch is the scheme of reasoning of a specific activity that hypothesizes its most peripheral aspect. A freer, speculative and investigative characterization (fig.1) "It is the oscillation of the arguments that leads to the gradual transformation of the images, which ends when the designer deems it sufficient to be stored consistently" [Goldschmidt 199, p. 123] and through which he presents us with the operational interrogation of what is significant but meaningless, in an open and waiting state, a mediated field between architecture and this designed periphery.
Periphery, understood in a certain sense as a simulacrum image, a space of externalized reflections on the void, a place of transforming configurations on the idea of tectonic movement, of vibration of space, of the construction of new, conjecturable and radical references.
For this reason, we believe that the field of drawing, initiated in the peripheral/marginal condition by experimental/visionary architectures and, simulates between: natural and artificial, saturated and speculative, the moment that precedes the act of designing or drawing. This condition of contrast of opposites explodes the ineffable concept questioned by Leonardo every time he tried a new effort tell me if something was ever done [2] (tell me if something has already been done) [3], even when the conditions that determine it affect the transformations of these drawings and, consequently, in architecture.
"This project is based on the possibility of an impossible architecture associated with its experimental and visionary genesis, it is so entitled by a lyrical and marginal narration, concretized by the design material of experimentation, where […] this 'experiment' contains an 'experience' and an 'experimentation' beyond consciousness" [Gil 2005, p. 17].
The purpose of these experimental and visionary projects [4], observed throughout history and used over the centuries as a way to imagine new realities and rethink the world, has given rise to radically new architectural theories. Paolo Soleri stated in 1959 "the natural landscape is not the most suitable frame for the complex life of society. Man must make the metropolitan landscape in his own image: physically compact, a three-dimensional and dense energy package" [Spiller 2006, p. 74].
These topics are the formalization of the emerging themes that wouldcome to anticipate, especially after the 60s, what Neil Spiller defines as "the second poverty of heroic structures and Arcadian networks".

After the Second World War, in a liberating and optimistic environment in technological vision matters, Archigram and Superstudio begin to devise utopian technologies, twisting the architectural imaginary in disturbing representations in dystopian ubiquity and radical conformism. Concepts that have had and still have a fundamental role in the rhetoric of the architecture of the new millennium and shared by the exponential technological development, by the manual skills of the machine in its evolution of new realities [Spiller 2006, pp. 8-17].
Rewrite new visual topographies, record in the tectonic relationship a state of emotional dynamics between observer and object, especially in prosthetic geographies, which act as speculative graphic material in a set of embedded experiences, adapted to the visionary, imaginary, utopian, marginal places context.
In the same way, the importance built under the multi connective and relational action of drawing can be understood as something stratified, creates density and influences, acquires differentiated states of communication: they can be operational, deviant, speculative or mobilize a set of possibilities that appropriate in the heuristic sense.
The (un)constructed, which continues to be architecture [5], just as the material building is a crucial point, the design is where the architecture is in the building, in its externalization in the design of space and in the experience of that space.
This condition of projecting through the drawing, in an action that brings together graphic artifacts (recordings), transforms and expresses itself in the white space of the sheet, showing the agitations revealed by the traced limits, of a cosmogenic exteriority.
The circumstances of these traced boundaries that trigger these artifact-places through which connections can be constructed between transient and incomplete topographies (macroscopies) and dialogues of illusory dimensionality, explode under a non-Cartesian geometric field [6]. A dialogue, a comparison between real and imaginary, a sort of non-synthetic assembly, a reconstruction that embodies the approach to the fantastic, to the unexpected, to the discovery of the unimaginable.
In a sense, the threshold of atmospheric perspective is contextualized in the drawing of the Lebbeus Woods *Turbulence* (fig. 1) which represents the revelation of these perspectives reconstructed in unusual and ubiquitous cartography. This perspective is the result of the overlapping of the landscape, of the addition of a new topography that builds the ideological emergency that according to Woods [7], is the same experience of the project/drawing, in the conjectural imaginary or in the recognition of having acted accidentally. Action that causes the stimulation of the imagination, a sort of seduction of the null being, that is, to present the unconstructed in the rise, in the sinking, in the flow, a flow condition.
The arrangement of drawing as an idiosyncratic resource establishes a reflection accompanied by broader or more stimulating hypotheses, with drawing as a marginal hypothesis a space of resistance, a sort of "return to the origins" [Petherbridge 2010, p. 11].
Paintings on the origin and actions of a drawing linked to a pathos of imagined construction, an interconnection produced by a fragmented mapping and reconfigured into new transformed landscapes. which are transferred by expressing the upper and the lower, the vertical and the horizontal, the compact and the fluid, the opaque and the transparent, the immobile and the mobile, through which "the exteriority of things is overcome" [Francois 2008, p. 20]. A heterarchical field where the connections and testimonies of a system that collects on the same level the oscillations of the designed space are evoked.

Fig. 1. L. Woods, Turbulence, 1992 [Woods 1995, p. 41]

Fig. 2. Mosquito net, project, after 9/11. The attacking plane would explode when hitting the space-frame envelope outside the building, 2001 [Friedman 2006, p. 109].



Hetherarchy

The concept of hetherarchy initially formulated by neuroscientist Warren McCulloch in the study of neural networks can help to explain the correspondence between this type of 'network' and marginal drawing or even macroscopy as a system where there is no centralized to vertical control (Hierarchy), but a system where consensual order and design predominate as a resource of mediation between the operational and the speculative. In Yona Friedman's drawing (fig. 2) we can understand the hetherarchy, or network, elaborated by a system of organization of space, time and society composed of self-inventive and self-sufficient actions, whose structure changes continuously according to needs and conditions. Inhabiting the system means embodying existence and freedom, but also the rewards of enduring them without illusions, randomness and a heterarchic order.
The hetherarchy exists as an illusory, ephemeral, constantly evolving model of free communication that proceeds and is brought within isolated but distinct spaces, a largely hidden contemporary manifestation, as emerges from the individual spaces of the margin.
Yona Friedman says: "I discovered the unimaginable potential of composition between randomness and order. I worked and designed to manipulate and understand this potential" [Friedman 2006, p. 31]. Think of drawing on the margin, its contact with the disciplinary action of the architect's operational project to rethink it in models capable of articulating the concepts: hetherarchy, macroscopy in a common action.
Correlated to the concept of heterarchy are these statements by Kandinsky "direct impressions of an external nature expressed in drawn and painted forms»; in a second moment as «expressions, largely unconscious and suddenly formulated of facts of inner character» can produce provocations that feed creative thinking, and finally refer to «expressions that are formed in a similar way, but whose slow elaboration allows to take them up, examines them and works on them from the first gestures that I call compositions" [Kandinsky 1987, p. 121]. These in turn makes it possible to introduce a perceptible and observable code to the concept of macroscopy based on an imaginary or even affirmative logic that resorts to the phenomenon external to itself, the action of projecting subtractions and additions of materials (graphite) on the paper support through the drawing. A sort of reconstruction of the proximity to the archaeological action on the drawing of the artifact that is discovered by the detailed movement of the previous moment, "to find the disturbing unimaginable" [Seguí 2017].
This mediation explores the whim as a design on the margins of utility, which allows us to rediscover a logic of thought based on a tense relationship between dichotomies: juxtaposition/opposition, static/dynamic, light/dark, regular/irregular.
Hybrid topographies thus appear, in a consensual order between two fields: the artificial against the natural that result in a cross between two distinct realities that establish relationships between them and expand new cartographic visions, transforming in itself the architectural idea itself.
The plane of the hetherarchy adapts to understand and support theories about space [8] and network relationships, in ambivalent perspectives, freely transferred between unrelated images. It functions as a unified field of connectivity, where images allow the morphosis of new layers and spaces with new thicknesses. It is from these complex spatial interactions and the articulation of different scales that the logic and production of the designed space change and produce new meanings.
It translates into an architecture that does not exist, in the visible dimension of a macroscopy where only the design of the synoptic manifestation, of the magnifying or reducing instrument, and in a suggestive landscape of the imagined construction of the drawings in pure speculation can be glimpsed.
An example of this is the graphic work of Giovanni Battista Piranesi (1720-1778), a space for co-production. That is, they are "the storage of information, essential for architectural design and creative imagination, originates in events that impress positively or negatively" [Lobato de Faria 2014, p. 37]. However, considering the variants of prestige that history testifies, as a way of thinking about drawing, it plays an important role, as a tool to invent architecture from "ground zero" or, more assertively, the concept of soil that, according to Wolfflin, "it has to do with a f*ormlosigkeit* (lack of form) that holds back the immanent life force of things, overcoming *Formkraft* (force of forms) a drag upwards from this formless state, against which all life struggles" [Rajchman, Virilio 1998, p. 78].
In practice, the notion of causality [9] in design action is used in this way, as a premise determinant of the process of mediation and representation through the drawing of the architect as an author, who builds a synthesis and materializes the work on the threshold of the (un)constructed.

Fig. 3. L. Woods, D.M.Z, 1995 [Woods 1995, p. 78].

Drawings that emerge in a radiant and freely appropriate way, which convey to the visionary idea the space for experimentation and an approach to art through abstraction and the notion of margin [10]. The material explorations of the mediums (graphite ink or others) in the designed spaces are geometric and topographic conceptualizations, signs and limits common in architecture, which present, in a certain sense, states of surprise and anxiety.

These elements perform not as unitary forms, but as fragmented elements of discovery, subjected to the gaze delimited by horizons in a certain sense idealized from which they appear spontaneously, in a compositional altruism of colliding spaces, dissolved in random groupings. The ways in which they are based, either through fictionalized formulation or by trying to understand the notion of hetherarchy, expose states of tension and convergence of an environment approaching the (un)constructed.

The other side of this denser and more opaque (marginal) design language explores the register in the memories of lived spaces, hypothetical in living, in the unknown, in the fantasy drawn in paper cities, in the echoes of the *Invisible Cities*, as well as in the poetic dimension, making the imaginary visible, "making it appear" [11] or reappear. Architecture, as a disciplinary, is not one or reassuring, in certain circumstances it refers to the stronghold of its ideology, where original thoughts or true inventions are rare, it stands out in its originality especially through its designed expression.

As Javier Seguí says "the design of the building (psychological reality) is… a virtual germ of the world" [12]. This interiority transports us to the exterior. Another side, closer to the imaginary or the edifying invention of drawing, which also seeks density and interrogation of the action of the projected in the new thicknesses, expanded by exploratory spaces in structures built by intertwined actions and mediated by the traces of drawn gestures.

These actions of the drawn gestures are thus born by analogy and circumstance, (circum = around + instance = presence) supported by the radical transformation of the drawing and drawn experiments. Lebbeus Woods explores the landscape by merging the artificial and the natural, as the example of the design drawings for the Korean DMZ Peninsula claim (fig. 3). The landscape is the exponential architecture to the territory on the tectonic surface, it is fundamental without being subtle. built and deliberated by the casuistry organic coexistence,

expressed in the multiplicity of forms and surfaces with which it builds a presence, a tense and decidedly design coexistence in the relationship between building and landscape or, more precisely, between architecture and landscape.

The works produced by exponents of contemporary architecture such as Lebbeus Woods seem to be a result of 'complex fictions', spatial experiences framed in a relationship of complicity between observer and drawing. The viewer recognizes objects that seem to be architectural structures but that clearly distance themselves from the current reality (sometimes they are almost abstract compositions). Only with the active participation of the observer, who must put on the field the will to see a true architecture and a potential in the forms, the vision acquires its true meaning. With this operation the observer becomes the creator of his interpretation of the image.

If there's going to be another movement, another direction in architecture, it has to engage people differently. Other than saying, here, look at this, isn't this amazing? It has to interactively involve them other than as spectators … it has to engage them as creators.

On the other hand, *(Un)fold* landscape drawings take place through layered sequences. Built for different densities and stratifications through overlaps, digging into the void, redoing and summing, retracting as a design palimpsest, even if absent from its fragmented syntax.

This manipulation, which takes place in the space of architectural representation, allows to review, in the concept of notation of Bernard Tchsumi, the relationship between event, space and movement, as Xavier Seguí, of Derrida, refers even if analogously to architectural notation as follows: "the eye is blind to draw, useless when drawing. The vision operates later when it is stopped drawing, and the drawing, like the mark of various movements, presents itself as a figurative visible set, being able to say, it is drawn as it is written, leaving space, limiting the amplitude" [Seguí 2012, p. 96].

This breadth of the system/device in which this design is realized (macroscopy) involves the hetherarchy as a dynamic process establishing a network of relationships like the roots of a forest in its intentional or necessary deviations thus recognizing the hierarchical and centralized absence, in continuity with the axes of space, that is, plane against pyramidal, and individual against network.

However, to understand the concept of hetherarchy in front of the macroscopic device that builds the designed process, reference is made to the marginal space built between the proliferated limit of idealized images and those resulting from the spaces under construction of new vectors that define a structured and localized action.

Macroscopy

Macroscopy seems to be the visualization of the expression necessary for the recognition of spaces that gravitate marginally, or of appropriation, ambiguous, internal spaces, external spaces, spaces without space. As Michel Foucault suggests: "we live within a set of relationships that define "sites", which are irreducible with each other and certainly not overlapping with each other" [Foucault 1984, p. 350] [13].

A 'marginal' drawing that, according to a macroscopic projection, is characterized by two instances: first, because it is autonomous, speculative and investigative, second, it presents the questioning of a meaning still without meaning, in an open and waiting state, a mediated field between architecture and this design, understood as a simulacrum.

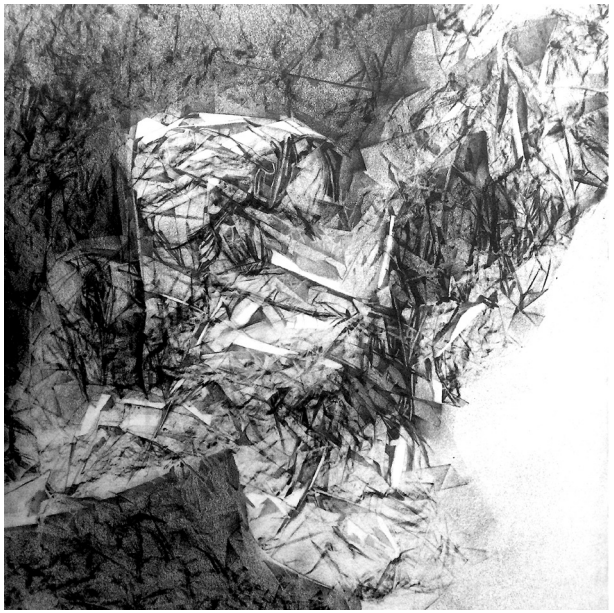
They are presented in transforming configurations of the tectonic idea, tectonic movement, the vibration of space, the construction of new, conjecturable and radical references. They can be characterized in their non-construction, the (un)built [14] that remains architecture without its constructive dimension. Just as the building is a crucial point, the drawing is the place where the architecture is not yet in the building, but exists in power in its externalization of the space and in the experience of that space.

Speculating on this imaginary reality (the other side of the barricade, reflects a field that can be called *free*field), [15] we perceive a plane in which the architecture and transversely the marginal drawing relates to another imaginary field, a sort of entity, the one that builds, transfers and fragments, to sediment and propagate again, expressing a place of refined nuances differentiated or integrated by continuity/discontinuity, dissemination/dispersion, movement in space and time.

Macroscopy presents as an observation device and central drawing tool, consisting of observable filters determined by: reason; "strategy"; "imagination"; "Image"; "composition"; "expression/atmosphere"; "technique"; "surface"; "fantasy" [Cook 2008]. These filters translate methodologically into events drawn on drawing actions, sometimes encoded by the observable macroscopic hypothesis, sometimes in their ontological dimension, where their expression and enun-

Fig. 4 Conical intersect, 1975 (40,5x59 cm) [Matta-Clark 2003, p. 95].

Fig. 5. Telmo Castro, [Un]fold Landscapes Série IV.



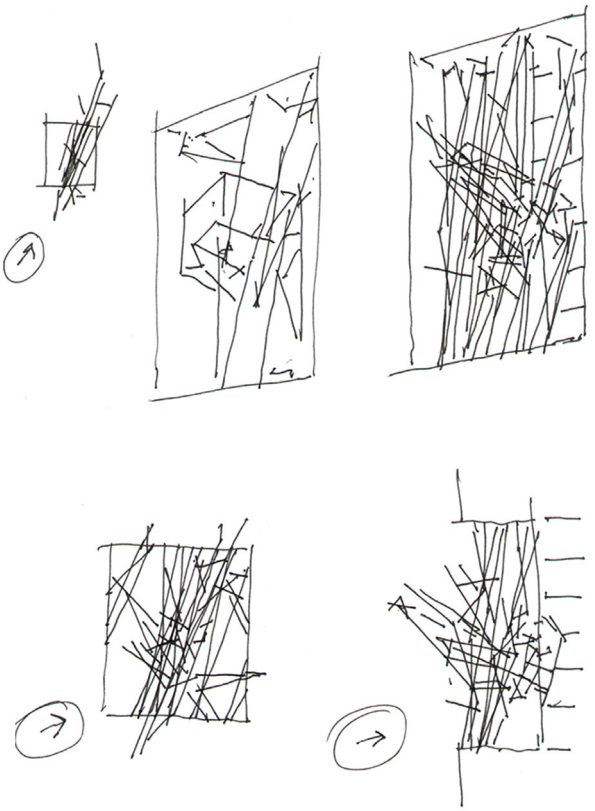
ciation elaborates the questioning of imagined spaces and architecture.
A propitious territory of paper architectures where drawn topographies are built that define narratives of latent spaces, visible only by the imagination drawn on the plane of the image [16] or hidden when observable with other lenses. Macroscopie's apparent construction of multiple meanings is manifested in the transversal logic of architectural thought and in the similarities that cross areas of art complementary to architecture.
Closely analyzing, for instance, the examples of material sections of Gordon Matta-Clark spaces, we can identify, from the stratification operations of the construction, from the visible cutting of the surfaces and from the assembly of materials, planes and volumes, which are capable to configure a new order.
Individual self-control and variable periphery, are present in this kind of drawings intended as actions built between the determination of the architectural object and the compositional configuration of the form. The drawings present the appropriation of the revelations of spaces/permanences/intermittences and visible only through the action of inscribing signs that can be observed through a macroscopy in the structured action of the drawing.
The phenomenological experience is closely connected to the graphic construction, decomposed in the artifact and in the very design of a plot in real time, intricate, simultaneously haptic, visual and performative, observed in Matta-Clarck, seem to be the anchored hypotheses of the performative, experimental drawings, simultaneously carved in the thickness of the paper, the instrumental artifice of separating, cutting and drawing.
When constructing a condition of "blur" [Molina 2001, p. 46] is found in Conical Intersect (Paris 1975) (fig. 4), the figural argument of the fractured movements of the drawn expression.
On the other hand, the experimental character of these drawings moves between imaginary models, in cities buried underground as single or dispersed units, or as continuous sculptural topographies in the landscape (fig. 5).
Although they can be combined in the thematic proposals of Walter Pichler or his contemporaries Hans Hollein and Raimund Abraham, they present propositions and ambiguities, questions rather than solutions, led to undertake a deliberately uncertain path between art and architecture: the mechanist and the biomorph, the dominant and the human, the ironic and the ideal.

From another perspective, Lebbeus Woods in collaboration with Cristoph A. Kumpusch, in his project "The Light Pavillion" in the Raffles City Complex, Chengdu, China, by Steven Holl Architects produces a space of "intersection between non-homogeneous entities and geometric conflict" [Mucci 2016, p.156], however Lebbeus Woods explains the unique motivations revealed by the unusual circumstance of the project (fig. 6): "It was designed to be an experimental space, that is, one that gives us the opportunity to experience a type of space that we have never experienced before. […] This is the most crucial aspect of its experimental nature, and we, its transient inhabitants, … each of our experiences will be unique and personal. […] Its deviation from the straight grid frees the spaces from static stability and sets them in motion, […]. The space is designed to expand the scope and depth of our experiences. This is its only purpose, its only function" [Woods 2011, p. 171].
In the pavilion drawings (project sketches, fig. 7), architectural analogies are incorporated through breaks and discontinuities, producing new layers «as unique overlaps and connections between different temporal layers as can be observed in film editing» [Rajckman 1998, pp. 80, 81]. However, the idea of experimental space that "attempts to appropriately distance itself from the visual, geometric or rectilinear, horizontal and vertical form […] which gives rise to a sense of space more Piranesian than Mondrianesco" [Rajckman 1998, p. 80, 81], are the elements that define it, not always following the rectilinear geometry of its surrounding scenario designed by Steven Holl, but obeying a geometry defined by dynamic movement, the rectilinear deviation, freeing itself from static stability and placing movement in space; expanding the action and depth of experience, as in Gordon Matta-Clarck's Conical Intersect (Paris 1975) a form of 'Anarchitecture' [Harries 2011], term used by Lebbeus Woods in his book published in 1992, which introduces in a monographic way the ideological principles of his experimental architecture.
This underlines the regular/irregular, linear/curved, static/dynamic dialectic, absent from the representation of architectural syntax, through fragmentary signs of an uplifting narrative in architectural thought that combines the game of relationships between form/imaginary space, in a territory conditioned by its impossibility of materialized object as architecture. An apparent and autonomous revelation turns out that peripheral and marginal, explained through the awareness that the drawing often takes place according to a plot that encloses and opens possibilities, allows to trace some of the observable characteristics of a macroscopy, for which the spatial dispositions are constituted in the drawing and their geometries, as John Rajckamn argues: "We can distinguish between two types of spatial arrangement, effective and affective. The first seeks to insert movements, figures, stories and activities into some larger organization that precedes and survives; The second, on the other hand, seeks to produce figures or movements of any organization, allowing them to move in unexpected paths or to relate to others in indeterminate ways" [Rajckamn 1998, p. 92].
John Rajckamn's argument seeks to clarify that in the construction of various geometries, these are fixed in points or planes, while others in a more informal way, almost in diagram format, create their own distinct and conceptual contacts; it does not represent the construction or space of a city. However, these are built between spaces that reveal the tension between the two, in an Albertian principle 'God exists, so everything is allowed'. Still on the subject of these geometries, Gilles Deleuse thus formulates as "the expression of a possible world that exists only within this expression" [Rajckamn 1998, p. 93]. A possible world caught between experiential geometries and fictions.
The process of imagination, which is an inherent and essential character in this type of design, simultaneously ideological and conceptual, becomes an essential element that establishes the bridge between contemporary avant-garde art and architecture. This process is realized through the

Fig. 6. The Light Pavilion https: <//lebbeuswoods.files.wordpress.com/2011/02/int-5-11.jpg> (accessed on 2021, June 20).

application of an analytical-experimental perspective and an artistic-projectual research.
One of the central themes in the utopian-imaginary drawing is then the search for a code, a link, which gives usefulness to the uselessness of the architect's creative process, a process that is never interrupted but that conforms in a fragmented representation, in a phenomenological design of the opposite, lyrical and dissonant.
"I am an architect, a constructor of worlds, a sensualist who worships the flesh, the melody, a silhouette against the darkening sky. I cannot know your name. Nor can you know mine. Tomorrow, we begin together the construction of a city" [Woods 1993, p. 1].
All that matters and remains for the creator of the project (architect) is the path, the exploration and the methodological process represented by the drawing itself.

Fig. 7. Light Pavilion in https: <//lebbeuswoods.wordpress.com/2011/02/15/a-space-of-light-2/> (accessed on 2021, June 20).



Conclusions

Since the drawings vary, they transform and take drifts, exploring the direction that gives amazement to the author(s). The problem of yielding to the form, to the material of fantasy, is a process that in the culinary slang is called 'reduction', which means, concentrating, reaching the essence of the designed thing, the effective awareness of what matters, of what can no longer be reduced. When this process has reaches its limit it trascends to be what will cover the project, and the 'reduction' will be reproducing the clairvoyance of the architect who is part of it, of a new essence. Diluting, mixing, while maintaining the indelible existence, the need to be present.
Since the drawings vary, they metamorphose and take drifts, in the straight direction that the author(s) gives to astonishment, the problem of surrendering to the form, to the matter of fantasy, is a process which in the kitchen is called "reduction"; that means to concentrate, reaching the essence of the designed thing, the effective awareness of what matters, of what can no longer be reduced. Since the "matter" has reached the limit of itself, to be what will finally permeate the drawing, and which reproduces the clairvoyance of the architect making it part of a new essence. Diluting, blending, yet maintaining the indelible existence, the need to be present.
They are presented as evidence of a state of affairs, motivated by a clear view of the relationship between analysis and creativity. An annotated observation of what was seen and lived, no less lateral or even insignificant. An existence that is discovered in a lucky moment or the discovery of a less obvious reading, being assertive.
The hypotheses questioned by this work are for a confirmation reason an open state, being however not far from what is imagined as a clear possibility, however, the marginal drawing is a representation that happens in the oscillation as we can observe in Álvaro Siza or Alvar Aalto, and it contains the potential of the argument necessary for us to be able to ask the question, above all through the artifice of inventing something new, emergent, original.

However, by relying only on the simple proposition of speculative drawings –a place on the sidelines– the operative process of the project and its drift translate into experimental architectures. They are still the desired position on these exploratory drawings between what it proposes as an alternative and the tangibles of its limits.
In addition, we sought an argumentative association linking marginal and experimental to induce imagery linked to visionary architectures, the convenience of this take of position was to be able to introduce alongside the marginal issue, the sense of possible dissection taken to the less publicized part of these. Representations in the margin, the naked gaze, the macroscopy of what the drawings offer, finding and finding among them the supported confirmation of what clearly exists but which the moment hides. Desacralize the drawn figuration, taking it as a consequence, its origin. Because it has an origin and it crosses time, Lascaux or Altamira are to be repeated, although unrepeatable, transformable, perhaps, in the right measure of the invention, at this point we understand that the enunciated revelations correspond to the importance of the formulated hypotheses, the place of compromises and miscegenation of the margin not only because of its peripheral reflection but because of the almost impossible constructions. Discovering while remaining on the sidelines the transformation of the reality of a suitable drawing is a greater challenge in obtaining an answer that encompasses a conclusive character, we would say that it is a difficult door to close. That is, to get the answer to the hypothetical question, about the architect's marginal drawing.
An answer encompassed by the presence of critical thinking, considering drawing to be a convenient and convincing artificiality, as they constitute a diversified reality, which simultaneously allows seeing and communicating. Crossing the relationship of these shreds of evidence –drawings, testimonies, experiences– that refers to the knowledge and practice of the architect, as an 'artist', in the direct influence, in the way the theme establishes the unavoidable and difficult-to-confluence relationships, in the research of evidence to the issues addressed by this drift of drawing flying cities, between drawing and architecture, an attempt was made to build, in the experimental event of a drawing, the meaning for a shareable knowledge –placing the design in the action in drawing– that plays between the usefulness of the useless.

Notes

[1] *Song of Myself*, 17 Walt Whitman - Poems | Academy of American Poets.

[2] Martin Kemp in exhibition catalogue, Leonardo da Vinci [Gombrich 1999, p. 216].

[3] Leonardo da Vinci's phrase is an archaic phrase, so what makes all the difference in this sentence is the expression "*se mai*" and the expression can mean: in the event of…; if ever…was…; if ever… Was… made (alg) a thing… In this way the translation may mean: "Tell me if anything has ever been done"; "Tell me if something has ever been done".

[4] With the symbolic Archadean views of the late 19th century as precursor references. XV with the Baroque-inspired publication Hypnerotomachia Poliphili; in the 19th century. XVIII Piranesi with ancient Rome and Rome ideal city as well as the Carceri D'invenzione; in the late 1970s. XVIII, Claude-Nicolas Ledoux with the project of the ideal city of Chaux, and in the contribution of his contemporaries Denis Diderot and Jean le Rond d'Alembert in the areas of literature, philosophy and mathematics, becoming precursors of visionary architecture of the 20th century.

[5] It refers to the monograph of Raimund Abraham's complete work called (un)built , in which the act of "drawing" questions the autonomous reality as a manifestation of projected concepts and its unbuilt character.

[6] Point of resistance to Descartes' philosophical concept where the body is separated from the mind and where the perception of reality is thought of as a lie or illusion.

[7] On this subject Lebbeus Woods, says: "The architectural design in its sinuous network of alternation of forces, patterns and unpredictable movements, in mental changes, spontaneously alternate disintegrating and synthesizing positions" [Woods 1992, p. 40] and adds: "As in all cases of coexistence, neither presence is sacrificed at the expense of others; instead each affects the other in the creation –fortunately– of balance, even in a new form of harmony" [Jacobson 2015, pp. xi-xii].

[8] On this subject Bernard Tschumi makes a taxonomy of space on what builds, defines or conceptualizes it; see: Tschumi 1994.

[9] The interest is to emphasize as such a notion, as long as it is underlined as internal causality or *causa sui*, favors the establishment of difference as the origin of being (in drawing), a fundamental ontological requirement for Deleuze: "Determination can only sustain its being through a cause, a purpose, or chance" [Hardt 1996, p. 33].

[10] The notion of margin implied as the limit that completes the unpredictable in the integrity of an infinitely diverse and polarized game.

[11] The act of making an object appear and disappear is an essencial part of the process. On this dualism John Berger suggests: "My hunch is that drawing is a manual activity whose aim is to abolish the principle of disappearance (or –to put it another way– to turn appearences and disapearances into a game that is more serious than life" [Berger 2008, pp. 109, 110].

[12] Text provided by Javier Seguí via electronic mail in April 2017 entitled *La no Representation* (19/01/2017) Madrid.

[13] See: Leach 1997.

[14] Title of the book with the same name; referring to the work of Raimund Abraham, in which the drawing questions the emerging reality of architecture as an autonomous manifestation of the architect with his idiosyncratic views.

[15] Conceptual definition enunciated by Lebbeus Woods published in Anachitecture: Achitecture is a Political Act "as an unpredictable geometric field determined by conditional flows within a field, e.g. a field of nonlinear systems" [Woods 1995, p. 142].

[16] The whim refers to landscapes or architectural compositions that combine real elements, such as recognizable buildings or monuments as elements of fantasy or imagination. Several Venetian artists, especially Canaletto, Marco Ricci, Antonio Visentini or Giovani Battista Piranesi used paintings and drawings of Capricci themes, a genre particularly associated with 18th-century Venice. Canaletto usually moved and altered buildings in their ostensibly accurate visions to obtain a better composition, and whimsy was an additional extension of this creative interaction of reality and invention.

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Visionary Masters

Drawn Visions. Athanasius Kircher's Research between Interpretation and Resolution of Reality

Michele Valentino

Abstract

The figure of the German Jesuit Athanasius Kircher (1602-1680) is significant within the graphic culture emerging in 17th century Europe. His writings, richly drawn, and his research, in the whole Baroque spirit, are strongly characterised using hermetic and neo-Platonic philosophies. These become an opportunity to build a bridge between medieval systems of thought and the growing empirical movement of the scientific revolution. The essay aims to demonstrate the richness of Kircher's study, capable on the one hand of grasping the connections of a nascent scientific thought and on the other of pushing the imaginative power of drawing to its limits. This dual nature –of science and representation– is investigated by bringing out the role of drawing in the representation of reality. Where what can be directly observed coexists on the same plane with what can only be imagined. The research highlights the crucial passage between the dimension of the circle and that of the ellipse. The former represents the certainty of the Renaissance man, the latter –Kircher's one– highlights the unstable and dialectical nature of Baroque knowledge. It is precisely in the shadows of the Jesuit's thought that we rediscover the connective power of his thinking, which is most evident in the visionary dimension of his drawings.

Keywords: Kircher, iconisms, visionary drawing.

Kircher's underworld and its interaction with Nature

Since the early modern age onwards, Europe witnessed a renewed cultural fervour that became evident in a remarkable awareness of man's privileged position in nature. Culture began to be increasingly shaped by individual thinkers devoted to the study of reality. In this sense, the invention of printing plays a fundamental and catalytic role in conveying new ideas and making knowledge available in an assortment of new fields, opening the way to new literary genres and volumes of non-fiction with an almost encyclopaedic character.

In this respect, the German Jesuit Athanasius Kircher (1602-1680) is a relevant figure. His richly illustrated writings and research, in the whole spirit of the Baroque, are strongly characterised using hermetic and neo-Platonic philosophies, which became an opportunity to build a bridge between medieval systems of thought and the growing empirical movement of the scientific revolution.

His best-known work is an eclectic scientific treatise entitled *Mundus subterraneus, quo universae denique naturae divitiae* (1665). His experience as a direct observer of the simultaneous eruption of Stromboli and Etna, together with subsequent descent into the crater of Vesuvius to make measurements (fig. 1), is collected in an enormous and illustrated work. Here, empirical observations are accompanied by illustrations showing the scientific methodology. The aim of the treatise is to understand and organise knowledge of the world through graphic tableaux summarising the data collected or, more generally, drawings

Fig. 1. A. Kircher, Typus Montis Vesuvii Prout ab Authore A°. 1638 Visus fuit [Kircher 1665, foreword].

documenting the empirical observation of reality and, at the same time, the imaginative and imagined world. The intention is to reread this work with the purpose to show the dual significance of Kircher's 'visionary drawing'. On the one hand, the ability to 'interpret reality', on the other, the ability to "resolve reality": two souls that appear precisely through the drawings that accompany the text. In fact, some graphic representations respond to research methods comparable with today's scientific standards, made up of experimental approaches, intuitions and speculations, as shown by the illustrations that prefigure specific theories of terrestrial geophysics (fig. 2). Other drawings highlight the resolving nature of reality, as revealed by the map of mythical *Insulae Atlantidis* –located in the middle of the Atlantic Ocean between Spain and America– or even more so by the representations of dragons (fig. 3) –which according to the author live and nest in the hollow structure of the Earth.

This dual nature is explored by emphasising the role of drawing in the representation of reality. What can be directly observed coexists on the same plane with what can only be imagined.

Before addressing the central theme of this essay, it is essential to refer to some considerations on the figure of Athanasius Kircher, placing him in his time and in the culture in which he was immersed.

Although today, it is considered that he did not make any original or significant contributions, his constant desire to document his studies textually and graphically ensures him a suitable place in history. He wrote more than forty books. Various museums and libraries preserve more than two thousand of his manuscripts and letters. His most significant historic achievement was the establishment of one of the first natural history collections, initially housed in a museum named after him in the Collegio Romano. However, following the Italian unification and proclamation of Rome as the capital of the new kingdom, the collection was dispersed among various institutions and museums. One of the few examples of the original arrangement is provided by an engraving by Giorgio Sepi (fig. 4). Although its accuracy is debated –given the perspective and proportions of the rooms– it fully expresses the spirit, curiosities and disciplines Kircher dealt with. The museum was a true *Kunst- und Wunderkammern*: a huge corridor in which precious works of art and machines (*artificialia*), rare natural objects (*naturalia*), scientific instruments (*scientifica*), things from exotic lands (*exotica*), and natural wonders of wonder (*mirabilia*) alternated.

As just mentioned, Kircher's interests were varied, and his texts bear witness to this. The German Jesuit taught mathematics, physics, and oriental languages for many years before receiving his licence to devote exclusively to his research. He is known for many reasons and is linked to the beginnings of many disciplines as we know them today. Famous are his first attempts to decipher Egyptian hieroglyphics (Marrone, 2002; Mori, 2016), his studies in optics, geology and Roman archaeology [1]. Kircher was so productive and so brilliant that he could be remembered as a kind of 17th century Leonardo da Vinci. His texts circulated in courts all over Europe and, although not fully respected, were read by many intellectuals of the time. His research oscillates between the desire to recognise a 'magical' world and the attempt to make sense of it. Kircher was certainly a Jesuit who looked with interest at the Copernican system, just in the aftermath of the trial of Galileo Galilei (1564-1642) that took place in the same Roman College where he lived and worked. One can also have in mind his work as a demystifier of alchemy when Isaac Newton (1643-1727) was undertaking his experiments [Glassie 2015].

However, it must be remembered that modern science, far removed from the principles of transcendence that explain the natural reality of things, did not yet exist at its birth. Still, Kircher lived long enough to see its birth. It was not until the late 17th century that a conception of science as objectively verifiable knowledge.

With today's eyes, many of Kircher's ideas lie beyond any verifiable basis, to the point where it can be said that most of his observations appear to be wrong. But as Umberto Eco states in his essay *Perché Kircher?* [Why Kircher?]: "he guessed a lot, he got a lot wrong, and the evil ones will suggest that, since he was involved in everything […] it could only happen to him in this way, to get a few things right and a few things wrong […] I would say that he fascinates us for the same reason that he got a lot of things wrong" [my translation from Italian] [Eco 2018, p. 83].

His curiosities and his extensive studies are part of a typically baroque scenario and of the encyclopaedic architecture of Jesuit culture. Indeed, as Andrea Battistini recalls in his book *Il barocco. Cultura, miti, immagini* [The Baroque. Culture, myths, images], the baroque Jesuit culture: "is based on a subtle and difficult work of connection between a philosophical framework still Aristotelian and Ptolemaic

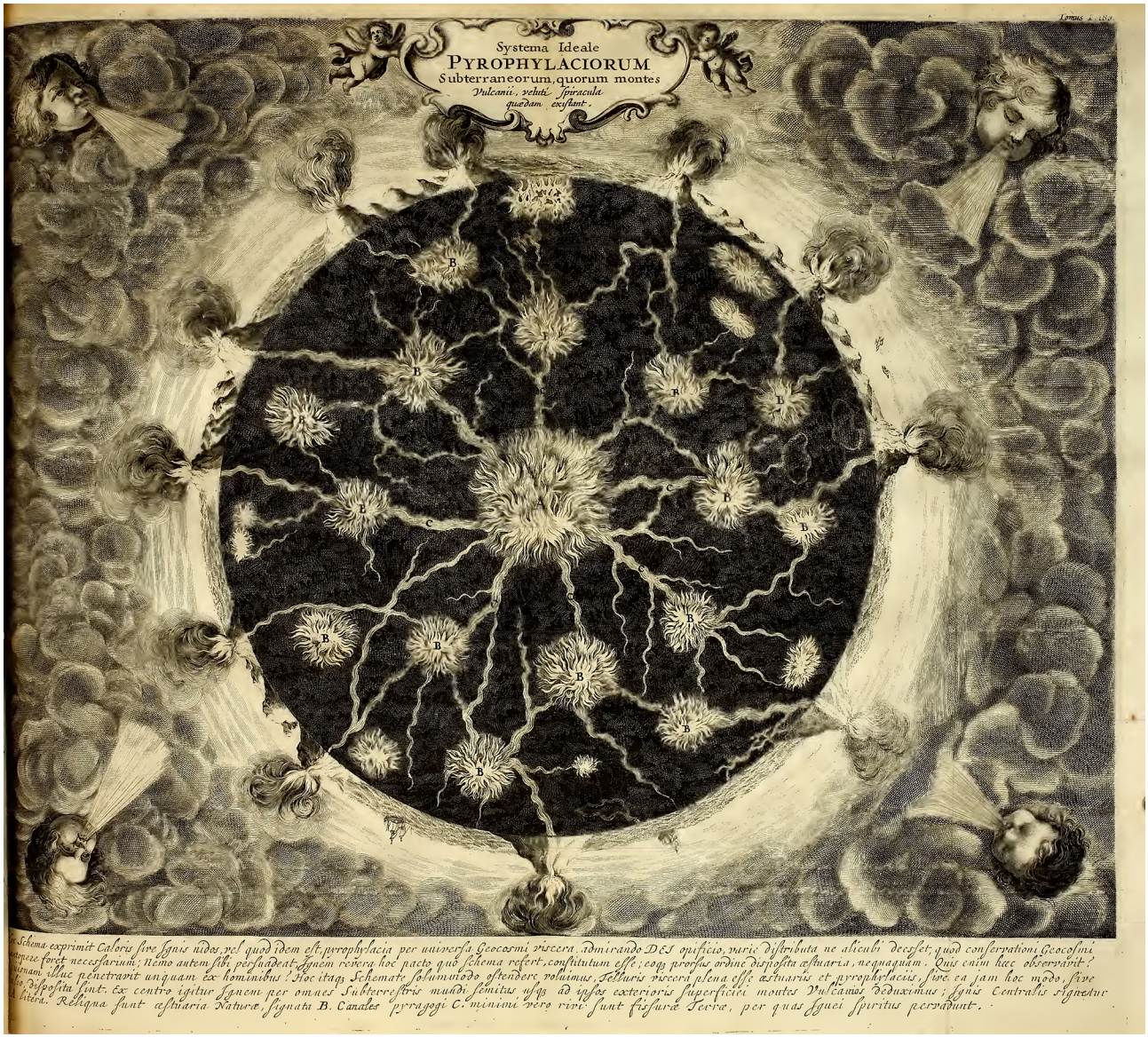


Fig. 2. A. Kircher, Systema ideale pyrophylaciorum. [Kircher 1665, p. 181].

and the experimental epistemology of the new, often arriving at an eclecticism of instances that are juxtaposed without really harmonizing" [my translation from Italian] [Battistini 2000, p. 77]. A culture was supplanted less than a century later by the *Encyclopédie* (1751) by Denis Diderot and Jean-Baptiste Le Rond d'Alembert, which amid Enlightenment culture gathered knowledge in a scientific and proven manner, leaving no room for the curiosities and wonders of the Baroque and even medieval matrix.
Kircher's revolution concerning the neo-Platonic Renaissance model, based on the higher principles of the world of ideas, is based on the conviction that these universal principles must be followed by direct experience, capable of involving the senses, of creating a dialectical dimension between the principles and the experience of the fields of force acting on nature. It is no coincidence that Leon Battista Alberti (1404-1472), interpreter of the Renaissance spirit and ideal, handed over the experience of the building site to 'masters' of construction after having verified, quantified, marked and drawn all the evidence and underlying geometries of the *fabrica* [building sites] [Borsi 1975; Bulgarelli et al. 2006; Ferrari, Medici 2006].
Consequently,the Kircherian world is a complex world insofar as the cognitive dimension, through experience, belonging to previous centuries: think of Aristotle's philosophy and the recovery of scholastic philosophy of medieval matrix.

Fig. 3. A. Kircher, Hic est Draco [Kircher 1665, p. 91].

Fig. 4. G. Sepi, Engraving showing the gallery of the Kircherian Museum in the Collegio Romano [(Kircher, Sepibus, Janssonius et al., 1678, frontispiece].

Fig. 5. Raffaello Sanzio, The Marriage of the Virgin (1504, Pinacoteca di Brera, Milan).

One wonders about the meaning and the reasons for the complexity of Kircher's thought. The scholar is intent on reaching universal principles. At the same time, he understands that this desire is no longer practicable by following only the world of ideal and general principles, as was the case in the Renaissance. At the same time, he is aware that direct experience of the world of physics can be fallacious if it is not projected into a reflection on the principles of the higher world. The impression is that Kircher had attempted to connect the Platonic world of ideas with that of Aristotle's efficient and final causes. Worlds that remained unconnected for several centuries. Consequently, he is not satisfied with the experience of the 'simulacrum', which can be deceptive, but neither does he accept a higher principle that is detached from the real world of forces. In the 18th century, the advent of the Enlightenment culture of the encyclopaedia systematised Kircher's reflections on the subterranean and celestial worlds from a strongly scientific perspective, capable of 'illuminating' and clarifying the object-subject of the reviews. It also follows that this clarity eliminates the mystery and resolving points of Kircher's typically baroque thought. The intention was to make studying the physical world and its manifestations evident and proven, eliminating any 'imaginative' and 'esoteric' dimensions.
While the Enlightenment structured scientific knowledge as we know it today, it also rejected the Jesuit's multiform and unknown world, which in its reflections attempted to show the complexity and multiple connections of the intuitions of his research.
Kircher's universe doesn't aspire to clarity as to mystery. This is revealed through writings and, above all, through drawings that interpret and offer a possible reality resolution.

From central vision to Kircher's unconscious and elliptical drawing

To understand the epistemological transition from the Renaissance to Mannerism and Baroque culture, we must introduce the vision of space and its representation in the evolution from the fifteenth to the seventeenth century. As Giulio Carlo Argan (1974) explains, the instrument capable of representing the vision of Renaissance man is the central perspective. This allowed the artist to construct an objective urban scene where the man (the observer) was perfectly inserted into the city's space and governed its entirety. It was a way to support man's loss of centrality in the universe. The only possibility was to find a centrality where a man could measure and commensurate things through himself. A principle that can be perfectly traced with the figure of the circle, which embodied better than any other form the idea of perfection, founded on the harmony of the parts and on the representation of a finite and ordered cosmos. Evidence of this can be seen in Raphael Sanzio's depictions of ideal cities or the *Marriage of the Virgin* (1504) (fig. 5), where

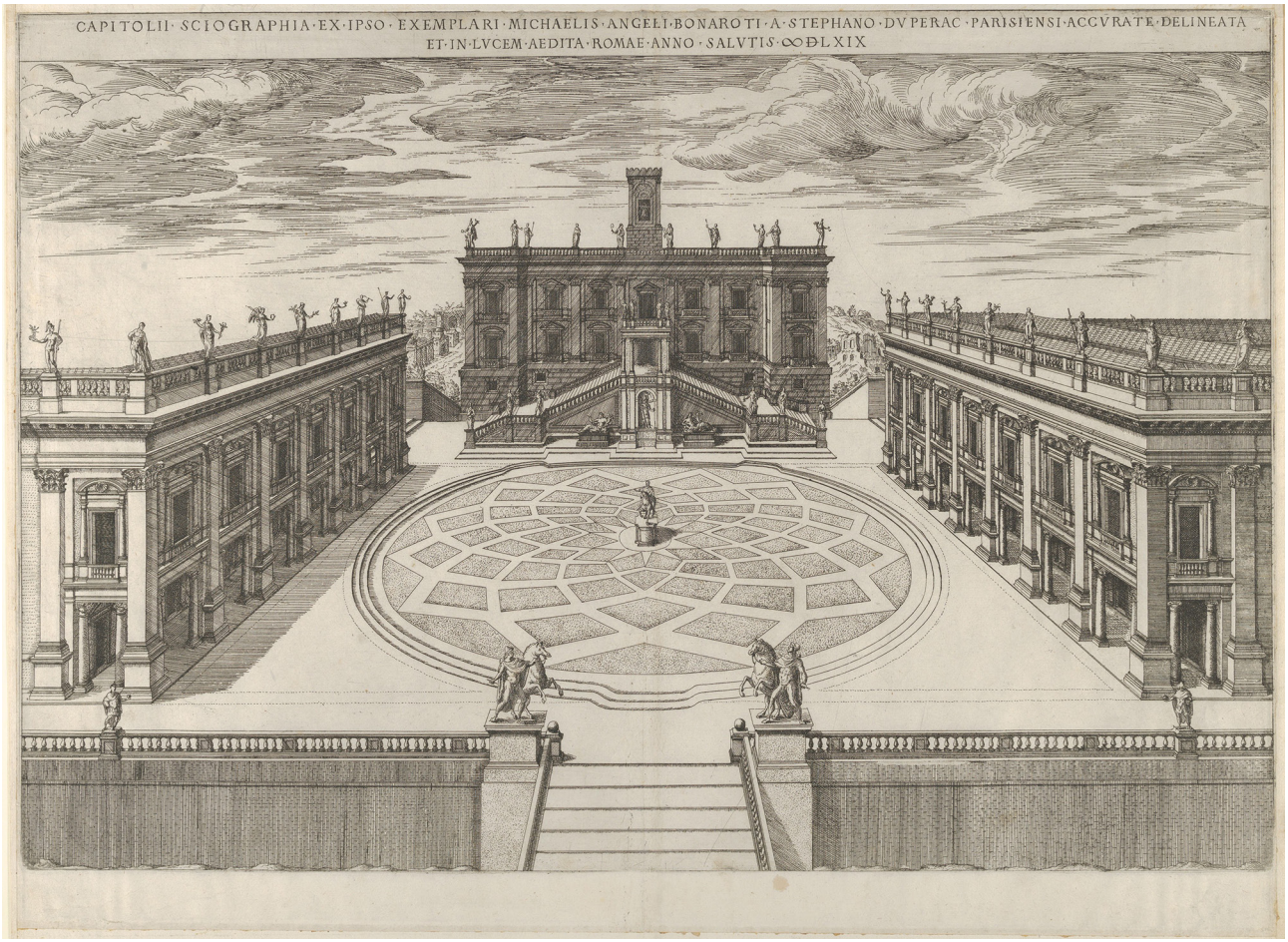
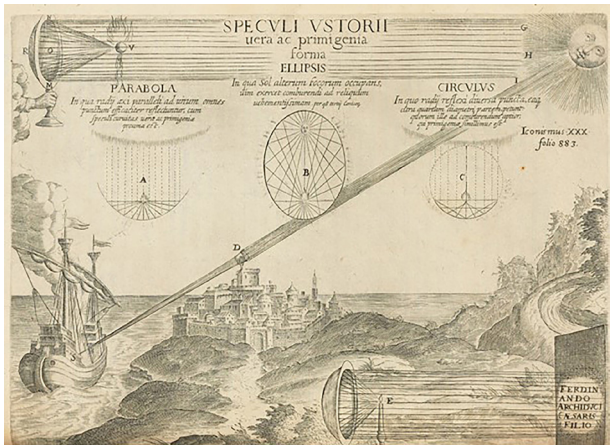


Fig. 6. É. Dupérac, Speculum Romanae Magnificentiae: View of the Roman Campidoglio (1569, Metropolitan Museum of Art).

the circular temple is the optical centre of the scene, the fulcrum of the entire space.
Indeed, a revolution from the ideal Renaissance model is represented by the Piazza del Campidoglio (1534-1538), designed by Michelangelo Buonarroti (1475-1564) (fig. 6). Michelangelo designed the entire square and the buildings that make it up, introducing an ellipse inscribed in a trapezium to enhance the perspective. The artist had already challenged the Renaissance model in 1525-1530, orienting his poetics towards the non-finite. The body now immersed in the marble mass that imprisons it expresses the crisis of Renaissance man, who has lost his coordinates for being in the world. It is no coincidence that with the works of his last production, Michelangelo opened to so-called Mannerist phase, which in turn opened to the Baroque. The square located close to



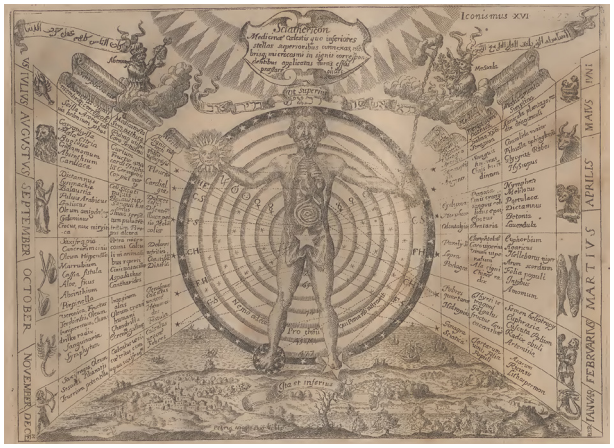


Fig. 7. A. Kircher, Speculum vistorii uera primigeia froma. [Kircher, 1671 p. 764].

Fig. 8. A. Kircher, Iconismus XVII. Sciati iericum micro cosmicum. [Kircher, 1671, p. 396]. Iconism shows the influences of the stars on the human body about the days of the week.

the archaeological area of the Roman forum will see in the artist's interpretation an opening and a positioning not towards the ancient remains but towards St Peter's church, the new political centre of the city. In his essay *Il potere del centro* [The power of the centre], Rudolf Arnheim explains thatwhen an ellipse is perceived as a deviation from the circle, the loss of central symmetry leads to an increase in tension. The Renaissance favoured the circle as the form of cosmic perception, while the mannerist phase of the Baroque favoured the ellipse, which produces high tension by playing on the ambivalence of roundness versus extension [Arnheim 2011, p. 141]. If the Renaissance conceived circularity as heavenly perfection, interpreting the circle as an interior space and retrieving it from the building symbolising the relationship with the universe, namely the Pantheon. The Mannerist and then Baroque evolution would interpret the ellipse as a dynamic and hollow city space to generate a place that does not establish a centrality of being as a dynamic relationship with other sites.

Marjorie Hope Nicolson, in her book *The breaking of the circle* [1960], argues that during the Baroque, the order of the system was disrupted by turbulence and fluctuations that shifted the centre of gravity towards the boundaries, forcing the circle to turn into an ellipse. This has meant that secular beliefs have been transformed into problems susceptible to divergent solutions shrouded in uncertainty. In fact, the ellipse represented the contradictions and polarities to which the individual, who lives by dialectical contrasts, is subjected.

Kircher's work becomes fundamental for understanding the folds of a thought that still offers unprecedented perspectives today in this dimension of overcoming centrality. In the optical studies documented in the volume *Ars magna lucis et umbrae* [1671], Kircher graphically verified (fig. 7) the design of Archimedes' (287-212 b.C.) burning mirror, a lens with an elliptical plan and parabolic cross-section whose purpose was to direct the sun's rays to the point that could set fire to an enemy vessel. What is striking in his work is his intention to depict the object of his study in a precise and accurate manner. The engraving depicts the sun, the lens through which the sun's rays pass, and Marcus Claudius Marcellus's ship (268-208 b.C.) struck by the refractive mechanism. But he also documents with extraordinary detail the ancient city of Syracuse, defended by walls, set in a coastal environment. In addition, one can immediately understand his desire to

detail the mechanism developed for military defence in a 'scientific' manner.
Consequently, the highly iconographic drawing is completed by conceptual and technical diagrams using explanatory sections and graphs accompanied by a concise scientific text. Consequently, the author while seeking scientific transmissibility, does not lose the pleasure of iconographic narration. The result is a complex design with a solid synthetic and narrative character, which with the help of imaginative "iconism" [Vlad 1999; Eco 2018, p. 78], allows the reader of the treatise to benefit from a graphic synthesis of complex levels, both aesthetic and technical (fig. 8).
As pointed out by Maria Grazia D'Amelio and Tod Allan Marder [2014], the sculptural-architectural work that best synthesises the studies and diverse interests of the German Jesuit is the Fountain of the Four Rivers in Piazza Navona (1648-1651). The collaboration with Giovan Lorenzo Bernini (1598-1680) for creating the fountain is an accurate condensation of Kircher's research. Although the work is commonly attributed to Bernini, there is no doubt that Kircher's thought fuelled its formal, symbolic, and figurative content. The exotic creatures that enrich the base rock comes from the Collegio Romano museum from exotic lands (exotica). The use of the obelisk recalls a further interest in Egyptology and the study of hieroglyphics, which Kircher investigated at length in his text *Obeliscus Pamphilius* [Kircher, Grignani 1650], where he not only explains the symbolism but also the significance of the dove above it. But the most surprising aspect is the comparison between the illustration of the underground rivers in the treatise *Mundus subterraneus, quo universae denique naturae divitiae* [Kircher 1665] and the plan of the same fountain [D'Amelio, Marder 2014] (figs. 9, 10). The four main rivers of the then known continents –Danube, Nile, Ganges and Rio Plata, represented in a sculptural way by the four giants in the four corners– emerge from the hollow rock carved from a block of travertine from Tivoli, as illustrated in Kircher's engraving. The elliptical plan of the pool fully reflects the Baroque symbolism associated with this figure. The creatures that animate the entire sculptural complex tell of synergy between animal, vegetable, and esoteric life, which they represent in a symbolic and veiled way. In the final analysis, Bernini's desire to arouse feelings of wonder in the observer is evident, in the same way, that Kircher used in his museum and in the illustrations accompanying his books.

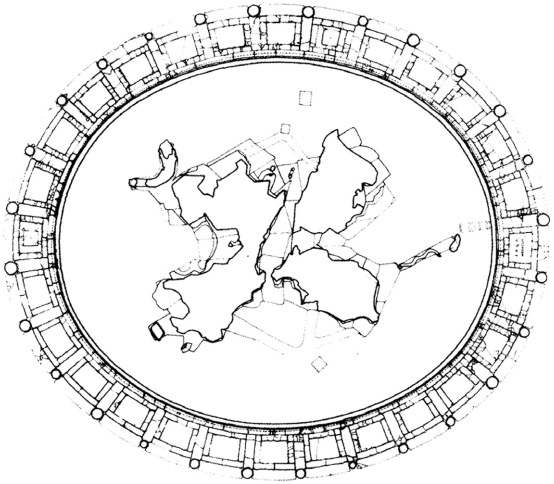


Fig. 9. A. Kircher, Systema Ideale Qui Exprimitur, Aquarum. [Kircher 1665, p. 176].

Fig. 10. D.M.T. Abbate, Architectural relief of the Four Rivers Fountain, plan (Fagiolo, P. Portoghesi 2006, p. 210].

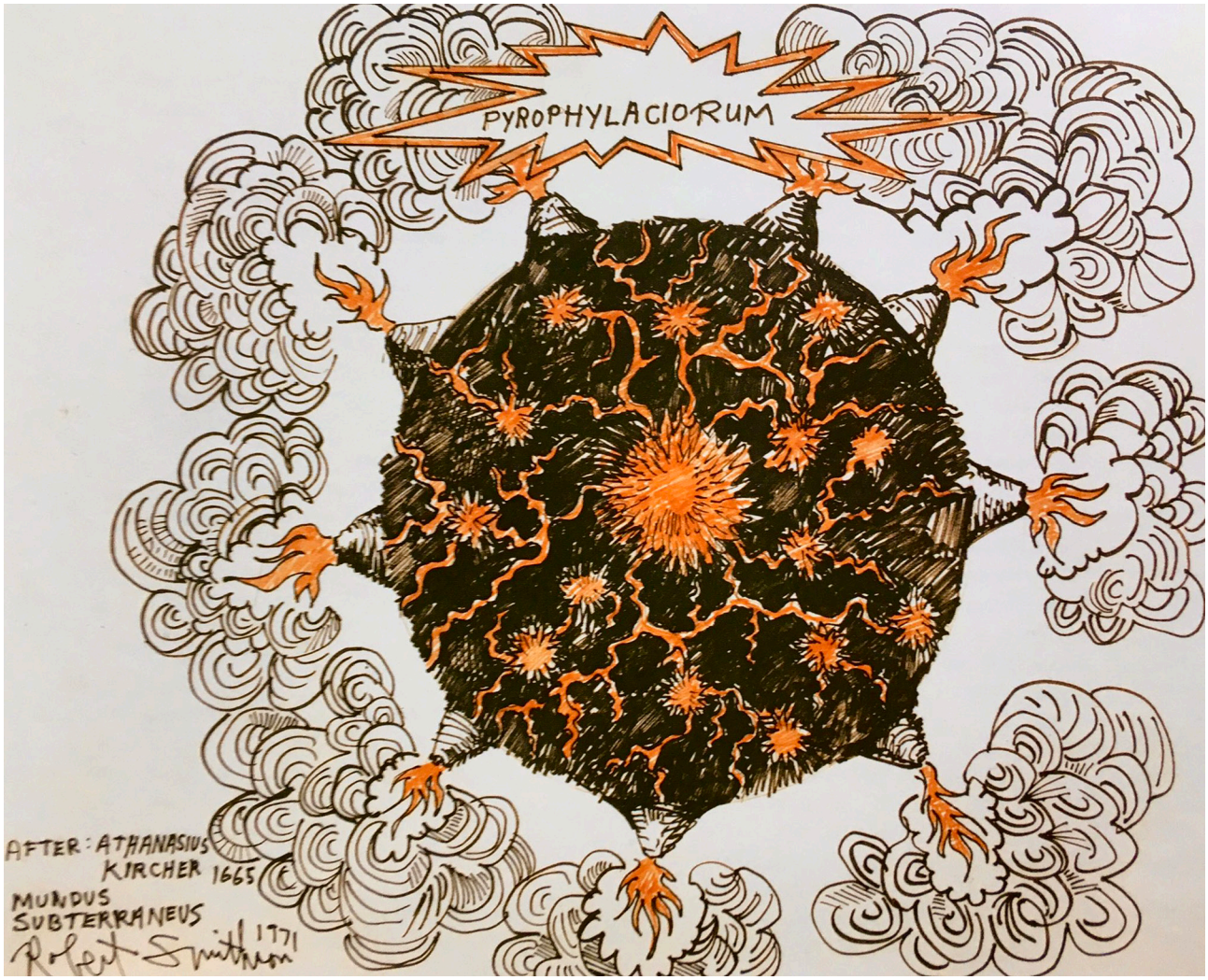


Fig. 11. R. Smithson, After: Athanasius Kircher, 1965, Mundus Subteranius [Tsai et al. 2004, p. 277].

The eclectic Jesuit scholar offers the artist a universe of unconventional signs and symbols, an underground world capable of moving the ordinary observer and delivering the more attentive observer unprecedented details of understanding and hidden meanings.

Conclusions

As Giulio Carlo Argan argues in his book *L'arte barocca* [The baroque art](1989) there are different interpretations of Baroque culture. According to the thought of Benedetto Croce [1993], expressed in 1929, Baroque in Italy expressed a dimension of false values concerning the sphere of morality and artifice. In contrast, according to Eugeni d'Ors [1968], the Baroque fully expressed a measurement of the soul and spirit, driven by an irrational impulse. Argan argued, comparing the two positions, that this irrational nature was intentional and even theorised.
This reading seems to really bring into focus the intellectual dimension of Athanasius Kircher's research. His writings fully illustrate the Baroque culture in which he lived and on which he fed. The drawings that accompany his texts do not have the exclusive purpose of illustrating reality but are a fundamental component in interpreting and resolving reality.
It is symptomatic that the Italian engineer, an expert in defensive systems and mechanics, published his treatise *Le diverse et artificiose machine* in 1588. He illustrated and described a reading wheel that allowed a scholar, using a pedalboard, to read eight books at once. This was a manifestation of the Renaissance desire to aspire to real knowledge. It is no coincidence that the circular shape refers to the encyclopaedic dimension, which recalls a circular education in its etymology, recovered during the Enlightenment. Intending to make knowledge systematic, the Age of Enlightenment favoured reason over sentiment and rationality.
It was precisely the Enlightenment's encyclopaedic culture that obscured the enormous and valuable work of the German Jesuit. As Umberto Eco recalls, Kircher was a baroque character if ever there was one, the Arcimboldo of the history of science, who has ended up enchanting dreamers more than scientists [Eco 2008, p. 85]. An example of this is the drawing by the land artist Robert Smithson *After: Athanasius Kircher, 1965, Mundus Subteranius* (fig. 11).
If the light characterises the scientific construction of the eighteenth century, it is the baroque shadow that emerges in Kirchner's research. In the final analysis, it is his *Mundus subterraneus* that requires listening. It is no coincidence that the twentieth century is strongly imbued with an unconscious and subterranean dimension. In 1864, Fyodor Dostoevsky published his manifesto *Memorie dal sottosuolo* [Memories from the underground] [2021]. The narrator challenges the optimistic and progressive ideals of positivism. The author brings man back into a more complex, suffering world. The underground is a battle against customs and habits of action.
Similarly, Kircher's writings and especially his imaginative drawings suggest the image of a subject who is active and involved in the act of knowing reality and participating in its manifestations. His 'drawn visions' tell of a universe of signs capable of interpreting and resolving the shadowy areas of existence. A journey that oscillates between the need for scientific exactitude and the need for an imaginative component. Observing and re-reading Kircher's drawings today allows us to re-read the tension between these two fundamental components of his brilliant work.
In the same way, the drawing, even today, allows it to be traversed and traced in both directions. On the one hand, it will enable it to be concretised to understand reality. On the other, it allows imagining and resolving those parts of reality that are not yet fully illuminated. This is the capacity of practice and a discipline that still today can provide current tools for a resolution, even if not definitive, in investigating what surrounds us.

Notes

[1] His famous planimetric representation of Hadrian's Villa is compared with those of Pirro Ligorio (1512-1583), Francesco Contini (1599-1669), Jacques Gondoin (1737-1818) and Giovanni Battista Piranesi (1720-1778) in Giuseppina Enrica Cinque's book [2017].

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The Masters of Vision. From Visionary Science to Visual Suggestions

Domenico Mediati

Abstract

The studies of Isaac Newton, in the 17th century, laid the foundations of classical physics. In the 19th century, however, some theories questioned Newtonian physics, whose weakness came from the application of concepts of Euclidean geometry to a space that may not be so. In 1817 Gauss, during his studies on the fifth postulate, formulated the hypothesis that for a point outside a line it was possible to draw more than one line parallel to it. Thus, he laid the premises of non-Euclidean geometry.
In 1884 Abbott published the novel Flatland, *in which he hypothesized a multi-dimensional space. The cultural debate thus opened up to visionary artistic expressions, derived from equally 'subversive' scientific concepts. Not to be neglected are also the studies of Poincaré that led to the topological space. These suggestions were anticipated by Möbius, in 1858, with the single-sided surfaces.*
The demolition of Newtonian dogmas also intertwined with perception studies. This led to the "impossible objects" of Reutersvär and Lionel and Roger Penrose. In the same years, also Escher shared the same passion for perceptual experiments.
The paper aims to highlight the relationship between art and science which, between the 19th and 20th centuries, find a common 'visionary' inspiration. Often these paths are intertwined, sometimes one anticipates the other, but together they contribute to open pathways that mark the evolution of thought and art.

Keywords: Non-Euclidean geometries, Topology, Impossible objects, Möbius, Penrose, Escher.

The Euclidean dogma

Isaac Newton, in the 17th century, gave a decisive contribution to the foundations of classical physics. His studies hypothesized space and time as absolute entities. His statements were part of the undisputed dominance of the geometric principles expressed by Euclid in the *Elements*.
However, Euclidean geometry has an Achilles' heel. Although indirectly, the V postulate states that if two coplanar lines cut by a transversal form, on the same side, two angles whose sum is equal to a flat angle, will not meet and will be, therefore, parallel. This statement, however, does not have the qualities of 'demonstrability' and 'evidence' that, at that time, were necessary for it to be considered as a valid postulate. Euclid himself was aware of this, to the point that he did not use it for the demonstration of the first 28 propositions of the *Elements*. He only used it for one case. This awareness led him to consider the statement of the parallel lines as a theorem, although he never managed to find a valid demonstration. Following the failure of these attempts, he decided to reinsert it among the postulates [Agazzi, Palladino 1978, p. 48]. In the following centuries, there will be many attempts to exclude this proposition from the postulates, trying to demonstrate it as a theorem, but all will be unsuccessful.
Among the most ancient studies, we remember Proclus (5th century), who was firmly persuaded that "in the acquisition of geometric propositions, no weight should be

given to intuitive representations which are purely probable" [Proclus cited in Agazzi, Palladino 1978, p. 52]. His attempt failed when he introduced a hitherto unknown hypothesis: that the distance between two straight lines was finite. In fact, it was a new postulate that would make the demonstrative system collapse.
The attempt of Saccheri [1733], about XIII centuries later, will not obtain better results, but will be fruitful for future studies. Although unknowingly, he will pave the way for the birth of non-Euclidean geometry.
Saccheri proposed a demonstration *a contrariis* [1], based on 'absolute geometry' [2], which considered admissible two opposite hypotheses, implicitly excluded by Euclid: that for an external point to a straight line several parallels pass and, on the contrary, that none pass.
The demonstration failed because it was not able to demonstrate that the hypotheses admitted by absurdity were not true, but just this failure will determine its future success. "It became then clear –notes Sgrosso– that this proposition was to be considered effectively a postulate, assuming it together with the others, the Euclidean geometry was born, but assuming the excluded hypotheses, two different geometric theories were born, as valid as the first one" [Sgrosso 1986, p. 57]. These are the hypotheses on which some of the most enlightened scholars between the end of the 18th and the 19th century will work.

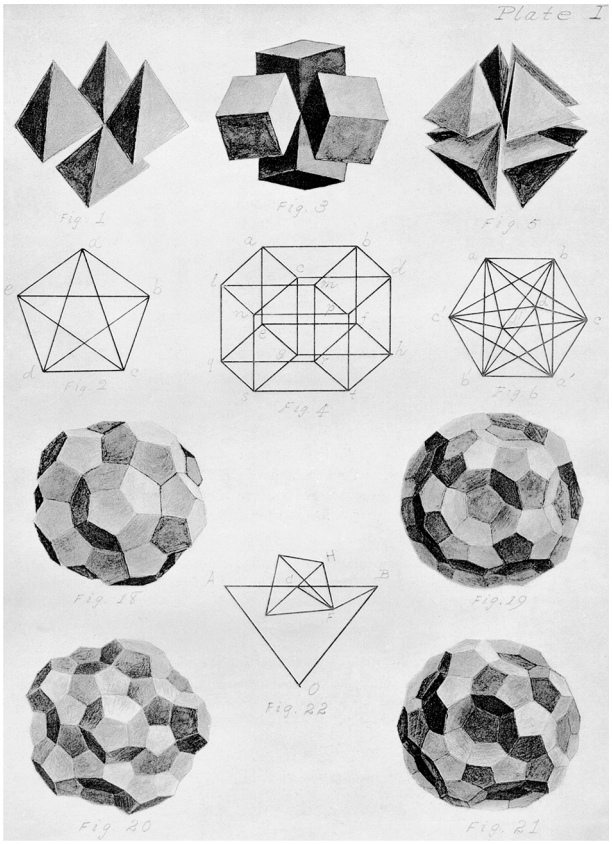
From the Euclid 'failure' to the 'visionary geometries'

Since he was a student, Gauss also tried to prove the V postulate of Euclid. In the beginning, he considered it as a theorem but soon he was convinced that it was indemonstrable and oriented his studies towards a system based on its negation. Starting from 1817 he worked on the hypothesis that assumes the existence of several lines passing through a point and parallel to an assigned line. He, with greater awareness, followed the path traced by Saccheri almost a century earlier. This opened the field to the hypothesis of a geometry very different from the one known until then, which Gauss at first called 'anti-Euclidean', then 'astral' and finally 'non-Euclidean'.
He never published the results of his studies. The scientific thought of his time was dominated by the figure of Kant, who considered Euclidean geometry as an inescapable necessity for thought. In the *Critique of Pure Reason*, published in 1781, the German philosopher defined space and time as *priori* forms [Kant 2000]. Thus, geometry was an absolute construction, based on indubitable principles [Mangione 1971, p. 182]. This cultural context decisively discouraged any position that questioned the Euclidean foundation of space. "I will not decide for a long time yet –wrote Gauss in one of his epistolaries– to elaborate for a publication of my very extensive researches on the topic, and this perhaps will never happen during my life, because I fear the shrieks of the Boeotians" [Agazzi, Palladino p. 75].
A few decades later, the studies of Hungarian Bolyai and Russian Lobačevskij will challenge the scientific community. They will propose concepts decidedly 'visionary' that, unbeknown to each other, will follow the analogous theories of Gauss. Bolyai and Lobačevskij demonstrated that for a point outside a line it is possible to draw several parallel ones to that given. This subversive hypothesis will open the field to a new geometry that Lobačevskij will call "imaginary" [3].
Riemann [4] moved in a similarly visionary direction. In 1851 Gauss put him on this path, assigning him the theme on which he would hold the dissertation for the achievement of the title *Privatdozent* [5]. Riemann also denied the Euclidean postulate but took an opposite route. He hypothesized an unlimited but not infinite space: "and it is precisely on the hypothesis of a finite space –says Andrea Giordano– that elliptic geometry was born, specifically highlighting the new idea of 'line', which here is precisely closed and finite. […] two lines (therefore all lines) of a plane meet, and consequently for a point of the plane no parallel to a given line passes" [De Rosa, Sgrosso, Giordano 2002, p. 218].
These studies will lead him to hypothesize the existence of a multidimensional reality. It is a further piece in the mosaic of the new non-Euclidean geometries that will be defined around the end of the 19th century. The Euclidean principles on which, for more than two millennia, the knowledge of reality were based are now definitely put in crisis by scientific concepts definitely visionary. This will push towards the search for new theoretical and scientific principles, able to support a new interpretation of reality.
The studies of Faraday and Maxwell on the propagation of electromagnetic waves will be decisive. These researches will definitely put the classical physics of Newton and his concepts of absolute space and time in crisis. The weak-

ness lies in its essential foundation: to apply concepts of Euclidean geometry to a space that could be not such. The time was finally ripe for a further leap that will radically change the conception of space.
In 1905, Einstein published his theory of *Special Relativity*. He stated that space and time should be considered in a coordinated way. Time thus became a fourth variable, to be added to the three spatial dimensions adopted until then. Eleven years later he published a further development of this theory that he called *General Relativity* [Einstein 1916]. He hypothesized a four-dimensional space, in which the space-time entity (*Chronotope*) is curved by the presence of a mass and the gravitational field that it generates.
This will radically change the conception of space, pushing it towards a metageometric dimension. If in the presence of a gravitational field space-time is curved, then it can no longer be considered Euclidean. The theories on non-linear geometries of Gauss, Bolyai, Lobačevskij and Riemann are confirmed by the most advanced conceptions of physical space.
Therefore, Euclidean geometry is only one of the possible models of interpretation of reality. It is still valid for the world that can be experienced directly, but it was not the most suitable to support the new instances that were emerging in every field at the beginning of the 20th century.

Flatland

Abbott had already prepared the ground a few decades earlier. In 1882 he published what will become a classic of fantastic literature: *Flatland: A Romance of Many Dimensions*. He tells the story of a square, accustomed to living in a two-dimensional world, which discovers to it surprise that it belongs to a three-dimensional space (Spaceland). Its curiosity does not stop at this discovery but continues in visionary reflections, hypothesizing the existence of multidimensional spaces: "shall not, I say, the motion of a divine Cube result in a still more divine Organization with sixteen terminal points? […] And once there [in the four-dimensional space], shall we stay our upward course? In that blessed region of Four Dimensions, shall we linger on the threshold of the Fifth, and not enter therein? […] Then, yielding to our intellectual onset, the gates of the Sixth Dimension shall fly open;



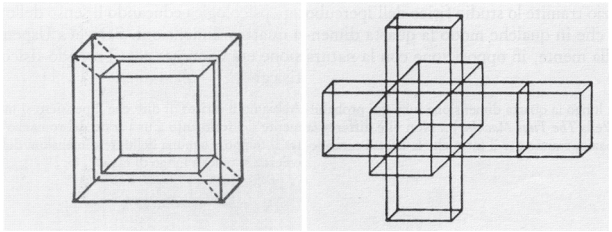


Fig. 1. W. I. Stringham, regular figures of four-dimensional space [Stringham 1880].

Fig. 2. H. P. Manning, representation of a hypercube, 1914.

Fig. 3. Left: T. van Doesburg, Une Nouvelle Dimension, 1925-1929. Middle and right: T. van Doesburg e C. van Eesteren, Maison particulière, 1924.

after that a Seventh, and then an Eighth" [Abbott 2004, pp. 68-69].
A few years later, the science fiction writer Hinton will publish an essay about the 4th dimension in which the term tesseract (hypercube) appears for the first time [Hinton 1888].
These were undoubtedly fascinating hypotheses but, at the time, many must have considered them bizarre. Actuality, these reflections were based on a maturing scientific debate and were filled with a stringent scientific logic. Multidimensional reality had no possibility of being perceived through experiential data but this did not exclude the possibility that it could be deduced by logical abstraction. As Emmer states: "the foundation of mathematics is in abstraction and therefore mathematics could appear far from physical reality" [Emmer 2003, p. 25]. Actually, logic and abstraction are sides of the same coin and contribute to the formulation of hypotheses and new scenarios that only later will be confirmed by scientific data.

The hypercube and metaphysical space

Between the pages of *Flatland*, albeit indirectly, there is the first description of a hypercube, a figure that will fascinate scholars and mathematicians but also inspire the art world. However, Abbott will not provide any illustration of such an entity. The first hypothetical representations of hypersolids are by mathematician Stringham who, in 1880, published an essay with a contribution to the definition of regular figures in four-dimensional space [Stringham 1880] (fig. 1).
A few decades later, the mathematician Manning [1914] published some graphic hypotheses of a hypercube: 'projections' from a four-dimensional space to a Euclidean one (fig. 2). Such representations were the result of a mathematical abstraction no less visionary than Abbott's literary descriptions. They captured the attention of artists and architects.
In number 5 of 1923 of *De Stijl*, eleven years after his death, the article by Poincaré *Pourquoi l'espace a trois dimensions?* was published. At the preface of the essay is the sentence: "The meaning of the fourth dimension for neoplasticism". It was a clear declaration of interest by the founders of the movement: Mondrian and Van Doesburg. The latter, in those years, clearly expressed a line of research in that direction (fig. 3). Describing a project for a private house in 1924, he wrote: "The new architecture is anti-cubic, in other words, its different spaces are not contained in a closed cube. On the contrary, the different cells of space (including balcony volumes, etc.) develop eccentrically, from the center to the border of the cube, so that the dimensions of height, depth, width and time receive a new plastic ex-

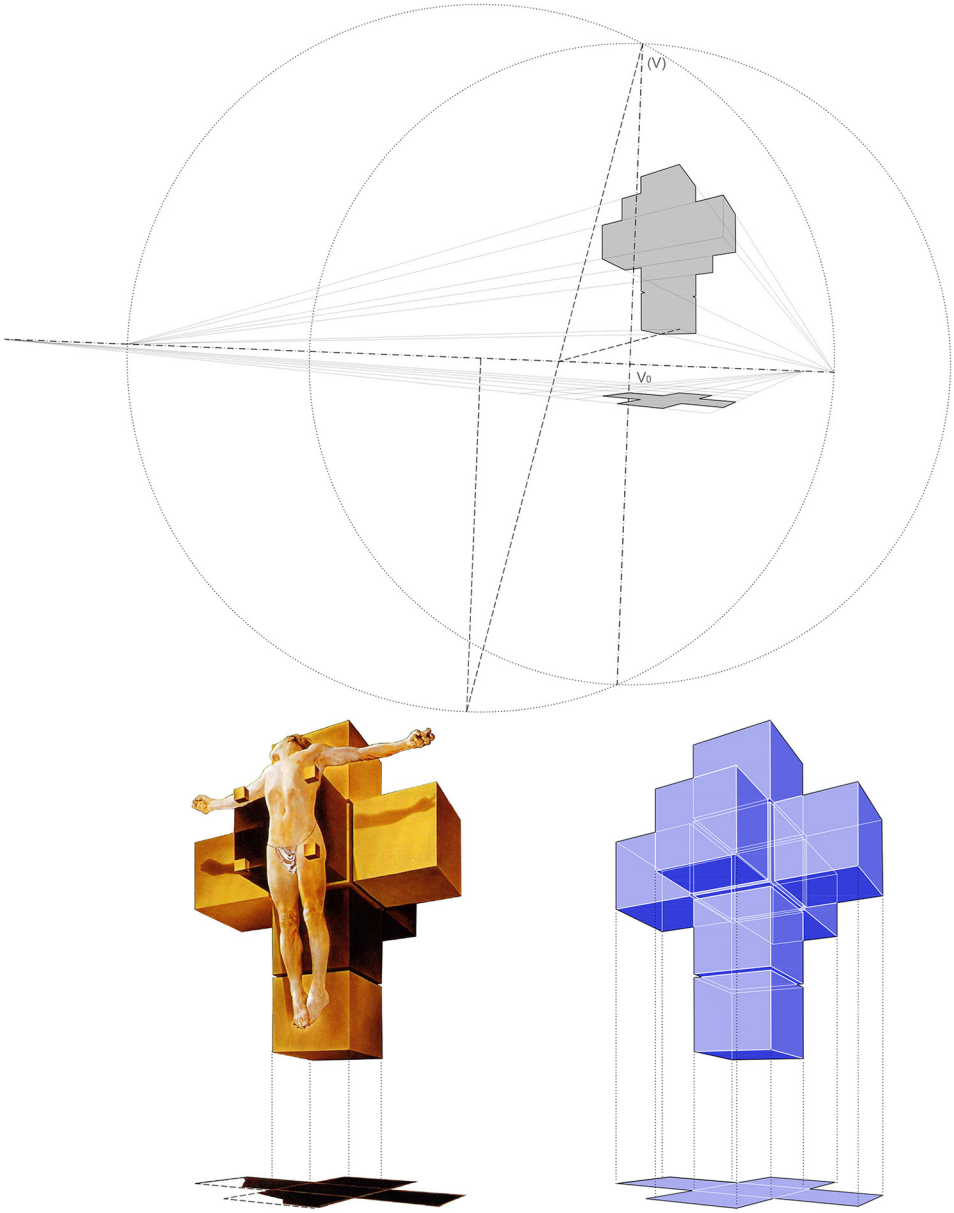


Fig. 4. S. Dalì, Crucifixion (Corpus Hypercubus), 1954. Top: analysis of the perspective structure. Bottom: details and redraw of the crucifix. Graphic elaboration by the author.

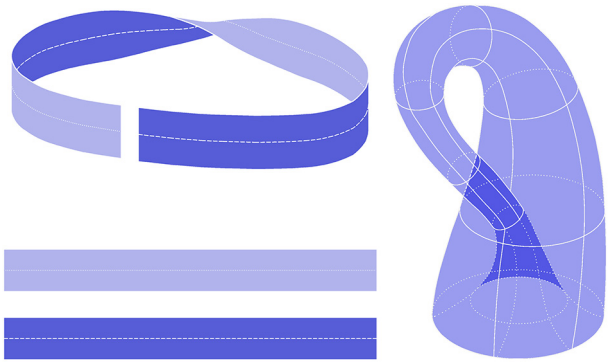


Fig. 5. Single-sided surfaces. Left: Möbius ribbon, conformation scheme. Right: Kelin bottle. Graphic elaboration by the author.

Fig. 6. M. Bill, Endless ribbon, granite, 1953 (original version 1935). Baltimora Museum of Art.

pression" [Van Doesburg cit. in Emmer 2003, p. 119]. Both the text and Van Doesburg's drawings referred to the representation of a hypercube even though, as Michele Emmer notes, he confused Flatland's four-dimensional objects –four-dimensional projections of Euclidean elements– with Einstein's space-time theory in which time constitutes a fourth dimension [Emmer 2003, p. 119].
The *tesseract* is an expression of scientific conceptions that subvert the usual empirical universe, but it also represents a link with unexplored universes that open up to fruitful artistic experimentation. In fact, the most visionary results will be expressed precisely in this field. Dalì explicitly showed his interest in the mixture of mystical and scientific dimensions found in four-dimensional space. In his work *Crucifixión* (*Corpus Hypercubus*) of 1954, he painted a Christ placed next to a cross suspended in the void, a clear representation of a hypercube (fig. 4). Everything happens without contact, in a metaphysical context dominated by an obscure natural landscape, in which the floor grid provides a weak anchorage to the empirical, logical and rational world. On it Dalì projects the hypercube, drawing a cross between the perspective grids. The new metageometric concepts, with their intrinsic need for abstraction and with a strong mystical and emotional character, constitute a bridge between the material world and the metaphysical dimension. Dalì's interests in the fourth dimension will continue in the following years. He came into contact with the mathematician Banchoff, keeping abreast of scientific developments regarding metageometric space. In 1979 he returned to the subject with the painting *In Search of the Fourth Dimension*. It is a surreal context in which citations of Raphael and Perugino are overlaid with symbolic elements, typical of the poetics of Dalì. In the foreground a dodecahedron is superimposed on the opening of what looks like a tomb: possible symbolic connection between reality and metaphysical space. In the background looms a 'soft clock', symbol of an eternal time that unifies and connects a visionary space steeped in Renaissance knowledge, Christian spirituality and pervaded by a disquieting mystery of oblivion.

Single-sided surfaces

De Stijl's posthumous interest in Poincaré testifies to the influence that the French mathematician's studies had on the artistic imagination of the 20th century.

In 1895 he published *Analysis Sitû*, the volume that will lay the bases of topological geometry. It "has as its object the study of geometric properties that persist even when shapes are subjected to such profound deformations that they lose all their metric and projective properties" [Courant, Robbins 1961, p. 353]. Such conceptions will open the field to very interesting visionary experiments.
A few years before Poincaré, in 1858, at the *Académie des sciences* in Paris, Möbius presented a long-neglected memoir on single-sided surfaces. In this work he described a shape with extraordinary expressive qualities: the 'Möbius strip' [6] (fig. 5). Almost eighty years were to pass before this geometric intuition found an application in modern art. In 1936, at the Milan Triennale, Max Bill presented the *Endless ribbon* (fig. 6). Unaware of Möbius' studies, he believed he had found a novel form. It was only later that he would discover the links with the geometric-mathematical studies of the previous century. The Swiss artist's interest in topology was not only linked to its aesthetic qualities but above all to the expressive-symbolic potential it offered. The analogy with the symbol of infinity triggers suggestions that go beyond mere shape. "If non-oriented topological structures existed only by virtue of their aesthetics, then, despite their exactness, I could not have been satisfied with them. I am convinced that the foundation of their effectiveness lies partly in their symbolic value. They are models for reflection and contemplation" [Bill 1977, pp. 23-25]. Rationality of mathematical thought and emotional expressiveness merge, generating unusual geometric configurations.
Vittorio Giorgini also moved in this direction. Between the 1960s and the 1970s he carried out some experimentation on single-sided surfaces [Mediati 2008, pp. 190-192]. His studies started from a critical point found in the conformation of 'Klein bottle' (fig. 5). In fact, it has a point of discontinuity in correspondence with the intersection which is determined when the tube penetrates the bottle. In order to solve this problem, Giorgini introduced a variation that eliminates the intersection and recovers the continuity between the internal and external surfaces (fig. 7). The result is extremely suggestive and elegant shapes, including the topological reinterpretation of the sphere and the torus, which in 2003 will be sculpted in alabaster by two artists from Volterra: Dainelli and Marzetti.

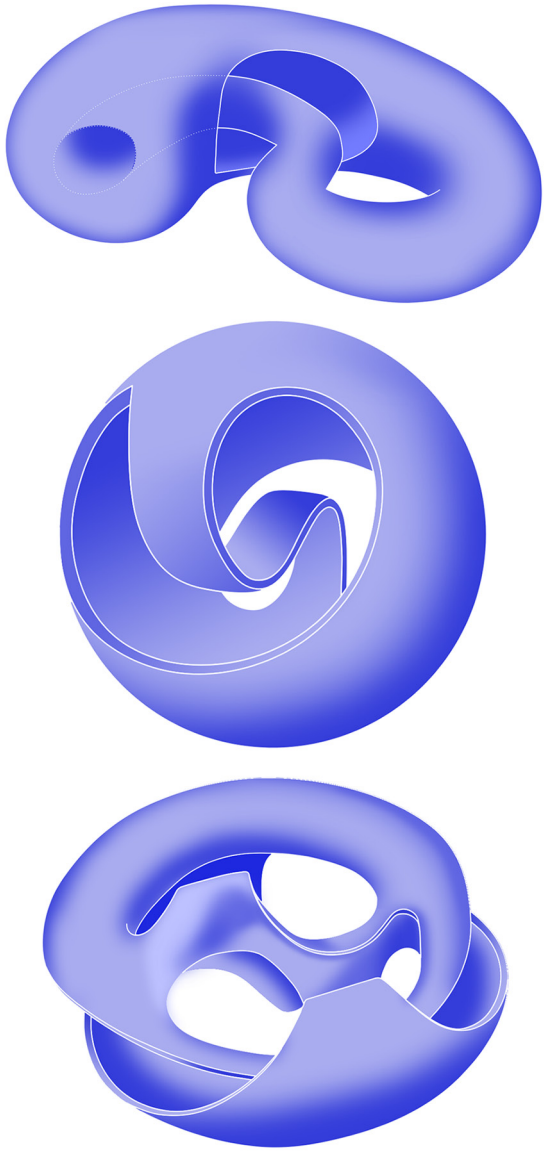


Fig. 7. V. Giorgini, Solids by Giorgini. From top: reinterpretation of Klein bottle; topological reinterpretation of the sphere; topological reinterpretation of the torus. Graphic elaboration by the author.

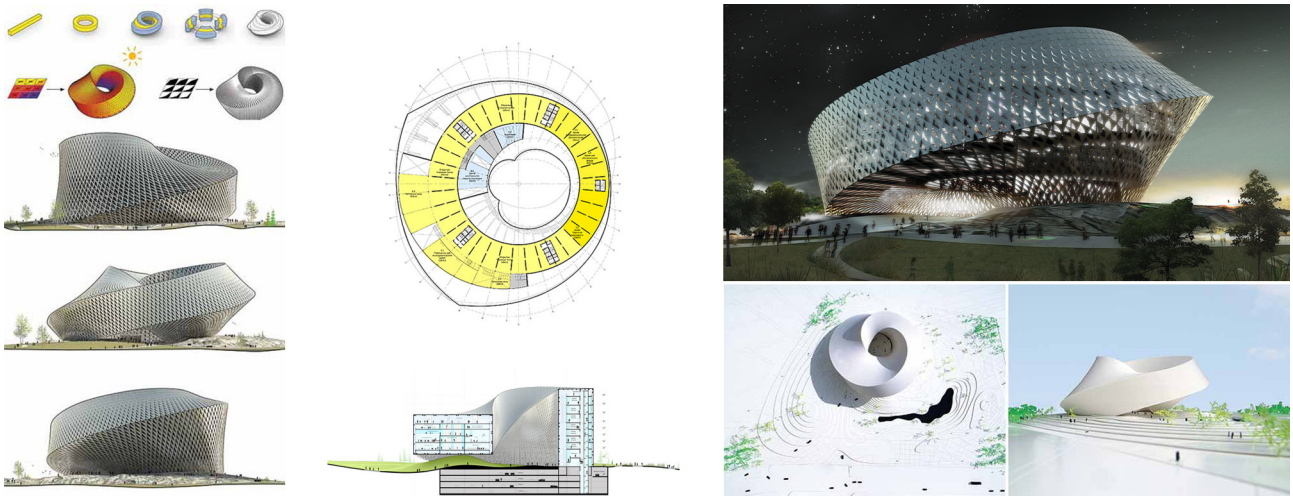


Fig. 8. B. Ingels Group, National Library, Astana (Kazakhstan), 2009. International competition winning project. The design is inspired by the Möbius strip.

These experiences are part of an approach that pushed Giorgini to the continuous search for organic forms. He was inspired by the studies of Thompson, a biologist and mathematician who believed that mathematical laws and physics played a crucial role in determining the forms and structures of living organisms.
Giorgini transferred these reflections to the field of architecture, rejecting the traditional techniques derived from 'classical geometry'. He privileged those 'techniques of nature' capable of configuring complex systems [Giorgini 2006, p. 34]. Therefore, Giorgini's free forms are the result of overcoming Euclidean space and of a hybridization between biological processes, mathematical laws and new expressive research.
The audacious shapes of topological space, from Möbius, to Klein, to Giorgini, up to the most visionary contemporary architectural designs, are the result of a reinterpretation of the concept of space and of an integration between art and science.
Computer graphics, techniques and new production processes allow, today, a reconnection between imagination and science, between theoretical and empirical space, elaborating forms that seemed unthinkable until a few decades ago. Scientific discoveries have radically changed the concept of space, giving it a topological dimension. Space is no longer a static cage, dominated by a rigid perspective structure, but it becomes fluid, changeable and malleable [Imperiale 2001].
It is in this context that contemporary 'soft' architectures come to life, as a result of a demolition of rigid Euclidean dogmas and that often take inspiration from the new visionary explorations in artistic and scientific fields (fig. 8).

Visionary perceptions and relative space

If empirical reality is only one of the possible realities, then the expressive potential of a visionary universe multiplies. Moreover, when the demolition of Euclidean and Newtonian dogmas is intertwined with an interest in perceptual studies, the field opens up to surprising impalpable and deceptive visions.
In reality, some experiments in the field of perceptual deceptions had been carried out since the 18th century by one of the most virtuous engravers. Piranesi, with the engravings of *Carceri d'invenzione* (Prisons of Invention), pushed the static Renaissance perspective to the extreme and opened the horizon to new interpretations of space. In the panel *Capriccio di scale, arcate e capriate* (1745-50) [7] he created a clever perspective artifice: two walls that

are parallel to each other are artificially connected by an arch that in turn appears parallel to the walls it connects (fig. 9). It is an obvious perceptual deception, anticipating the impossible objects that will be explored only in the following century and that will find great success in the second half of the twentieth century.
The studies of the Swiss crystallographer Necker are an example. In 1832 he drew a cube in which one of the posterior sides is superimposed on a front side. The result is a clearly unreal shape that can only exist in the 'illusory space' of the representation, a theme that will become recurrent in Escher's engravings (fig. 10).
A little over a century later, in 1934, Swedish artist Reutersvär also became interested in the theme. When he was only 18 years old, he drew an 'impossible triangle', composed of a series of cubes in axonometry that overlap in an apparently plausible manner but in obvious contrast to objective reality (fig. 11). Reutersvärd suffered from perceptual difficulties: dyslexia and difficulty in perceiving the size and distance of objects. These characteristics probably had a decisive influence on his experimentations and opened the field to visions that go beyond the Euclidean space. His research led him to create other unusual figures. In 1937, he drew the 'impossible stairs', well in advance of Escher and Penrose.
However, these experiments were only visionary intuitions without a wide following in the artistic and scientific fields. A decisive contribution to their success came only in 1958, when the British psychiatrist Lionel Penrose and his son Roger sent a short article to the *British Journal of Psychology*, which illustrated the 'Penrose stair' and 'triangle'. Two impossible objects that were inspired by Escher's experimentations, to which the essay referred [Penrose, Penrose 1958, pp. 31-33]. The paper, however, did not mention Reutersvärd's studies, which Roger discovered only in 1984.
In the same year that Lionel and Roger Penrose published their essay, Escher produced the engraving *Belvedere* (1958). In an apparently marginal position is a seated figure handling a 'Necker cube' and, at his feet, he has a sheet of paper with a scheme in which the crucial points of the deception are highlighted. Thus, Escher declares the geometric-perceptual inspiration used in the construction of the loggia that dominates the composition (fig. 10). As early as the 1940s, Escher had already created some engravings that reinterpreted the 'Möbius strip' and others that explored the potential of perceptual deceptions. Reality and space for Escher are expressed in a dimension of extreme

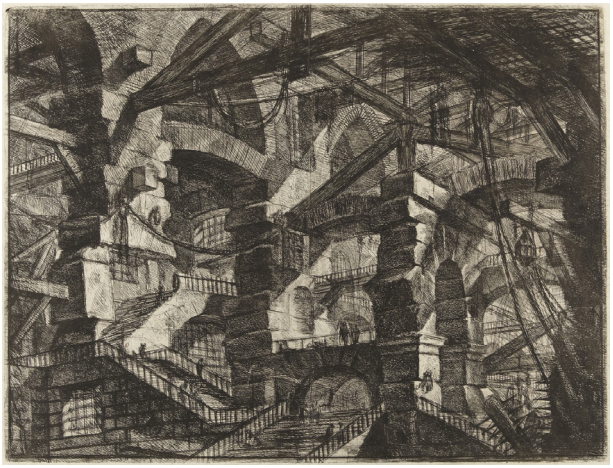


Fig. 9. G. B. Piranesi, Capriccio di scale, arcate e capriate. Taken from Carceri d'invenzione, 2nd edition, 1761, plate XIV, 415x548 mm.

'relativity' in which several worlds and perceptions intersect, imprisoning the protagonists in a universe in which there is no longer any distinction between horizontal and vertical, perception and reality, finite and infinite.
The two Penroses would send their essay to Escher from which he would draw further inspiration. The lithograph *Ascending and descending* (1960) is a reinterpretation of Penrose's staircase: two rows of hooded men traveling in opposite directions are imprisoned in an endless path (fig. 12). It is an evident perspective transposition of the infinite path of the 'Möbius strip'. In this engraving, topological concepts, perceptual deceptions, multidimensional spaces and perspective alterations intertwine, defining an unreal but perceptually plausible space, the result of a dreamlike and, at the same time, apparently rational vision. It is a subject that will be taken up again a year later with the engraving *Waterfall* (1961) in which a 'continuous bed' on which water flows replaces the steps. The perceptual deception imprisons the water in a perpetual flow, in which the force of gravity denies itself and produces an improbable endless circuit.
Escher's is a magical world, which finds its shape only in the privileged space of imagination and representation. Escher died in 1972 and did not have time to enjoy the many experimentations carried out on his works, with the help of computer graphics. The theme of impossible spaces and

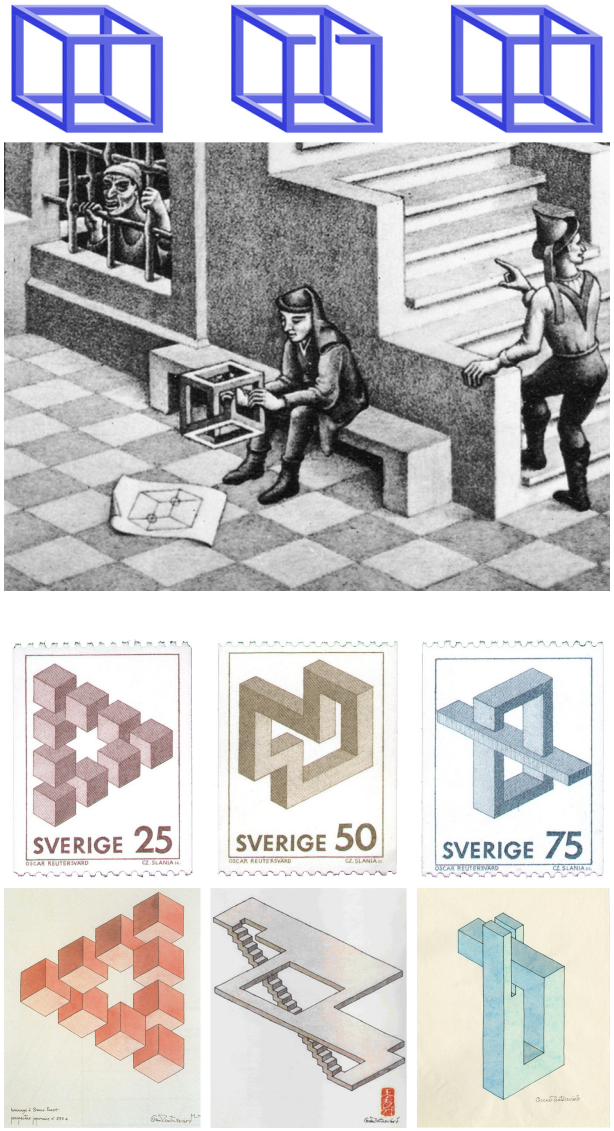


Fig. 10. Top: construction diagram of a Necker cube. Bottom: M. C. Escher, Belvedere, 1958. Lithograph, 461x295 mm. Detail.

Fig. 11. O. Reutersvärd, Impossible objects, 1934 et seq. Top: Stamps issued in 1982 by the Swedish government to celebrate Reutersvärd's work.

optical illusions has strong connections with the atopic space of the digital world. On the other hand, one of the first computer animations took place in the 1960s, in the Bell Laboratories of New Jersey, right on the 'Penrose stair'. In fact, the digital universe contains in itself all the ingredients of illusion: the possibility of creating unreal environments and simulating their concreteness using a mathematical and algorithmic structure. Once again science, mathematics and imagination collaborate, projecting the creative dimension towards new visionary expressions.

Conclusion

Art and science have a common matrix that drives the search for unexplored paths: a path that always moves the boundaries of knowledge further and further. Exploring unusual hypotheses, sometimes 'subversive', is the only way that produces innovation. Man's capacity for abstraction, that irrepressible instinct for 'vision', for overcoming the limits of appearance and the empirical world, are the foundation of all scientific and artistic evolution. Even in disciplines such as mathematics and physics, which appear to be firmly anchored in the experiential world, abstraction is the seed of every discovery: nothing can happen without imagination.
Between the 19th and 20th centuries, in a period of radical mutation, art and science find a common visionary ambition. The demolition of classical physics and Euclidean dogmas, the formulation of new multidimensional hypotheses, the theory of relativity, coexist with changes in the field of art. Perspective, which had dominated the world of representation since the Renaissance, is clearly challenged by the new artistic avant-garde. The demolition of the perspective universe, last anchorage to a Euclidean world, opens the field to visionary experimentations that, together with the new scientific instances define a new *Weltanschauung*.
A major contribution to the demolition of the old dogmas also comes from the use of the computer which, in recent decades, has facilitated the emergence of new formal research in both the field of art and architecture.
These paths are often intertwined, sometimes one anticipates the other, but together they contribute to open doors to intuitions, sometimes premonitory, that will mark the evolution of thought and art and will direct the perennial research of relationship between man and reality towards innovative and suggestive visions.

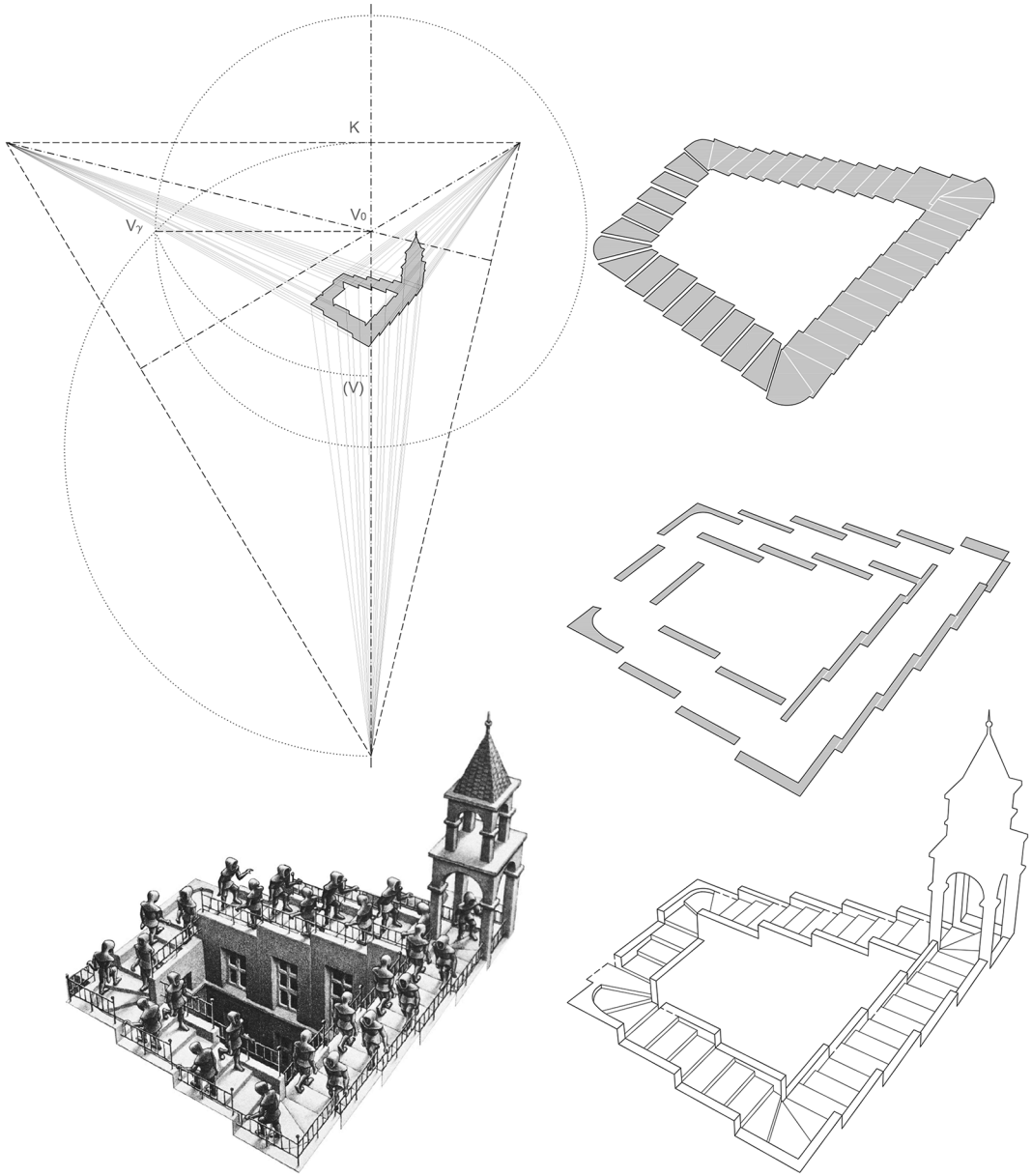


Fig. 12. M.C. Escher, Ascending and Descending, 1960, lithograph, 355x285 mm. Left: detail and analysis of the perspective structure. Right: graphic analysis with reference to Penrose stair. Graphic elaboration by the author.

Notes

[1] It is a procedure that allows to verify a proposition assuming as a starting point the negation of the same.

[2] 'Absolute geometry' derives from 'Euclidean geometry' but excluding the V postulate and all theorems derived from it.

[3] During a seminar held on February 11, 1826 at the University of Kazan, Lobačevskij made public his theories but the essay was never printed for fear of reactions from the scientific environment. Later he published some studies on "imaginary" geometry, the theory of parallel lines and a complete work [Lobačevskij 1856].

[4] He contributed to the foundation of 'Elliptic geometry'.

[5] The paper was published posthumously [Riemann 1868].

[6] Emmer finds this shape in some ancient references: in Roman mosaics of the 3rd century and in the harnesses for the horses of the troops of the Tsar of Russia in the 17th century [Emmer 2003, p. 68].

[7] The table appears with the numbering XII in the edition of 1745-50 and with the numbering XIV in the edition of 1761.

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Real Visions of Imaginary Worlds in the Illustrations of Gustave Doré

Manuela Piscitelli

Abstract

The aim of this article is to analyse the visual motifs proposed by the illustrations of Gustave Doré, a well-known French illustrator of the 19th century, by making a twofold comparison: on the one hand with the previous iconography from which he broke away, and on the other hand with the subsequent interpretations, particularly in the field of cinema, which decreed the definitive imposition of his visions in the collective imagination. In particular, the analysis focuses on the illustration of Dante's Divine Comedy, of which Doré proposed a new interpretation, which takes the form of a powerful visual narrative with a strong scenic component. The changes with respect to Dante's traditional iconography concern many aspects: from the features of the characters to the description of the environments, but above all a different perspective with which the illustrations are constructed to create a visual path that gives life to a dynamic setting of the narration in the modern sense.

Keywords: illustration, iconography, imaginary, visual narrative, Divine Comedy.

Introduction

Gustave Doré was one of the best-known and most prolific illustrators of the 19th century and linked his name to the visual transposition of a wide range of literary genres, from literary classics to children's stories. Over a period of thirty years, he illustrated more than a hundred works, leaving an indelible mark on the collective imagination. To give even a partial idea of his production, his main works include the illustration of Balzac's *Les Contes Drôlatiques* (1855), Shakespeare's *The Tempest* (1860), Dante Alighieri's *Divina Commedia* (*Inferno* in 1861, *Purgatorio* and *Paradiso* in 1968), and Charles Perrault's fairy tales (1862), Cervantes' *Don Quixote* (1863), *Le Capitaine Fracasse* and *The Adventures of Baron Munchausen* by Théophile Gautier (1866), Milton's *Paradise Lost* (1866), *The Bible* (1866), Coleridge's *The Ballad of the Old Mariner* (1870), Michaud's *Histoire des Croisades* (1875), Ariosto's *Orlando Furioso* (1877), Edgar Allan Poe's *The Raven* (1877) [Kaenel 2005].

The most interesting aspect of his artistic work lies in his ability to make realistic, i.e., endowed with a visual identity, environments and characters born from the literary imagination of authors, transforming textual descriptions into images with such expressive power that they have shaped the collective imagination to this day. In this sense, it corresponds to Focillon's definition of "visionaries", who "are not satisfied with our universe and, while the study of its forms satisfies most masters, it is for them no more than a provisional picture, or if you prefer, a starting point. They continually go beyond man" [Focillon 1998, p. 7].

This graphic translation of the literary description produced unprecedented representations, completely different from the iconographic tradition that had previously tackled the same motifs. His images quickly became points of reference and sources of inspiration for the artistic production of painting and sculpture, particularly on the themes of the *Bible* and the *Divine Comedy*, making certain visual motifs typical and replacing those previously used in compositions [La Salvia 2016]. The writer and friend Théophile Gautier, who reviewed the first edition of Hell, described his work as visionary, likening his drawings to the chimerical architectures of Radcliffe and Piranesi and the expressive power of Goya. "No artist could have illustrated Dante better than Gustave Doré. In addition to his talent for composition and graphics, he possesses that visionary eye the poet speaks about, capable of revealing the secret and singular aspect of nature. He recognises in things their bizarre, fantastic and mysterious side" [Gautier 2021, p. 8].
But the aesthetics of Doré's illustrations went even further in defining collective imagination. Several authors have acknowledged his innovative capacity for staging stories, to the point of configuring his drawings as modern stage sets, on which the cinema based a great deal of its early productions, helping to spread his visual interpretation of literary settings and characters to an ever-wider audience. The reason for this success lies in his ability to stage the story through vivid and eloquent representations, designed to be reproduced at different scales and on different supports, from paper to wood or glass, and to be understood by a heterogeneous audience. References to his illustrations can be found in various film genres and over a very wide period: from the biblical themes of *The Life and Passion of Christ* (Pathé 1902) and *Noah's Ark* (Curtiz, Zanuck 1928), (fig. 1) to *King Kong* (Cooper, Schoedsack 1933), (fig. 2); from the *Star Wars* saga, which takes up themes from the drawings of *The Orlando Furioso*, to Disney's animated films, up to recent films such as *Oliver Twist* (Polanski 2005), which recreates the atmosphere of 19th century London described by Doré in the drawings published in 1872 under the title *London: a pilgrimage* [Robert 2014].
To delimit the research field, the following notes focus on the illustration of the *Divine Comedy*, for which Doré can be considered the watershed between traditional iconography and the new interpretation transferred to the cinematographic field.

A new representation of Dante's visions

The *Divine Comedy* is the vehicle of an enormous iconographic repertoire, starting with the visual themes already available, which inspired Dante himself when he wrote the work, and crossing the centuries with successive interpretations that have given rise to a figurative narration that, starting from traditional motifs, has been enriched over time with new visual elements [Battaglia Ricci 2008]. Scholars agree that the illustrations included in the various editions are not merely decorative elements dictated by aesthetic reasons, but exegetical tools with the role of interpreting and commenting the text, to the point of acting as a parallel and complementary narrative to the textual one, which simplifies and completes the reading adding visual explanations and further levels of meaning of more immediate comprehension [Brieger 1969].
Doré followed this tradition of visual commentary on Dante's poem, approaching the illustration in a completely different way from all his predecessors. His aim was not to illustrate the work faithfully and comprehensively, but rather to choose the episodes that most fired his imagination and to present a vision dictated by his inspiration. This choice is reflected in the different number of drawings accompanying the three canticles: 75 for the *Hell*, which corresponds to an average of two drawings for each canto that no previous illustrator had produced, 42 for the *Purgatory* and 18 for the *Paradise*. Moreover, his vision is not always completely faithful to Dante's description. "The sacrifice of fidelity, however, is often to the advantage of the effectiveness of the representation and offers a key to understanding the immortal success of Dante's masterpiece, which since the fourteenth century (as the most aristocratic of readers, Petrarch, testified with horror) has been loved even by the uncultured, passing from mouth to mouth and being necessarily misunderstood and mispronounced, while remaining extraordinarily alive" [Baldassarri 2021, p. 19].
The expressive style is variable and adapts to the tone of the scenes and characters: the dark and intricate landscapes of the first illustrations, the bloody horror of some scenes from Hell, the Michelangelesque plasticity of characters such as Charon or Minos, the luminosity of the scenes in Paradise. His interpretation, together with that of Grandville, has been defined as "the place of fusion and synthesis of an artistic and literary tradition that are changing under the pressure of new communication needs,

Fig. 1. G. Doré, Noé envoie une colombe sur la terre, illustration for the Bible, 1866. M. Curtiz and D.F. Zanuck, Noah's Ark, frame and poster of the film, 1928.

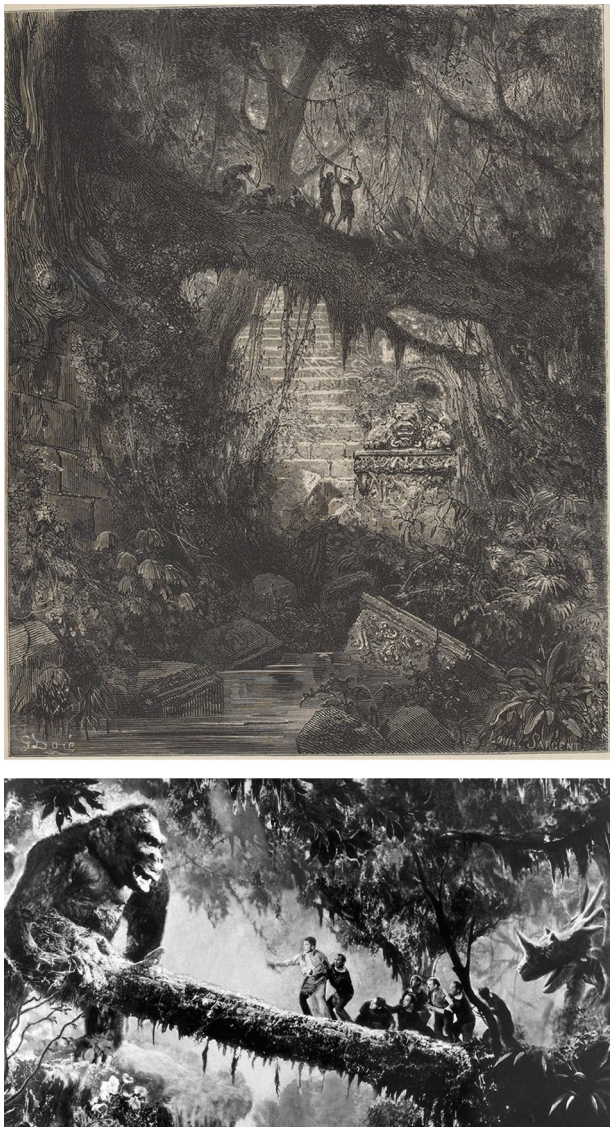


Fig. 2. G. Doré, illustration oi Atala by Chateaubriand, 1863. M. Cooper and E. Shoedsack, King Kong, frame of the film, 1933.

new reproduction techniques, new distribution circuits" [Abruzzese 2007, p. 28]. In fact, his innovation is not only in the creation of the images, but in the whole process of production and presentation of the work.
From a technical point of view, Doré brought about a revolution in the conception of the picture book as a media tool. Compared to previous editions, which included small illustrations breaking the continuity of the text, his editorial choice was radically different. Doré inserted full-page illustrations with a size of 18 x 33 cm, introducing a significant change in the perception of the relationship between text and image. The full-page illustrations dominate the canto, assuming a principal role in the communication with the reader, while the text almost seems to recede into a secondary element (fig. 3). This reversal of roles was already recognised by contemporary critics, who wrote that "More than Dante illustrated by Doré, it is Doré illustrated by Dante" [Lachey 1869, p. 202]. To assign to the illustration a major narrative role, Doré composed the text in such a way to place the image exactly where he wanted it to occur, where it would arouse the greatest surprise, according to a modern and at the time unprecedented conception of the relationship between text and image. Small portions of text were instead reproduced on the protective veil of the illustrations, to increase the link between the linguistic and iconic code, superimposing the text related to the illustrated verses on the lower part of the image itself, with a transparent effect like a theatre curtain that opened to reveal the scene. He also gave particular importance to the technique of reproduction, to preserve in the prints the effects of volume, chiaroscuro and shades of grey of the original drawings, with the help of the best engravers of the time. In this way, he created a specific editorial genre, the luxury illustrated book, aimed at a specific target, the rich bourgeoisie for whom owning a personal library was indicative of their social status [Amendola, Tirino 2016].
From a stylistic point of view, the work of Doré, artist of the Romantic movement, is characterised by a marked use of chiaroscuro that emphasises the narration, contrasting the darkness of the infernal abyss with the triumph of light in the Paradise.
The sequence of drawings represents with extreme coherence, verisimilitude and richness of detail a mere imaginary world, attributing concrete features to places that no one has ever seen. The first drawings relate to real landscapes, but as soon as Dante immerses himself in the world of the afterlife, the representation takes on the fea-

Fig. 3. Page with illustration of Charon in the illustrated manuscript with miniatures by Guiniforte Barzizza, 1430-1450 and in Doré's Hell, 1861.

Fig. 4. Doré, illustration of misers and prodigals in the VII canto of the Hell, 1861.

tures of a vision that undoubtedly does not belong to our world. In describing the settings and characters, Doré was in some ways forced to go beyond Dante's narrative. If the poet could omit the details of certain physical descriptions, the artist could not avoid depicting them. But in this case, Doré did not conform to the traditional iconography, and diverged even from the interpretation given by previous artists. For example, while traditionally the Hell had been imagined with flat bottomed circles, Doré drew landscapes of varying topography, with hills and rocky spurs, which exalted the drama of certain episodes (Fig. 04). The visual articulation of the scenes shows a personal interpretation, which some purists of Dante's text have judged to be beyond the task of an illustrator but are part of his way of conceiving the illustrated text as a living and continuous dialogue between words and images, in which it is up to the reader to express the final judgement [Cole 1994]. His personal style takes up the tradition of the Michelangelo's nude, blending it with the traits of Botticelli and the drama of the Northern European landscape painting, and inserting iconographic themes from popular culture. The visual motifs in many cases are original, like the vortex theme, which he depicted in several illustrations and was then adopted by various artists in their paintings [Marin 2015].
From a compositional point of view, Doré opposed asymmetrical and dynamic compositions to the symmetry and centrality that characterised most of the scenes of the previous illustrators (fig. 5), placing the main characters in off-centre positions, and obtaining effects that were later applied in the dynamic images of the audio-visual media (fig. 6). Another characteristic is the different scale used to emphasise mythological characters as opposed to human figures and in particular to Dante and Virgil, who appear very small and lost in the infernal landscape (fig. 7). The dynamism of the composition induces the reader to observe it along a visual path culminating in the most important element in the scene. In such way, the illustration assumes the value of a visual narration that follows the course of the events.
The influence of the new visual themes proposed by Doré's interpretation was immediate both in the field of painting and sculpture, which had traditionally dealt less with Dante's subjects. As well as giving shape to representations of Dante himself, many previously neglected subjects became part of the artists' themes (an example is the Suicide wood). Above all, Doré's influence is evident in the composition of the works, which began to be inspired by the theatrical staging of his hostile and tragic landscapes populated by Michelangelo's figures. The painting, on the other hand, took up his scenography where some figures are represented on a monumental scale compared to others, as well as the use of light and shadow effects to accentuate the drama of the scenes [Audeh 2009].
The definitive imposition of Doré's vision on the collective imagination occurred with the advent of cinema. Even before movies were produced, his drawings were used for screen projections with spoken commentary or musical accompaniment. These magic lantern projections became very popular at the end of the 19th century: Doré's pictures, which had already been conceived to be used on various media, were among the most widely used, giving new life and wide circulation to his imagination [Malan 1995]. It was therefore natural that his work should also serve as a model for the first films that attempted to reproduce Dante's comedy on movie. Among the many movies that dealt with the theme in its entirety or limited to single episodes, one of the most significant is *Inferno* (1911) directed by Francesco Bertolini, Giuseppe De Liguoro and Adolfo Padovan, the first full-length movie and the first colossal of Italian cinema, which inaugurated a genre linked to literary culture that had a great impact even on popular audiences [Bernardini 1985].

Fig. 5. Illustration of Minos (in central position) in the V canto of the Hell by Federico Zuccari, 1568-1588 and by William Blake, 1824-1827.

Fig. 6. Illustration of Minos (in an off-centre position) in the V canto of Doré's Hell, 1861 and in a frame of the film Inferno, 1911.

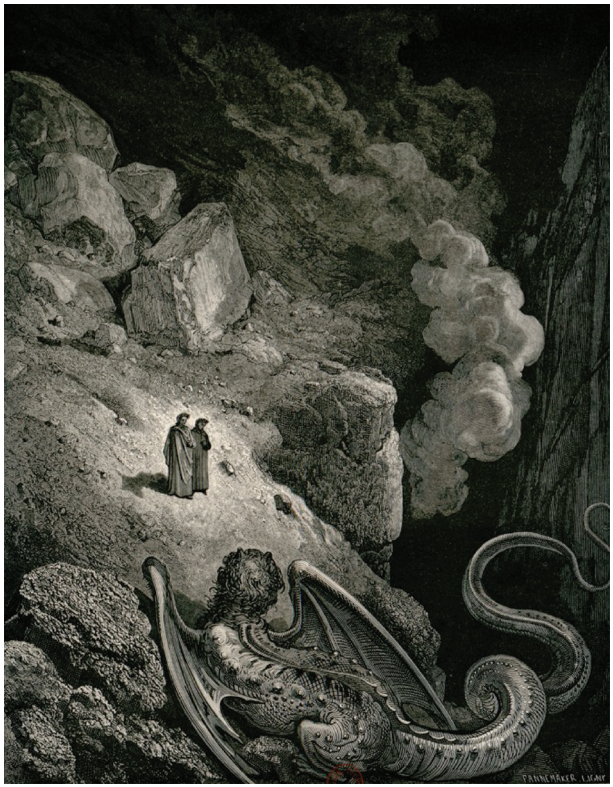
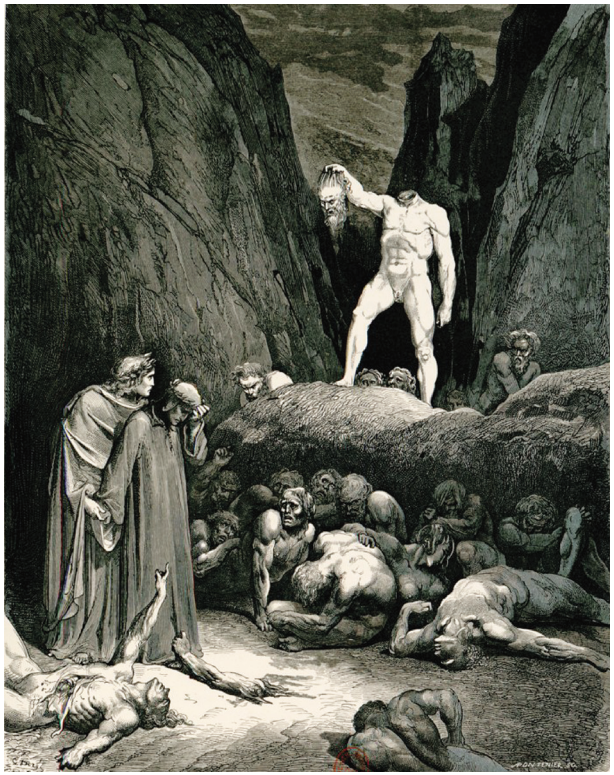


Fig. 7. Illustration of Jerion in the XVII canto of Doré's Inferno, 1861.

The first to recognise the link between Bertolini-De Liguoro-Padovan's *Inferno* and Doré's illustrations was Matilde Serao, writing on *Il Giorno* after attending the projection of the movie at the Teatro Mercadante in Naples: "We saw nothing more artistic, more beautiful, more fascinating than the paintings in which the most salient visions of Hell appear in all their grandeur and power [...] If Gustave Doré is the author of the noblest graphic commentary on the Divine Comedy, this film, which rehabilitates the cinematograph, has made Doré's work revive" [Serao, 1911]. From these words emerges first the appreciation of the artistic work of illustration, which is defined as "graphic commentary" to underline the operation of graphic translation into images of the literary description. Secondly, we note how the film work is interpreted as a re-proposition of Doré's graphic commentary using a new visual technique. Doré is fully recognised as the interpreter of Dante's poem, which through his graphic mediation from the 14th century verses becomes a visual narration for the 20th century audience. In this regard, it should be considered that in the cinema, from its origins to around 1915, the narrative instance used iconographic references external to the movie, inserting the component of the fourth dimension, the time, to animate the illustration of a visual material already present in the cultural system of the public. In this case, the reference to Doré's illustrations was explicit just to enable viewers to recognise his work and appreciate the new dynamic narrative instance proposed by the film [Burch 1994].

The analogies between Doré's illustrative apparatus and the cinematographic representation of Bertolini-De Liguoro-Padovan concern various aspects (fig. 8). First, the narrative modality that blends linguistic and iconic codes, recreated in the film through the addition of captions with explanations and comments that give rhythm to the sequence of scenes, in absence of spoken language [Brunetta 2001]. Secondly, the features and poses of the characters, from Dante and Virgil, whose actors were chosen for their physical similarity to Doré's illustrations, to the portrayal of the damned, which brought nudity onto the stage at a time when it was not permitted but was allowed here as a scenic device to increase the tragic nature of the representation. The same reference is made for the monstrous creatures, which follow both the physical appearance of the illustrations and the atmosphere and landscape that provide the scenery for their disturbing appearance on the stage. The third analogy is found in the choice of the viewpoint and the scenic composition, with long and very long shots, used by Doré to reproduce the effect of the sublime in the infernal landscape where the protagonists appear minuscule in the face of the majestic rawness of the spaces, and in the movie to achieve a realistic effect while at the same time not bringing the camera too close to the nude subjects [Braida 2007].

In some scenes, the analogy went so far as to reproduce exactly the point of view, perspective and composition used in the illustration. An emblematic example is the representation of Lucifer in the last canto of the *Hell*. The comparison between Dante's description, the traditional iconography, the modifications introduced by Doré's il-



lustration and their cinematic proposition, which could be extended with a similar methodology to other scenes, supports the considerations expressed about Doré's role in the transition to new visual motifs.

The staging of Lucifer

The *Divine Comedy* reports the version of the fall of Lucifer imposed since around the 4th-5th century, according to which the sin of pride due to the desire to equal God resulted in the expulsion from the heavenly world and the condemnation to eternal nothingness [Russel 1987]. In his literary description, Dante eliminated the grotesque elements of the medieval iconography of demons with horns and tails, to give Lucifer the sad and solemn majesty of an angel deprived of his beauty and condemned to horror. He is in fact an enormous and horrible creature, but he also has a character of grandeur. He is alone and unmovable at the farthest point from God, buried from the waist down in the ice of Cocytus, in the depths of Hell, from which only the upper part of his body emerges. By flapping its immense bat-like wings, two on each side, he causes a cold wind that freezes the lake of Cocytus. He has three faces of three different colours, and with each of his three mouths he tears apart one of three sinners, Judas, Brutus and Cassius, eternally tearing them apart with a cold, almost mechanical execution as an instrument of the divine justice [Pasquini 2013].
In the graphic transposition of this description, Doré diverged from the previous artistic iconography in favour of a greater descriptive realism and in certain aspects even a greater adherence to Dante's description, despite not respecting the perhaps most evident characteristic of the three faces. For the purposes of comparison, the example of Giotto's depiction of Lucifer in the *Last Judgement* in the Scrovegni Chapel (fig. 9), completed in 1306, therefore in the same years as Dante was working on the writing of the *Comedy*, is used here as a visual theme for the traditional iconography of Lucifer. It is believed that Dante had the opportunity to see it, or that the artist and the poet discussed the characteristics of the Devil [Link 2001]. Moreover, this representation was used as a model

Fig. 8. Illustration of Bertran de Born in canto XXVIII of Doré's Hell, 1861 and in a frame of the film Inferno, 1911.

for illustrations of the *Comedy* prior to Doré's. In Giotto's fresco, Lucifer dominates the scene in a central position in an almost symmetrical composition between the miniscule figures of the damned placed at his sides and at his feet. He has three faces, but also medieval horns, open arms and barely visible wings, but bat-like and not feathered like those of the angels. He is painted in cyan blue, the colour attributed to all demons in the Middle Ages. Similar characteristics can be found in the illustration of the *Comedy* by Sandro Botticelli (1497). Here too the composition is structured according to a central symmetry of the figure with physical features very similar to Giotto's, except for the arms which are symmetrical but folded in the act of bringing sinners to the mouths, while the much larger and more visible wings reproduce the form of the bat. In both representations, the figure is completely covered with fur and has claws. Again, William Blake, in his illustration of the *Comedy* (1824-27), reinterpreted this iconography with a modern taste with the same type of composition and visual weight of the elements, re-proposing similar physical characteristics and position in the description of the three faces, with arms like those painted by Giotto, and larger wings like those of Botticelli (fig. 10). His figure is humanised by the lack of fur, horns and claws [Schütze, Terzoli 2014]. It should be noted that in the three representations the composition is visually balanced by the central position of the demon and the symmetry of the elements, while the landscape in which the scene takes place is barely suggested. These are in fact the elements that were radically rethought in Doré's work.

Doré proposed a completely different composition for the illustration of the same canto of the *Hell*. First, he included for the first time an accurate landscape description of the infernal environment. The sharp rocks, positioned as a scenic background, form a sort of frame that encloses the scene. The figure of Lucifer stands out against the background, off-centre to the left, as a culmination of the visual path that starts at the bottom with the damned and ascends to the right over the miniscule figures of Dante and Virgil, finally focusing on his gigantic figure. Lucifer has only one face but is still depicted in the act of devouring sinners. Only his upper part is visible, emerging from the lake on whose frozen surface he rests his elbows. As in Dante's description, he has four gigantic bat-like wings, which occupy the entire background of the scene. The abandonment of symmetric composition

Fig. 9. Giotto, detail of the representation of Lucifer in the Last Judgement in the Scrovegni Chapel, 1306.

Fig. 10. Illustration of Lucifer in canto XXXIV of Hell by Botticelli, 1497 and Blake, 1824-1827.

in favour of the off-centre position of the main visual and narrative element gives dynamism to the scene, making it suitable for cinematographic transposition. Padovan-Bertolini-De Liguoro's *Inferno*, in fact, reproduced all Doré's visual elements, borrowing the entire iconographic structure, from the setting of the lake surrounded by sharp rocks and populated by the figures of the naked damned to the scenic composition with the figure of Lucifer off-centre on the left. The point of view is the same, as it is the difference in scale between the figures of the damned and the demon, which accentuates the sense of horror at his appearance. Lucifer is in the same pose with his elbows resting on the frozen surface of the lake, intent on devouring sinners, and he is again depicted with large bat-like wings closing off the background of the scene. Moreover, in both images, Lucifer does not look at Dante, but at the spectator, thus increasing his involvement (fig. 11). Movement, which in Doré's figurative representation was only expressed in power, is here activated thanks to a new dynamic medium, carrying a new and engaging mode of communication.

Conclusions

The comparison between Doré's representations and similar scenes in the artistic and illustrative fields, together with the study of literary sources, has confirmed the hypotheses concerning the visual innovations he made on subjects widely used for several centuries, as demonstrated by the example of Lucifer. The re-proposition of his subjects and, above all, of his settings and scenography in the field of cinema has also confirmed his role in the transition from the previous iconographic tradition to a new visual imagination closer to the modern taste.
The success of the film *Inferno* and its use as a model for subsequent film versions of the *Comedy* have revived Doré's imaginary work in further reinterpretations, with new communication techniques and new media. In this way it has come up to date and is still alive today, when it has been the subject of contemporary graphic experiments such as the graphic novel *Dante's Inferno: The Graphic Novel* in 2012 and the movie *The Mystery of*

Fig. 11. Illustration of Lucifer in Canto XXXIV of Doré's Hell, 1861 and in a frame of the film Inferno, 1911.

Fig. 12. Lucifer in a frame of the film The Mystery of Dante, 2014.

Dante directed by Louis Nero in 2014. [Amendola, Tirino 2016]. The movie can be considered as a re-proposal of the magic lantern projections realised with the new possibilities offered by digital technology. Through the technique of animation, in fact, Doré's illustrations come to life on the screen with an operation of iconographic transposition into the digital era (fig. 12), proposing a visual narration that once again updates Dante's work filtered through Doré's visionary eye and returns it to the collective imagination of our times.

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Beyond the Limit in Piranesi's Art

Sofia Menconero

Abstract

The contribution investigates the theme of overcoming the limit in Piranesi's art, examining the subject in three different aspects: the technical, perspective and architectural fields.
In the technical sphere, Piranesi went beyond the limit during his incessant experimentation to get the secret of etching to which he aspired. The price he had to pay to achieve the freedom, poetry and freshness of sign, with which he expressed the power, depth and audacity of his imagination, concerned some technical failures found on the copper matrices.
His overcoming the limits in the field of perspective is demonstrated by the expedients with which Piranesi skilfully mastered perspective to adapt the composition to his aesthetic and expressive wishes, anticipating and synthesising modern cinematographic techniques in a single image.
In architecture, the overcoming of limits can be found in his inventions: in the impossible configurations of the Carceri *and the colossal architectural fantasies collected in the* Opere varie. *Not having the opportunity to devote himself to concrete design practice, Piranesi entrusted his utopias to imagination and drawing.*

Keywords: Piranesi, limit, etching, perspective, architectural fantasies.

Introduction

Henri Focillon ascribed the discomfort of space and time limits to visionary artists in his essay *Esthétique des visionnaires*, which first appeared in 1926 [Focillon 2006, p.13]. In this context, the *vox media* of the limit, whose etymology derives from two Latin nouns, *limes* (limit, term, boundary) and *limen* (threshold, entrance, beginning), assumes the fullness of its contradiction. While visionaries suffered the discomfort of space and time boundaries, it is in their overcoming that they entered into the completely original artistic journey that characterises them. For them, the limit is not the boundary that closes but the threshold that opens to new visions.
As suggested by the French art historian himself [1], Giovanni Battista Piranesi is one of them.

Taking its cue from some passages of Focillon's essay on the aesthetic of the visionaries, this contribution investigates the theme of overcoming the limit in Piranesi's art, thanks to the tools of the representation science, examining the subject through three aspects: the technical, perspective and architectural sphere.
Overcoming the technical limits is effectively summed up by the motto "*col sporcar si trova*" (you can find if you dirty), which the engraver included on the frontispiece of one of his collections [Piranesi 1764]. Piranesi's incessant experimentation with etching technique, on the one hand, led him to commit technical failures, which are illustrated by some of his copperplates, but on the other hand, it allowed him to achieve the freedom, poetry and

freshness of sign with which he expressed the power, depth and audacity of his imagination.
Overcoming the limits in the field of perspective is demonstrated by the expedients with which Piranesi skilfully masters the rules of perspective. The engraver's consideration for this method of representation is declared by himself in the dedicatory letter of the series *Prima Parte di Architetture* e *Prospettive*: "You will see how much Perspective contributed to all these drawings because some parts of them I wanted to be seen before others in the Observer's eyes. The great Master of Architecture Vitruvius said that perspective is necessary for the Architect: and I think we can add that, whoever does not understand its use and need in Architecture, does not yet know from where Architecture gets its greatest beauty." [transl. from Garms 1978, pp. 16, 17].
Surpassing the limits of architecture can be found in the etchings and drawings of his youth, which have architectural fantasies as their theme where the colossal buildings, sometimes subject to formal inconsistencies, could never have been built, even with today's technical knowledge.

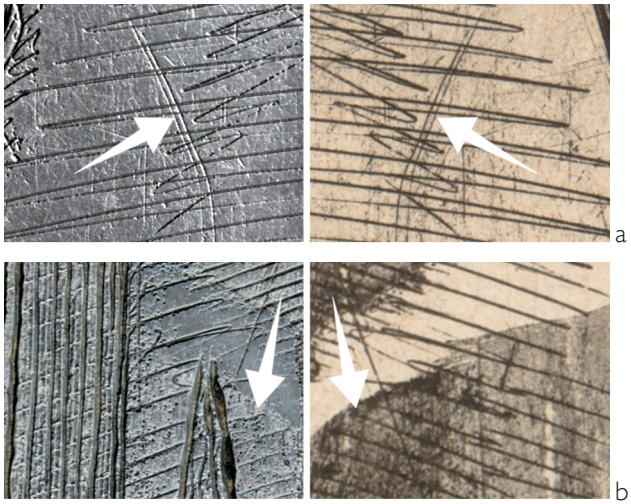


Fig. 1. Details of the copperplate (left) and the first edition print (right) of the frontispiece of the Carceri: unintentional scratches (a) and erosion of the protective layer of copper (b) (author's elaboration).

Technical field

> "For these artists, to say that it is a question of pure procedures, of execution modes, is to misunderstand the essential character of the artist's psychology: active and creative psychology, which does not allow a distinction between emotion and vision on the one hand and technique and creation on the other […] The genius of the visionaries spontaneously creates the means and tools that are necessary to it."
> [transl. from Focillon 2006, p. 30]

Historiography agrees that Piranesi began his studies in engraving technique while still in Venice at Carlo Zucchi's studio [Rossi 2016, p. 27]. From the Venetian environment, he learned softness of tip, the economy of line and lightness of biting bath. After moving to Rome, Piranesi frequented the studio of Giuseppe Vasi, an excellent *vedutista* of Sicilian origin, where the young engraver perfected his use of the burin and the art of *morsure multiple* (multiple biting). Their relationship was mentioned by both Giovanni Ludovico Bianconi, who wrote in a negative tone that the pupil threatened his master with death because he refused to reveal "the real secret of etching" [transl. from Bianconi 1976, p. 128], and Jacques-Guillaume Legrand, much more diplomatic, who nevertheless admitted a contrast between the two and quoted Vasi's statement: "You are too much a painter, my friend, to be an engraver" [transl. from Legrand 1976, p.139]. Although in different tones, the first two biographers suggested Piranesi's need to achieve an uncommon technical quality.
Having found etching as a means through which to express his fervid visions, Piranesi immediately began lively experimentation. Focillon identified four evolution periods of his technique: the first manner was influenced by his Roman apprenticeship and can be seen in his invention architectures; the second manner, "the painter's etching", evoked the Venetian style of a free sign as seen in the early *Carceri* and *Grotteschi*. Then there was a moment of transition in which the engraver was looking for a more vigorous and complete technique. Finally, the apex of Piranesi's technique, the achievement of the etching secret he used to engrave his magnificent plates of ruins [Focillon 1967, p. 199].
Piranesi's technical experimentation traces are recorded on his copperplates, now preserved at the

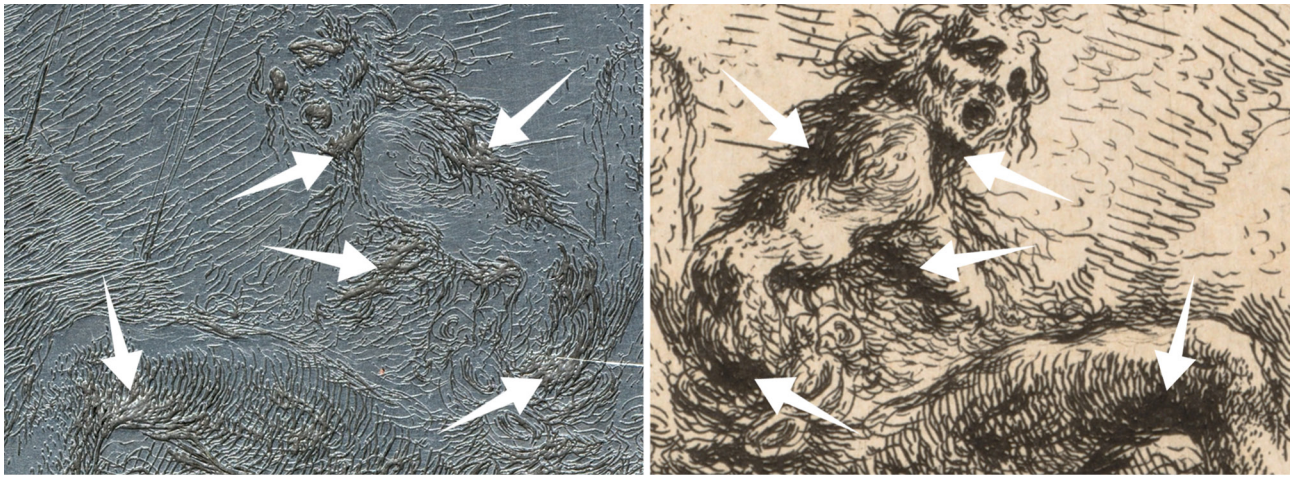


Fig. 2. Detail of the copperplate (left) and the first edition print (right) of the frontispiece of the Carceri with the corrosion between neighbouring marks (author's elaboration).

Istituto Centrale per la Grafica (ICG) in Rome [Mariani 2010]. In particular, the *Carceri* are an emblematic series for the study of Piranesi's engraved signs, as they present a stratigraphy of marks spanning ten years: from their production on 1749-1750 to their reworking in 1761.
During recent research carried out in collaboration with the ICG, it was possible to survey some matrices of the *Carceri* through the reflectance transformation imaging (RTI) technique [2]. RTI is a computational photography technique that allows to interactively re-illuminate the pictures (acquired with variable light conditions), perfectly simulating in a digital environment the observation and study operations that are traditionally carried out in chalcography, i.e. by moving the light source to follow the different direction of the engraved marks to observe the bottom. This technique makes it possible to record the two-dimensional metric components, the chromatic values and the third dimension implicitly with the perception of the shadows created in the engraved traces.
Through the RTI technique, it was possible to identify some of the technical failures Piranesi encountered in engraving the *Carceri* [3].

The first edition of the series is characterised by very free and fluid marks, which Piranesi obtained thanks to the use of a soft ground [Trassari Filippetto 2008, p. 15], with a waxy consistency, which allowed the tips to move freely but at the same time did not protect the copper from scratches and unintentional marks (fig. 1a). In combination with this ground, the engraver used a too strong acid which caused two types of problems. On the one hand, the mordant penetrated the preparation layer in some areas, removing the ground from the copper and resulting in a grey patina in print instead of the paper's white (fig. 1b). On the other hand, the nitric acid caused corrosion of copper between neighbouring marks, creating areas that inked badly and resulted in an uneven and faded black on the paper (fig. 2).
In the second edition, the technical failures are caused by the desire to find new expedients to widen the tone gradation and achieve even deeper blacks. To this goal, Piranesi added direct engraving tools to the etching: the burin and, in some cases, a chisel. The latter is a sort of burin without a handle, which is used by percussion. Its marks on the matrices are characterised by notches that identify the strokes (fig. 3a) [4]. In some cases, the strength

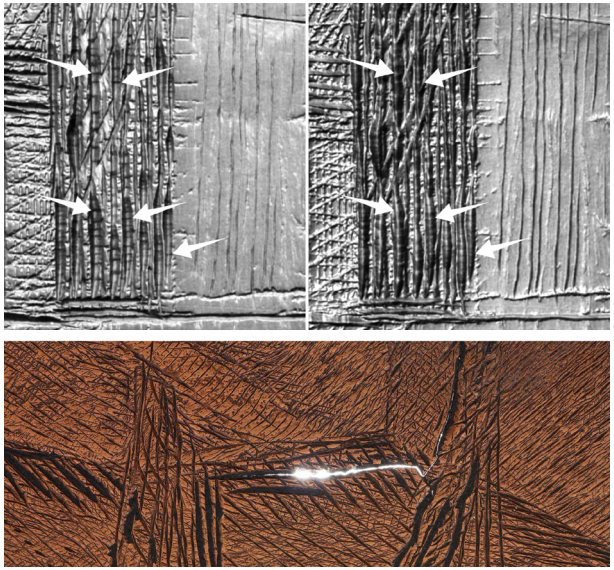
of this tool, which was not suitable for the type of material, compromised the thickness of the copper, which cracked after a few prints (fig. 3b) [Ghedin 2010, p. 20].

Perspective field

> "The masses are nothing more than the reference points of a perspective that multiplies endlessly, making it impossible to measure height, width and depth with any certainty" [transl. from Focillon 2006, p. 52].

Piranesi had intense training in perspective. Various 18th-century sources report a period of apprenticeship with Giuseppe e Domenico Valeriani [5], famous set designers and *quadraturisti* active in Italy and abroad, through whom the young engraver may have come into contact with Ferdinando Galli Bibiena's treatise illustrating the "*veduta per angolo*" (angular perspective) and, perhaps, also with Andrea Pozzo's treatise on *quadratura*.

Fig. 3. Use and consequences of the chisel: notches due to percussion in plate XVI (a) (author's elaboration) and crack in plate X (b) (photo by Lucia Ghedin, ICG).



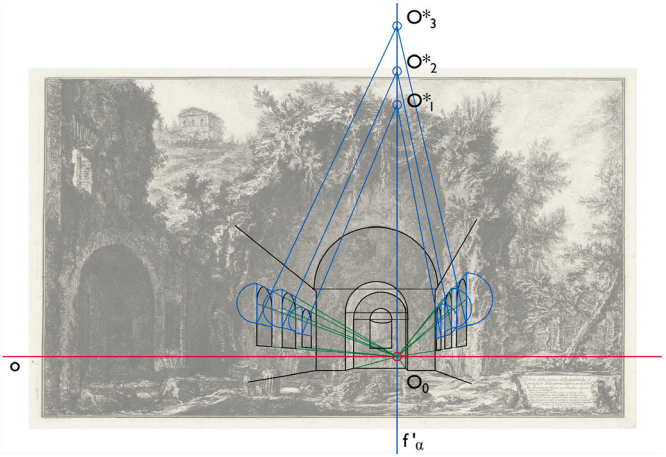


Fig. 4. Perspective layout analysis of the Egeria's veduta with the multiplication of the projection centre overturn (author's elaboration).

The waivers to the strict perspective construction found in several of Piranesi's works result from expedients handled with the mastery of the perspective art.
This study aims to show that Piranesi applied these waivers to achieve specific results. Overcoming the limit in the perspective field allowed him to represent his visions with the greatest freedom of effect. Three etchings from three different collections were examined, presenting different themes: representations of existing structures (*Ninfeo di Egeria*) and fantastic architecture (*Ponte Magnifico* and *Carceri*).
The *Veduta della fonte e delle spelonche d'Egeria fuor della Porta Capena or di S.Seb.no* is an etching of about 1766 collected in the *Vedute di Roma*.
The analysis of the perspective layout [6] reveals a multiplication of the projection centre's distance O^*_1, O^*_2, O^*_3, which varies according to the proximity of the arches to the picture plane (fig. 4). The projection centre's distance can be defined by the 45° diagonals of the squares circumscribed by the round arches of the side niches. The three-dimensional reconstruction of the represented space, considering each of the three projection centres, shows the contraction and expansion of the perspective space (fig. 5). There is no single three-dimensional model or perspective layout that represents Piranesi's etching. However, the latter is the union of various partial perspectives with different longitudinally aligned projection

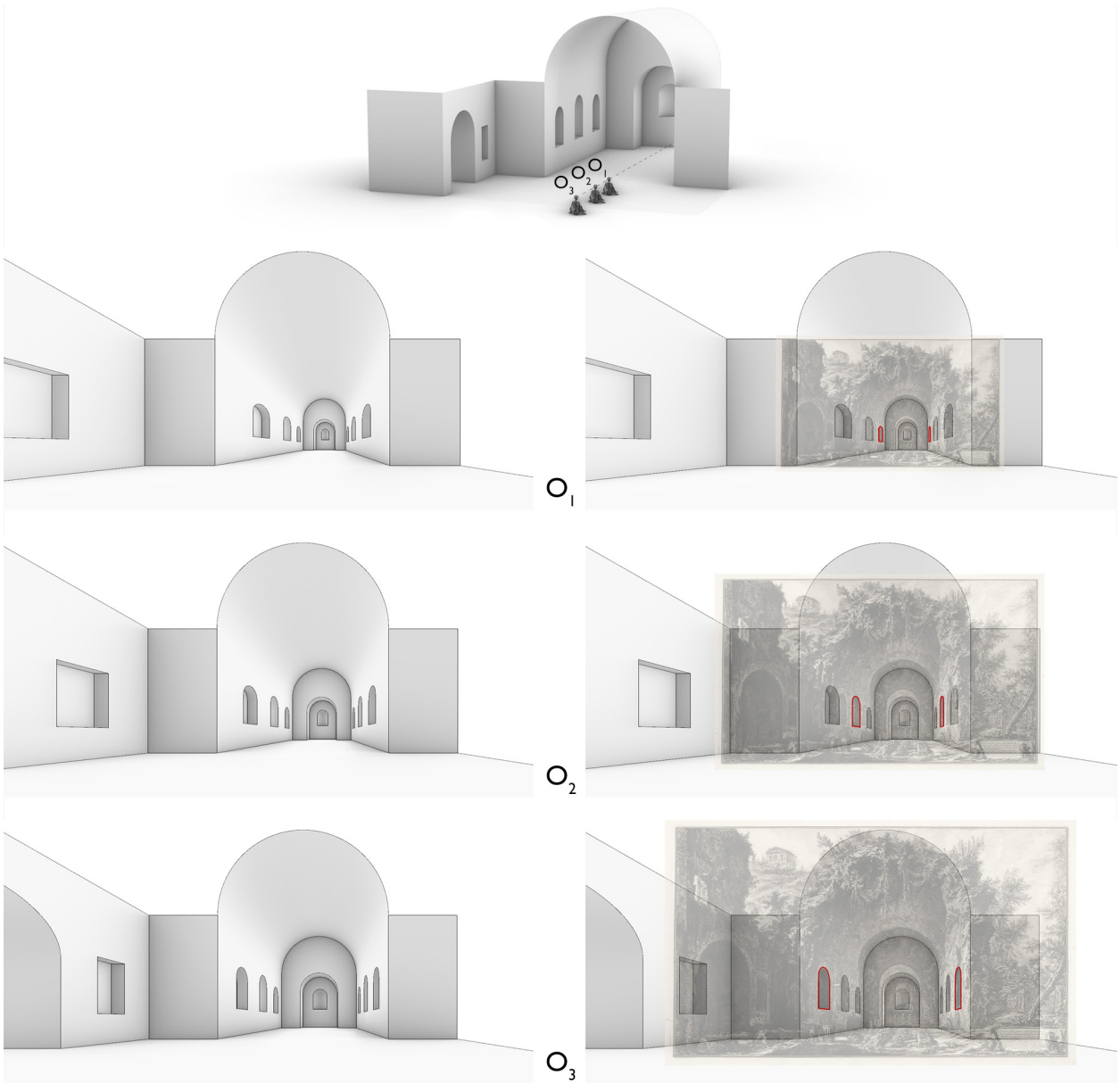
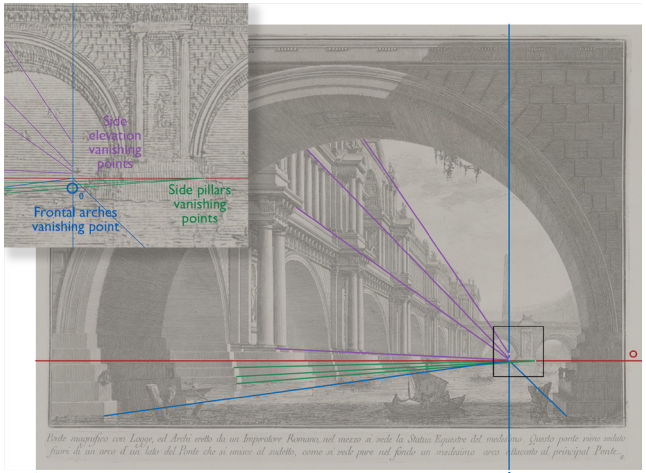
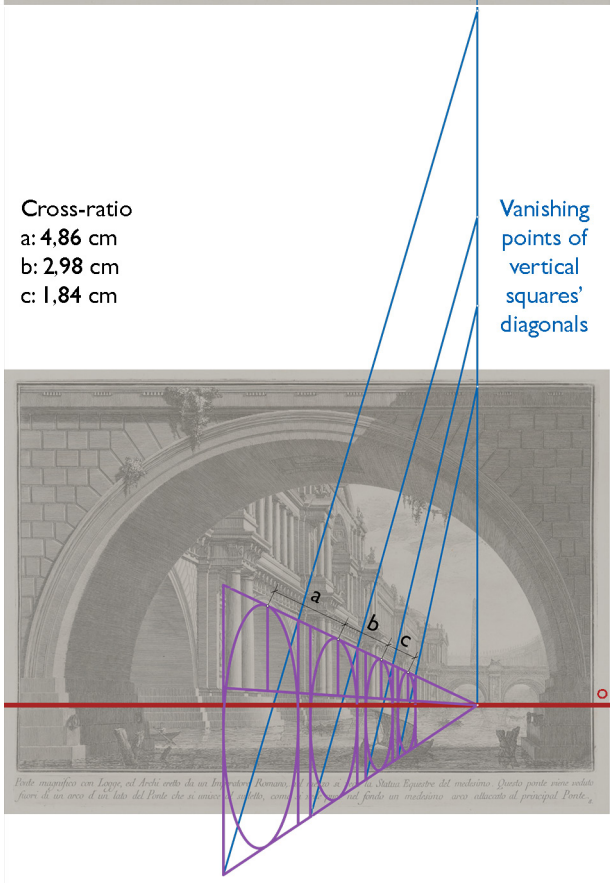


Fig. 5. Views of the 3D model from the three projection centres compared and overlapped with the etching where the elements consistent with each view are marked in red (author's elaboration).





centres in which the decreasing of the apparent lengths varies: the closer the projection centre is to the picture plane, the more visibility the side walls have at the expense of a deformation that prevents the unitary representation of the architecture. So, Piranesi mediated with the desire to represent the whole nymphaeum and describe the side walls in detail. He is a forerunner in using what is known as the 'vertigo effect' in cinematography, i.e. a shot that combines a zoom-in and a backwards tracking shot, or vice versa. In this case, the effect is not experienced in a temporal sequence, but Piranesi synthesised and 'froze' it in a single picture that is the sum of different perspectives [7].

The *Ponte Magnifico con Logge, ed Archi…* is one of the etchings with an invention subject in the first collection published by Piranesi (*Prima Parte di Architetture e Prospettive*, 1743). The first analyses on the perspective layout identified a shift in the vanishing point of the assumed horizontal lines on the bridge elevation. In particular, these points tend to rise as one considers horizontal lines of higher architectural elements (fig. 6). This shift means that in perspective restitution, starting from the water level, which identifies a horizontal plane by its nature, all the friezes tend to rise to the right when looking at the elevation. This shift is the first expedient that Piranesi introduced so that the furthest part of the bridge would not be too reduced in height and would be clearly visible. With the same aim in mind, the straight lines identifying the steps of the pillars are not orthogonal to the picture plane but slightly inclined to allow them to protrude and better mark the spans of the bridge. It was found that the projection centres are multiplied and shifted as before (fig. 7). In addition, the cross-ratio measure, calculated at the keystone of the visible lateral arches, differs from the value of 1.33 that would identify spans of the same width [8]. Here too, Piranesi admitted the possibility of manipulating the perspective to emphasise the

Fig. 6. Perspective layout analysis of the Ponte Magnifico (author's elaboration).

Fig. 7. Cross-ratio measures and multiplication of the vanishing points of the diagonals of the squared circumscribed by the arches (author's elaboration).

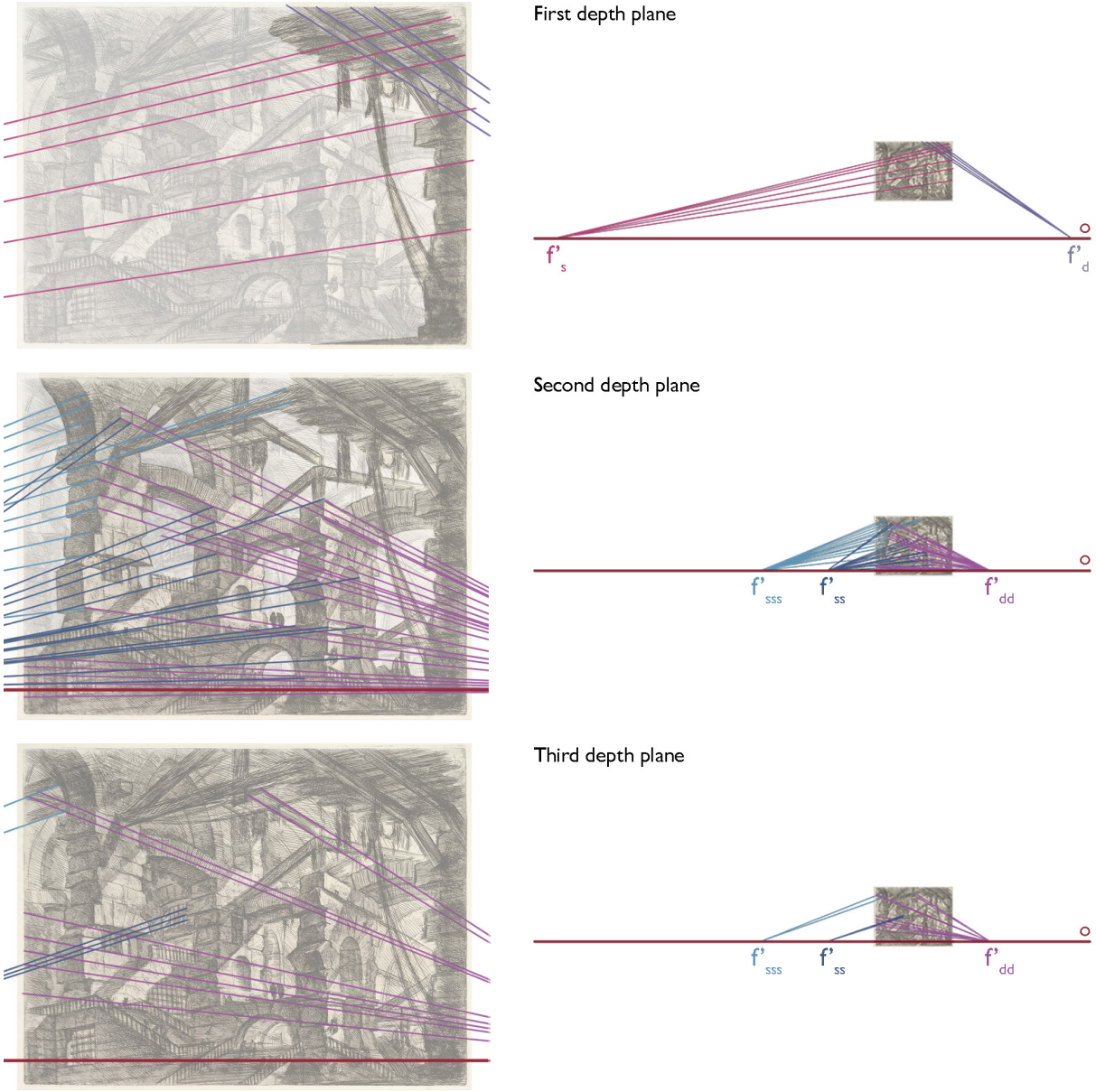


Fig. 8. Perspective layout analysis of plate XIV of the Carceri's first edition (author's elaboration).

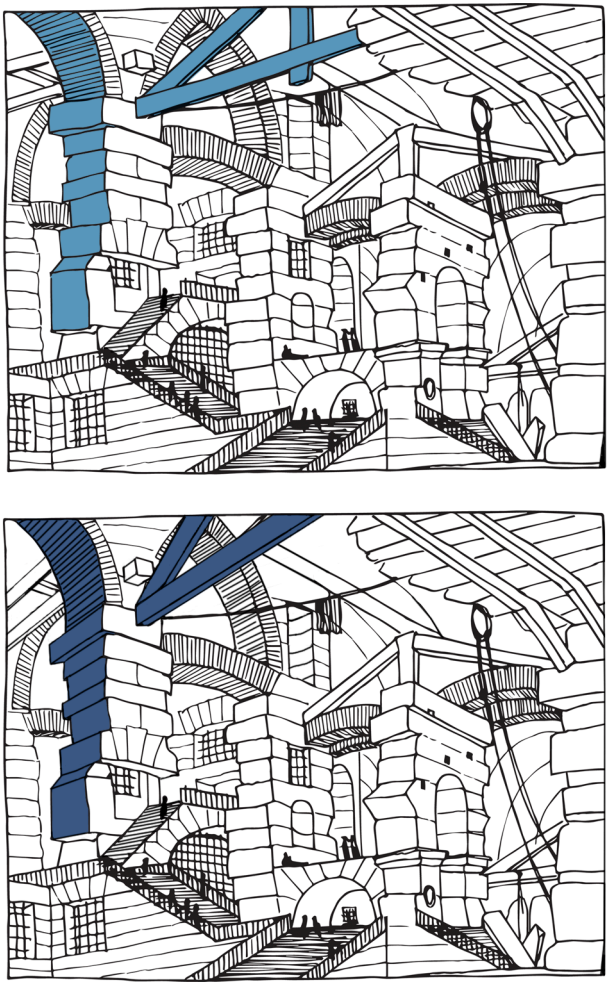
architecture, as he declared in the dedicatory letter attached to the series.
As a final example, we report the plate XIV of the *Invenzioni capric di Carceri all'acquaforte* (first edition of the series dated 1749-1750). The work is one of the architectural fantasies Piranesi engraved at the beginning of his career.
The perspective layout immediately appears more complex than in the previous cases. The key to solving the perspective enigma of the *Carceri* is to break up the plate into depth planes as if they were wings of a theatre and then analyse the perspective layout of each plane [9]. The decomposition into depth planes is carried out where we found the solutions of continuity of architectural groups. We identify three of them in plate XIV. If we examine the horizon position in the three cases, it is positioned lower in the first depth plane than in the other two, where it coincides (fig. 8). The exact coincidence is found in the vanishing points of the horizontal lines orthogonal to each other: those identified in the first depth plane differ from those of the successive two planes. The third plane presents a further dissimilarity: the left vanishing point splits at the side face of the first pillar on the left, which would otherwise have been too foreshortened (fig. 9).

Architectural field

> "Steps of colossal staircases climb the abyss
> and lose themselves in inaccessible heights.
> Forests of columns support arches of enormous span,
> behind these more, as they collapse into a background
> where their vanishing points drag them."
> [transl. from Focillon 2006, p. 51]

In his multifaceted training, Piranesi also dealt with architecture and engineering. He began his training in Venice with his uncle Matteo Lucchesi, *proto* of the Serenissima's Magistrato delle Acque [10], and later became an apprentice of Giovanni Scalfarotto, an anticipator of neoclassical taste and a follower of Palladian aesthetics. Unfortunately, Piranesi had few opportunities to create architecture [11]. What can be used to trace his profile as an architect are mainly the drawings he left behind. On the one hand, the

Fig. 9. Comparison between the Piranesian solution (top) and the solution without splitting the left vanishing point in the 2nd and 3rd depth plane (bottom) (author's elaboration).



early architectural fantasies show the power of his imagination and the influence of ancient architecture in his visions. On the other hand, the etchings of Roman ruins reveal his expertise in both surveying and ancient building techniques.

In the present study, some representations of fantastic structures were selected to show Piranesi's mechanisms in overcoming the architectural limit. The *Opere varie* (1750) collects this kind of subject and includes the *Prima Parte di Architetture e Prospettive*, *Carceri*, *Grotteschi* and two other prints [12].

One of the latter two is the *Pianta di ampio magnifico Collegio* (fig. 19). It is the plan of a gigantic complex with a central layout and various functions: a temple, a theatre, a riding school, oratories, refectories, libraries, picture galleries, and accommodation for priests, rectors and students. Concentric circles inscribed in a square and some annexes accommodate the distribution of the various buildings. The result is a composition reminiscent of fractal geometry: a multiplication of rooms, which can also be found in the later *Ichnographiam Campi Martii* (1762), which can be indefinitely extended as it depends only on criteria of contiguity.

Piranesi was openly inspired by ancient Greek gymnasium and Roman bath with majestic porticoes and staircase in composing this architecture. The staircase is a theme dear to the engraver, and we see a multiplication of this motif in the *Collegio*.

The same theme can be found in the plate *Parte di ampio magnifico Porto* (fig. 11), also contained in the *Opere varie*. In this *veduta*, the ramps initiate a climax to which all of the architecture contributes: "He piles palaces on bridges, and temples on palaces, and scales heaven with mountains of edifices" [Walpole 1871, p. 313]. The magnificence of the monuments is amplified by a low viewpoint and tiny human figures. Puffs of smoke help to hide joints and critical points: in this case, they divide two parts of what would appear to be the same curved wall but is not, as the openings and decorations are incompatible with each other.

The combination of magnificent structures, daring compositions and spatial ambiguities takes on great significance in the *Carceri*.

Plate XIV, whose perspective layout has already been seen, conceals a spatial inconsistency that

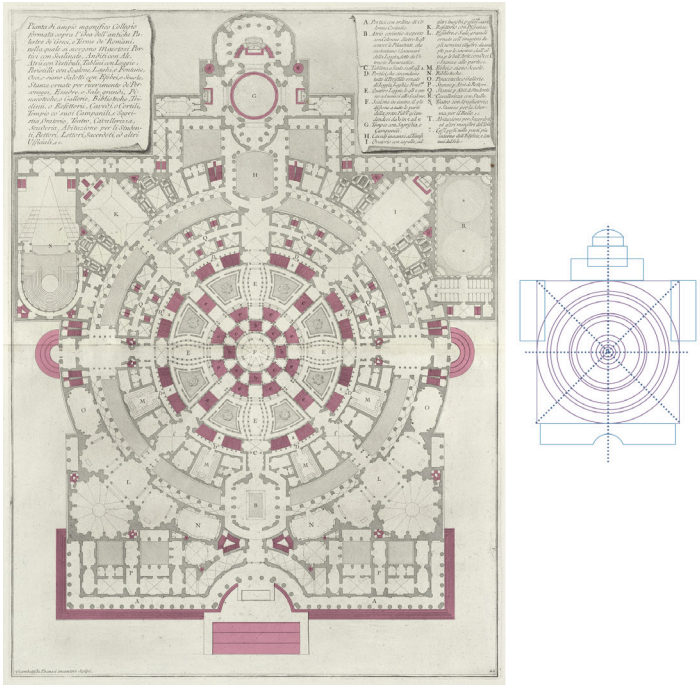


Fig. 10. Pianta di ampio magnifico Collegio with the staircase groups highlighted (left) and diagram of the compositional main line (right) (author's elaboration).

hinders the three-dimensional reconstruction of the space. The central pillar of the composition seems to be aligned with the wall with pointed arches, but at the same time, a flight of stairs separates it from the pillar on the left, making the previous alignment impossible. If we want to reconstruct the three-dimensional space represented, it is evident that the perspective restitution alone does not provide sufficient information. The method followed is based on integrating three different types of interpretation: architectural, perspective and perceptual [13]. By bringing together these different types of analysis, it was possible to propose a spatial interpretation of plate XIV that presents the same perspective as the etching and that simultaneously solves the spatial inconsistency by proposing a solution of continuity

Fig. 11. Parte di ampio magnifico Porto: preliminary drawing by Piranesi (top) and etching with details of the two different compositional treatments of the curved wall (bottom) (author's elaboration).

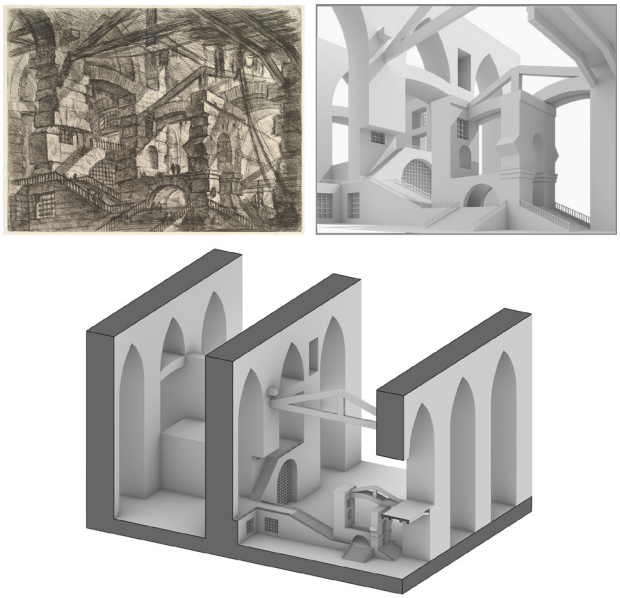


Fig. 12. Reconstructive hypothesis of the Carceri's plate XIV: comparison between the etching and the 3D model (top) and axonometric view (bottom) (author's elaboration).

that separates the ambiguous pillar from the wall with pointed arches (fig. 12).
The resulting reconstructive hypothesis highlights a smaller-scale architectural group within a more extensive architecture. This type of concentric spatial multiplication complements the 'serial' multiplication most frequently observed in the *Carceri*, where several rooms follow one another.

Conclusions

Driven by the *vis* that distinguished his visionary genius, Piranesi created the means and perfected the etching technique, aiming to achieve a fluid, painterly mark and the greatest possible tonal range. Sometimes he went beyond the chemical-physical limit of the copper and failed in his experiments, but this price was paid against the achievement of a very high technical quality: a black and white that can touch more deeply than the full register of colours.
In the *Carceri*, he overcame the limit of perspective, fragmented space and showed it from multiple viewpoints simultaneously, anticipating what in the 20th century would be some formal devices of spatial complexity typical of Cubism. Moreover, his kinaesthetic experience of the represented space anticipated one of the main themes of László Moholy-Nagy's research, which precisely concerned overcoming the Renaissance perspective space with a dynamic vision [Quici 2014, p.66].
Piranesi anticipated and preceded, but he was also a source of inspiration for later architects, artists, and writers because he stood out in the artistic and architectural field for his peculiarities. If, on the one hand, he anticipated, on the other hand, he created a legacy that will be continued by many subsequent artistic disciplines in a more or less explicit and direct way [14].
In his early production of fantastic architectures, he overcame the architectural limit by proposing out-of-scale

and ambiguous structures, too ambitious for any client: "he has imagined scenes that would startle geometry and exhaust the Indies to realise" [Walpole 1871, p. 313].
Not having the opportunity to dedicate himself to concrete design practice, the engraver entrusted his utopias to the imagination and drawing: "the only adequate outlet for an intellectual work that does not want to relinquish the commitment to making projects" [Tafuri 1987, p. 29].
We saw the implications of Piranesi's overcoming the limit in the technical, perspective, and architectural spheres, considering his early inventive production more. However, it can be said that Piranesi's whole existence was characterised by a desire to push himself beyond the customs of the time.
In addition to the fields already considered, Piranesi also pioneered a new method of studying ancient remains: "because I realised that I could not deduce a positive assessment from what modern authors wrote about them [ancient ruins] because they did not become involved in the investigation of the remains and of the places where they supposedly were built" [transl. from Piranesi 1784]. In some ways, he anticipated modern archaeological science, which is based on the study of ancient sources and direct research and verification of the remains *in situ*. Although his reconstructive hypotheses for ancient buildings are pretty extravagant, there is no denying that his method of studying, surveying and documenting is precise and consistent.
Piranesi marks a landmark in the history of art and architecture. His various overcome limits enabled him to make innovations that were more appreciated by 19*th* century Romanticism than by his contemporaries, who were not culturally ready to accept his magnificent visions or reproduce his audacious engraving technique. His master Giuseppe Vasi could not reveal to him the secret of an etching that no one had yet made. Quoting Focillon one last time: "Piranesi anticipates everything: he anticipates himself" [transl. from Focillon 2006, p. 36].

Notes

[1] Focillon was also one of the first to undertake a scrupulous work cataloguing Piranesi's etchings [Focillon 1918]. This work was reviewed, commented, and translated into the Italian language in the volume edited by Maurizio Calvesi and Augusta Monferini [Focillon 1967].

[2] Algorithms of the RTI technique have existed since 2001 and have been applied effectively on various types of artefacts: for example, coins [Palma et al. 2012], epigraphs [Ponchio et al. 2018], and other types of relief works. The first experimentation on chalcographic material turns out to be the one reported in this paper. We would like to thank M.C. Misiti, G. Scaloni, L. Ghedin (ICG) and L. Carnevali, M. Fasolo, L. Baglioni (Sapienza University of Rome) for making this experimentation possible.

[3] An example of an RTI image of a detail of the *Carceri* frontispiece can be seen at this link <https://visual.ariadne-infrastructure.eu/rti/76557f7b2a92484 1c162edd3c57eb02f> (accessed 2021, August 31).

[4] Giuseppe Trassari Filippetto proposed Piranesi's use of the chisel in a talk at the study day dedicated to Piranesi organised by the ICG in 2015.

[5] The relations between Piranesi and the Valeriani brothers are mentioned by Bianconi, Legrand, Stählin, Kennedy [Rossi 2016, pp. 25-28].

[6] The perspective study of the *Veduta della fonte* e *delle spelonche d'Egeria* is detailed in a previous publication [Menconero 2020a].

[7] A similar observation was made by Barbara Rapp [Rapp 2008]: analysing the *vedute* of the *Ponte Fabrizio* and the *Ponte Ferrato* published in the IV tome of the *Antichità Romane*, the author found two and three projection centres, respectively.

[8] The prospective study of the *Ponte Magnifico* is detailed in a previous publication [Menconero 2020b].

[9] A more in-depth description of the prospective analysis method applied to the *Carceri* can be found in the author's PhD thesis [Menconero 2021].

[10] The Serenissima's *proti* had a strong education in architecture, engineering and mathematics and were in close contact with the leading intellectuals of the time [Bevilacqua 2006, p.16].

[11] Piranesi was responsible for the renovation of the S. Maria del Priorato complex on the Aventine, commissioned by the Venetian Rezzonico family [Panza 1998, pp. 69-96].

[12] Piranesi's early works of fantastic architecture were studied and catalogued by Andrew Robison [Robison 1986].

[13] See the author's PhD thesis for a more detailed discussion on the method [Menconero 2021].

[14] Regarding Piranesi's artistic legacy, see Angelo Marletta's PhD thesis [Marletta 2011, 179-196] and Franco Purini's essay [Purini 2008].

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Visions of Far Places and Overlaying Illusions: the Gothic Fresco by Pisanello in Verona as a Graphic Crossing in Space and Time

Giorgio Verdiani, Pelin Arslan

Abstract

In the Church of St. Anastasia, in Verona, Italy, there is a fresco from Pisanello, dated between 1432 and 1438. It is named San Giorgio e la Principessa *(St. George and the Princess), but it has received in time the final addition "of Trebisonda". The vision depicted inside this fresco opens a reflection about interpretation and representation, about resolution and dissolution of reality. The work of representation can be a way of visualizing an idea or a place from which there is just a vision coming from the words of others. No matter how uncertain it is, the vision of the author leads to the definition of the result, capturing myths and fascinations, like 'the East', 'the city far away', 'Trebisonda', 'the travel'. The traces inserted in the artwork may contain a specific code, later (mis)interpreted in a new cultural scenario. The idea of Pisanello depicting the city on the Black Sea is not supported by resolutive evidence. It seems like a weird alchemy pushing ideas. In this paper, a 'state of the knowledge' about this artwork will be the frame for a reflection about the visionary contents and elements in the main scene and in the background. A test operated with a group of architecture students and artists will investigate what happens when representing a city in a landscape seen only through oral communication. A graphic and logical matching between the ideal representation of the city in the fresco and the past and present Trebisonda/ Trebizond/Trabzon will complete the analysis.*

Keywords: Fictional Cities, Gothic Painting, Church of St. Anastasia, San Giorgio, Trebisonda.

Introduction

In the Church dedicated to St. Anastasia, in Verona, Italy (fig. 1), there is a fresco that suffered the injuries of time and some neglect, but in the beauty of its artistry there is the focus of some original interpretations, most of them rising during the last hundred years. The fresco is a work from Pisanello, there is some debating about the exact date attribution, but its realization is mostly indicated between 1432 and 1438 (fig. 2). A general classification may insert this masterpiece into the International Gothic period [Castelfranchi Vegas 1966]. The name of the fresco is *San Giorgio e la Principessa* (St. George and the Princess) but it has received in recent time the final addition "of Trebisonda" a choice extremely appreciated and supported by some authors. This may be considered a popular choice linked to the will of building up a greater story around basic facts, overlaying imagination to the contents of the fresco. The variation of the name started on the basis of an occasional definition written for the first time in the catalogue of an exhibition about the Artwork Paintings in Verona held in 1947 [Avena 1947]. The reason for a connection between Trebisonda and St. Giorgio is not cleared by the original author of this title. Defining the town of Trebisonda, at the present Trabzon on the Turkish coast of the Black Sea, is not an easy task in a few lines. The origin of the settlement is very ancient, the foundation is indicated by the Christian author Eusebius from Caesarea in 756 B.C. as a colony from Sinope in the progressive colonization of the Black Sea waterfront by the Greeks. In this initial phase, the town is characterized by Greek and Persian influences. In

Fig. 1. The Church of St. Anastasia in Verona, view of the front and of the entrance from the central nave (G. Verdiani, 2021).

the first half of the first century B.C., during Roman domination, it became a node in the borderline of the Empire placed along the Rhine and the Euphrates *Limes*. The following long series of events brought that area under the influence of the Byzantines with the creation of the Empire of the Komnenos, the Dynasty who ruled Trebisonda across almost three centuries with 21 different emperors, dealing with the Italians from the *Repubbliche Marinare*: from the beginning of the XIIIth century, the ships from Venice were moving all across the Black Sea, exchanging products, moving materials and goods from the nearby areas and from far away destinations. According to S. P. Karpov, there were five main reasons to bring Italians from Venice, Genoa and Rome to trade and settle their commerce in Trebisonda: 1) the destruction of Baghdad by the Mongols in 1258 caused the reorganization of all the routes in the East; 2) the presence of Italian settlements in Crimea and in the Azov Sea was making it easy to connect operations across the area; 3) up to the end of the XIIIth century the Trebisonda Empire consolidated its role, creating political stability; 4) the Italians had safe settlements and positions in Costantinopoli and in its nearby waterway passages; 5) the creation of the Ilkhanate [Melville 2012] offered the possibility to keep open and safe routes to central Asia and China [Karpov 1986].
Furthermore, Trebisonda was a crossway of people and goods, a fundamental point in the market routes to and from the East.
After the fall of Constantinople in 1453, Trebisonda remained independent until 1461 when it was the last city to be conquered by the Ottomans.
In Europe and especially in Italy Trebisonda took a place in the common imagination like some exotic, far away location, sometimes with some doubts about its correct geographical location but also as a synonym of travelling into fabulous far places.
The anomalous association of Trebisonda with the legend of St. Giorgio depicted in the fresco is the object of many critics and it is widely recognized for being 'weird', the official texts presenting the fresco avoid any reference to this connection, while it is well known how the original description of St. Giorgio and the Dragon's legend develops all the events in the city of Silene, in Libya. At the same time, there are no references coming from the past to support the idea for a change in the location. According to the *Legenda Aurea* by Jacopo da Varagine, in his collection of the hagiographies of the life of the Christian Saints written between 1260 and 1289 [Le Goff 2011], St. Giorgio is documented for being

Fig. 2. View from the right nave and from the left transept towards the Pisanello's fresco, view of the fresco from the ground in the same perspective of any visitors (G. Verdiani, 2021).

born in Kapadokya in the III century A.D. but the *Legenda* leaves no chance nor any doubts about the location of the legendary fight with the dragon, the ideal reference to the town in the background cannot be Trebisonda, at least until the author keeps the representation aligned to the official version of the legend. Previously, accurate studies have well stated the inconsistency of this choice about expanding the name of this fresco [Puppi 1982; Franco 1992], thus, there is a certain number of online pages still referring to this artwork using the name defined in 1947. In its own way, this small case about the name and the localization of the fresco from the XV century testifies the love for imaginary places and the fascination coming from mythical events that happened in an undefined past and place. People read the story, wonder about the legend, get amazed by the events, maybe get the religious implications of the tale, but in the end, the age and the place start blurring away, the story is moved to a level of the purely imaginary and then its location can be replaced according to needs, opinions, ideals, intentions and even misunderstandings. The resulting story is not necessarily weaker than the previous, the new beliefs and the new integrations to the tradition are immediately accepted for their capacity in moving the levers of imagination, no matter how wrong, improper or weird they are. In a certain way, the transformation of the name seems to follow the words from Cicero: "omnis translatio, quae quidem sumpta ratione est, ad sensus ipsos admovetur, maxime oculorum, qui est sensus acerrimus" which can be translated as "every metaphor, as long as it makes sense, produces direct influence on the senses and most of all on the sight, which is the most subtle one" (*De Oratione*, *Liber III*, 161). From this, the persistence of such an interpretation that brings a rich series of speculations, in between of them: the symbolic interpretation of the fresco as a representation of the resistance to the Ottoman invasion, where the Dragon should represent the Sultan's armies; the figure of the princess as the portrait of Maria Comnena of Trebisonda, wife of John VIII Palaiologos, a woman known in the tradition for her great beauty, who died in 1439 [Bryer 1962]; the possible complex relationships between the work of Pisanello and the court of the Emperor [Ronchey 2012]; but also of being an allegory to some events of the Pellegrini Family, the financiers of the artwork, connected to opposition to the Venetian domination [Bismara 2013]. For some Art historians, the attribution of the place is just because "Trebisonda is a place of the imagination" [De Vecchi, Cerchiari 1999]. For sure the presence of the Trebisonda Empire was not something too far or ignored by the people in Italy and in Europe in the XVth century. In the years close to the realization of the fresco, there were two visits in Italy by the Byzantine imperial court and Pisanello made a specific bronze medal with the portrait of John VIII Palaiologos [Bernasconi 1862]. References to the "East" are well present in the dresses and details of the group around St. Giorgio and the Princess.

Fig. 3. Section of the transept towards the Pisanello's fresco, photogrammetric reconstruction (G. Verdiani, 2021).

The vision depicted inside this fresco opens an interesting reflection about interpretation and representation, about resolution and dissolution of reality. Creating artwork is creating a communication about personal ideas and concepts, the target may be a generic observer, a specific person or just the author. Then, the work of representation can be a way of visualizing an idea, a project or even a place of which there is just a vision coming from the words of others. No matter how uncertain it is, the vision of the author leads to the definition of the resulting work, capturing myths and fascinations, like those coming from the East, the far away city, Trebisonda, the travel.

Documenting the fresco

To have better support in the analysis and reflections about Pisanello's fresco, an intervention of documentation and survey was conducted in August 2021. The intervention was based on photography and photogrammetry. All the pictures were taken using a Nikon D850 Digital SLR camera, with a sensor resolution of 47.3 Megapixel [1]. A series of shots aimed to be used in Structure from Motion/Image Matching photogrammetry was done for the whole bay around the fresco, covering the floor, the pillars, the chapels, the altars, the vaults, the windows and all the frescos and mural paintings [2]. The following photogrammetric processing was done using Epic Megagames Reality Capture software [3]. The resulting model was then scaled according to one measure taken in place using a metric tape on the base of the bay hosting Pisanello's fresco (fig. 3). The pictures detailing the fresco were first corrected in their optical distortions [4] and then aligned and adapted on the base of the model coming from the SfM/IM photogrammetry. In this way, a geometrical correct version of the fresco with a resolution of 133 Megapixel for the whole fresco (fig. 4) and of 75 Megapixel for the main cityscape (fig. 5) was completed and used for studying the artwork in detail.

Description of the fresco

The interpretation of the fresco, done in place and studying the results from the survey, assumed that there should be traces inserted in the artwork that may require a specific reading, according to rules defined in the time of the author, but later interpreted by the new actors and audience

Fig. 4. The whole fresco of St. Giorgio and the Princess by Pisanello (G. Verdiani, 2021).

Fig. 5. Detail of the cityscape (G. Verdiani, 2021).

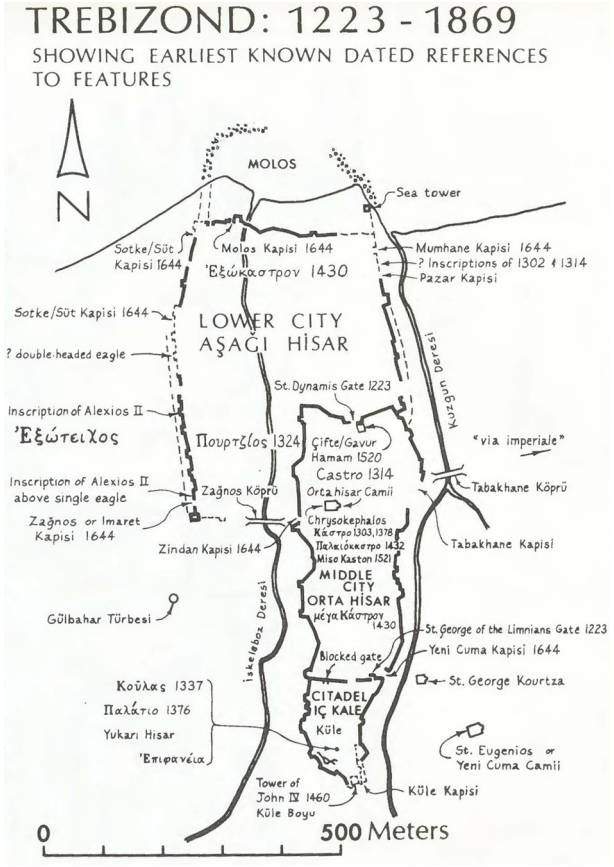
of the cultural scenario, then the investigation was made with the effort of thinking in the time of the artwork, trying to remove elements coming from events yet to happen at that time and reflecting about the meanings and strengths given to the landscape and architectural parts.
Today, after a period of restorations and exhibition in different locations, the fresco is back in its original location, in the bay at the right side of the apse, the restoration work has recovered and preserved well (for what was possible) the artwork, thus the subdivision of the plaster into three parts (the large central one and two smaller panels at the side of the arch) with the introduction of large hinges between the panels, together with a not perfect alignment between the arch and the repositioned fresco, make it look a little misplaced. This condition is barely noticed by the visitors who have some difficulties in seeing it well, because of the height (about 12 metres from the floor) and because of the subtle tones. A multimedia display, placed just at the feet of the bay, helps the reading and understanding of the masterpiece, showing details, and telling the story about this suffered artwork. In the panels, guides and in the multimedia product, the town in the background is mentioned just like an imaginary city which is perfectly correct, while there is no solid evidence supporting any other matching. The visit to the church, on a sunny day in August, shows how the fresco is well illuminated by reflected natural light, during the morning the rays enter the large window on the right and flood the floor, this, together with the height, bring to imagine that the metallic and golden and silver parts originally assembled with the paint were aimed to expand the readability of the scene, capturing attention and modulating the shapes of the figures. The presence of glossy elements is reported by Giorgio Vasari in 1550, when he wrote about another Fresco by Pisanello in the same church that in time got lost: "S. Giorgio armato d'armi bianche fatte d'argento, come in quell'età non pur egli ma tutti gl'altri pittori costumavano" which can be translated in "St. George is equipped with cold steel weapons made in silver, in the same style used by him and by other painters from that age" [Vasari et al. 2015, p. 402].
The group with the dragon, the landscape, and the city in the background, are characterized by numerous details, articulated all around the specific shape of the fresco, centred on the pointed arch and divided into clear areas. Indeed, it is possible to recognize sectors dedicated to the human group, the cityscape, the animal and dragon group, with the natural landscape connecting the whole composition. The parts in the lower panels fill and complete the narrow areas on the sides of the arch. Pisanello, working on the front of the chapel, succeeded in exploiting such a difficult area. The layout develops in a shape that can be included in a rectangle with a ratio height/width of about one to three in the main scene and of about one to two considering the lower parts, some alteration caused by the removal during the restoration and the new positioning of the plaster on a panel may have altered a little the original sizes, thus, the artwork seems to fit with some tolerance the old measuring units in use in Verona at that time [Gyllenbok 2018], with a width of about ten short arms (one short arm is equal to 0,642449 metres when the panel of the fresco is large about 6,2 metres) and a height of about four short arms (the height of the panel is about 2,3 metres). The overall area of the fresco is asymmetric, about one quarter on the left is dedicated to the dragon/animals' group and three quarters on the right are dedicated to the human group, both the groups enter the area of the arch even if the parts immediately in contact with the lintel are lost. In vertical, about three-quarters of the area are occupied by the groups while the top quart is all dedicated to the cityscape. In the fresco the cityscape and the landscape have an extremely important rule, with their strong visual presence they define and complete the whole image, creating a specific scenario in which the characters are frozen in their actions. In this fresco "stands the human pathos of every character in Pisanello's epic drama, where every small element in the scene, from the ram and the lizard to the St. George and the corpses, play an equally important part." [Fossi Todorow 1959, p. 13]
The landscape is defined by a sequence of hills rising over the coast, the sea passes in between the two main parts of the land creating a sort of bay and presents a place along the right coast where a ship has just stopped. Both the two main hills are urbanized, but the paint on the left is so ruined that just some walls and towers are still readable. The same for the faraway land at the end of the water, where it is barely possible to distinguish the profile of some towers. The main town rises behind the hills, it is depicted with rich buildings full of details, all in a gothic language that is typical of many representations of that time, the architecture is oriented to communicate richness, with high buildings, churches, towers, fortifications. At the limit towards the sea, there is a large building with a gate, apparently inviting people to move from the ship and enter. The presence of the two hanged men seems to underline the presence of

Fig. 6. Views of the modern Trabzon/Trebisonda (G. Verdiani, 2019).

that gate, which is compliant to past habits about showing the punishments at the entrance of the towns. The presence of the corpses acts as a guarantee for the sight to move there. This element seems like a symbolic presence added to enhance the dramatic atmosphere and including references to life and death in both the groups, a sort of *memento mori* in the epic of the whole scenario, an element maybe thought to balance the richness and the glory in the overall scene, but also saying that the town applies the laws of that time to secure the social system. The castle, in the inner part, appears more essential, with a severe mass and a classical organization with towers at the corners and a high wall, an iconic medieval castle.

Imaginary visions and real places

The cultural scenario in which the fresco by Pisanello is developed takes place in a period where the discovery of the landscape and of the cityscape is starting to reach new solutions and approaches. Far from dominating the rules of the perspective that will take decades to be well intuited and centuries to be completely structured in procedures, the representation of the background is the discovery of a layer that open the stories and the events in the representation towards new depths and richness. The landscape is then the integration of the characters, it follows the meaning of the story. It is rarely a single representation like it happens for the *City by the Sea* by Ambrogio Lorenzetti (1340), but in this same author it can be found a sequence of frescos with one of the most complex integration of landscape and cityscape: the *Allegories* and the *Effects* of the *Good Government* and of the *Bad Government* (1338-1339) a precious masterpiece that extends to the scene and communicate through the many details the contents, with all the characters with their aspects, dresses and behaviours well integrated to the general scene [Carlotti 2010]. Free from these complex contents, the *City by the Sea* is considered one of the first representations focused only on the landscape, realized in an unprecise date, probably between 1320 and 1348, it appears without the presence of characters, even if a large number of lost artworks from that period may give a partial view on the overall production. It is interesting to put in parallel this artwork painted



on wood in modest size (22.5x33.5 centimetres) [Lubbock 2009] to the town painted by Pisanello, both the cities are on the sea, have a similar structure, with a sequence of walls, towers, fortifications, and buildings that well express the use of a similar concepts about how a town built on the sea should be. At the same time, the artists who operated previously exploring the balance between the foreground and the background, giving value and rules to the cityscape have adopted well-structured choices, creating towns that are not exactly the city in which the depicted events take place, but an idealised place. It is the case of Giotto, with his *Cacciata dei diavoli da Arezzo* (Ban of the Devils from Arezzo), painted in the Church of St. Francesco in Assisi in 1295-1299 [Thode 2003]. Arezzo is represented as a town of tall and colourful towers, with the walled perimeter completely filled by the buildings. St. Francesco is banning away the devils from the town standing close to the apses of a Church, but Arezzo has no such large churches out of the city walls, if not the lost cathedral of St. Donato, which was placed in a small walled city on the Pionta hillock, existing in the time of Giotto and later destroyed under the order of Cosimo I (1519), probably to avoid interferences from this enclave to the Tuscan politic [Melucco Vaccaro 1991]. In any case, the idealisation of the cityscape obeys the need of the representation, the graphic and the construction of the buildings are something that collaborates with the narration; thus, the cityscape and its landmarks are firmly in place and well recognizable even after centuries of urban transformation. Other artists like Spinello Aretino, may prefer to represent the city on the landscape with a transfiguration, for example in his *Ascesa al Calvario* (Way to Calvary) in the Sacristy of the *Basilica di Santa Croce* in Florence, a large fresco painted between 1392 and 1395 [Giura 2016]. Here the cityscape of Jerusalem, at the back of the group of people around Jesus Christ climbing the hill with the wooden cross on his shoulders, is completely idealised and took elements from the Florentine skyline creating a fantastic town that is out of time and free from a rigid geographical position. The operation of creating a town on the basis of real elements and then declining it to personal artistic choices is clearly present in all these artists, the true

Fig. 7. Reconstruction of the plan view of Trebisonda/Trebizond (A. Bryer, W. Winfield, R. Anderson, 1985).

Fig. 8. View of Trebisonda at the beginning of the XVIII century (J. Tournefort, 1700-1702).

town is not interesting, the town that transforms itself and became the symbol of a way of living, demonstrating the behaviours and having the needed symbols to recall values. The image of the cityscape is then a secondary, but often strongly present, character from the background of these artworks. And so Pisanello operates, in the complex frame he has for his fresco, he defines a large rectangular area dedicated to the cityscape, he paints a town out of time, a cityscape that follows the idea of a distant place, created to be elsewhere but surely based on some reference from similar places seen or received by an oral or written description.
The idea about the city on the Black Sea was probably created by a mix between popular beliefs and some suggestions by past exhibition curators following intellectual exercises. But this weird alchemy is still at work and pushes ideas and new suggestions. Internet/social media dissemination and the wish of expanding the cultural contents to a wider level of entertainment support this fascination, offering a modern reading oriented in giving full value to feeble traces. The elements which may be considered in parallel between Trebisonda and the scene by Pisanello should emerge analysing the historical city in the background and its environment. But taking a look at the present Trabzon it comes out, obviously, how the city changed in time (fig. 6). In recent years it received a chaotic expansion, with heavy alterations in the urban aspect and in its relationship with the previous landscape, the insertion of the airport and of a system of highways along the sea have isolated the town from direct access to the

Fig. 9. Details from the Pisanello's fresco: walls and towers, the harbour, the church on the hill, the building on the walls with a gate, towers and walls, the castle in the inland (G. Verdiani, 2021).

Fig. 10. The Church of Hagia Sophia in Trabzon, view of the maquette from the local town museum, main façade, view from the hill towards the sea (occluded by the motorways) and the expansion of the city (G. Verdiani, 2019).

waterfront, luckily the parts of fortifications still standing have received some intervention and some large recovery of the external fronts and of their area in the nearby, but at the same time the making of new buildings in historical style in the downtown is making order in quite neglected areas just inserting culturally weak architectures, in general, the town centre seems oriented to a historical restyling sometimes more aimed to the creation of some kind of resort/thematic park than to recovering valuable elements and rethinking the urban fabric in a contemporary and more sustainable way. But in this articulated condition, many elements from the medieval Trebisonda are still well readable: the walls with towers, the passages in the walls where once there was the sea (and now there is a series of motorways), a church from the XIII century, Hagia Sophia [Eastmond 2004], on a hill out of the city walls. The castle, once placed in the inner part of the walled town, has completely disappeared leaving just poor traces. According to maps presenting a historical reconstruction (fig. 7) compliant with the time of Pisanello [Bryer, Winfield 1985], the city was configured as a walled town occupying from the front on the black sea, where the harbour had direct access to the town centre by gates, closed by walls developing to the top part of the hill in the inland. The presence of tall walls and numerous towers were a typical characteristic of this fortification. An image of the town in between its transformation can be seen in the drawings by Joseph Pitton de Tournefort who visited the area between 1700 and 1702 (fig. 8), showing the fortified town emerging in the landscape and still in a relationship with the original harbour [Tournefort 1717]. From these elements, it comes out a series of possible similarities in the urban and architectural components with the fresco (fig. 9): 1) the walls on the left part of the fresco are compliant with the walls of Trebisonda; 2) the ship in the fresco arrives on the coast in a sort of bay, like it probably was in the old harbour; 3) the main building towards the coast has a gate opening in that direction. 4) the cityscape is rich in towers, only a few of them appear part of a wall, but in general, they seem compliant to the idea of Trebisonda, city with towers; 5) the urban settlement seems to follow a long shape, according to the nature of the cliffs; 6) the right side of the fresco shows a castle in the inner part of the town, it may be considered the one in the inland of the settlement;7) on the left side of the town, on the hill nearby, there is an isolated church with a tower bell, a similar condition that exists in Trabzon, with the Church of Hagia Sophia (fig. 10). In a marginal way, even the plants and stones may correctly represent the natural environment of some part of the coast along the black sea.
In general, the elements represented seem somehow similar to the past Trebisonda, but at the same time, they may fit many Mediterranean and eastern towns on a sea. What is depicted seems like that town, but it is not exactly that town, it seems, most of all, an idea of Trebisonda, maybe created from an oral description. A vision of a place imagined and then represented on the base of the needs (like the articulated shape available for the fresco) and of personal style. It is the image of a fantastic city, far away, a symbol of travelling and of other places, something that may be well identified (for a European) even with the city of Trebisonda. A fantastic city told by words and never seen by Pisanello but created in that style to evoke the perfect background for the representation of the legend.

Making an experiment

To verify what happens when a city is represented only on the basis of an oral description, a specific test was run with a group of architecture students and graphic artists. This kind of approach based on graphic has a certain number of variations in previous studies, especially in those oriented to urban studies accommodating both subjective and objective variables related to built environment, people's perception as well as experience, in these the final maps are formed by data coming from verbal interviews and sketch maps [Groat, Wang 2013]. In this experiment, the test started asking for drawing with any preferred tool the city defined by the following description: "Imagine a historic city, of ancient construction, settled on the coast of a sea, on which it overlooks, the city is a bridge between West and East, surrounded by walls with towers, it has a sheltered harbour on the sea, in a bay where the water is lower, it is the destination of ships that arrive with travellers and merchants who undertake long journeys with their goods. The walls face the port and have access to it. The plan of the city stretches from the sea, towards the inland where hills and mountains rise up. Within the walls, buildings and palaces, churches and markets, streets, squares and people, in the innermost part, towards the hills, a castle concludes the

Fig. 11. Representing a town from an oral description selection of the results of the test with the students (from the top left to the lower right: L. Crociani, A. Albrecht, E. Graizani, L. Gianassi, M. Giordano, L. Abbado, V. Gianformaggio, G. Dolci, C. Basso, 2020).

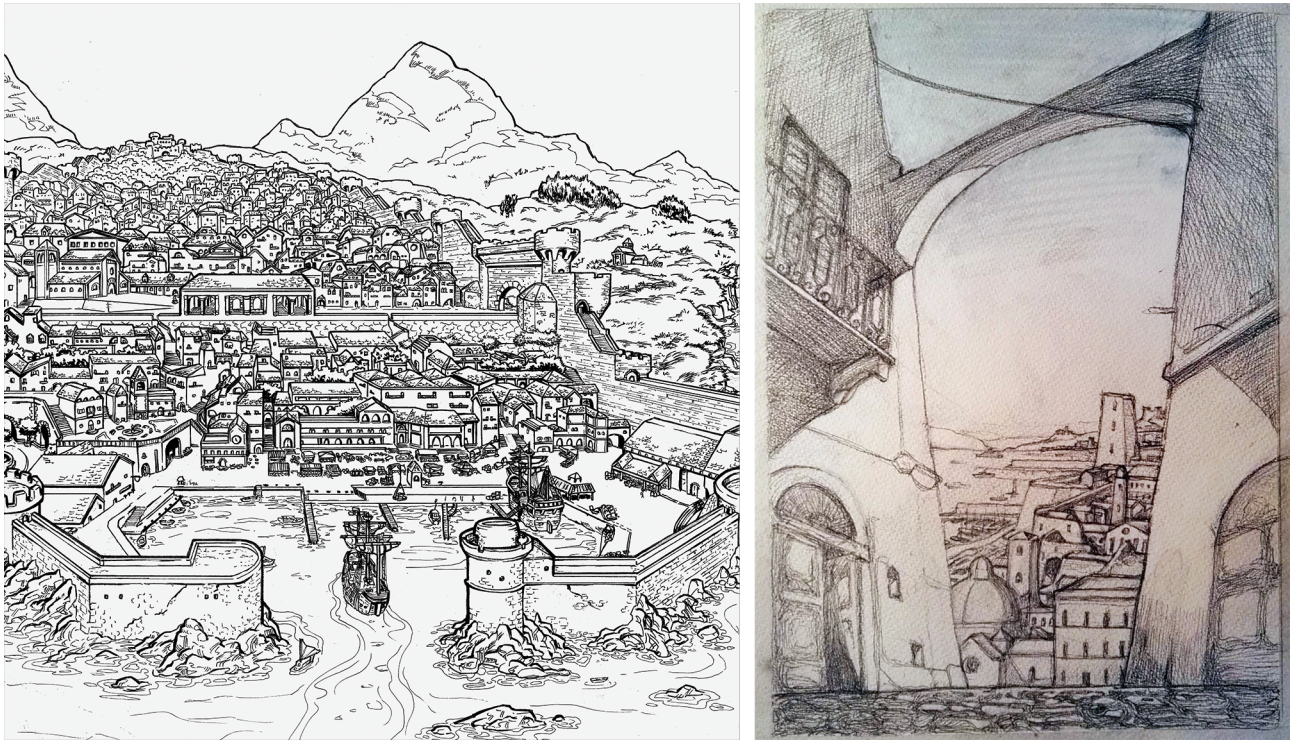


Fig. 12. Representing a town from an oral description the work of two graphic artists (G. Ferrara, L. Albergoni, 2021).

urban structure. Outside the city, fields and hills full of lush greenery and clearings and paths along the coast and an external church with a bell tower on a small hill". The group of students taking part in the exercise was made of 78 participants, with an age ranging from 19 to 24, all of them had about four hours of time to complete the drawing. From this test a group of nine with the best graphical quality was selected (fig. 11). Then, two graphic artists were invited to produce a drawing on the same description (fig. 12). In none of the cases the participants received any indication about "Trebisonda" or any reference to the masterpiece by Pisanello, the written description was the only information. The set of results shows how the transfer from words to graphics is subject to iconic references and personal styles. In all the cases, the graphic project presents all the elements described in the text: the harbour, the walls with towers, the church out of the walls, etc. What is in the description, always appears. At the same time, it is clear that a description of a faraway town is soon declined into the exceptional reference of a fantastic landscape, the legend needs legendary places. But all is soon adapted to personal graphical skills and styles, the patrimony of things seen may inspire, but the rules and preferences about the graphic orient the final result. A process of the mind that probably has not changed in about six centuries.

Conclusions

In the fantastic representation by Pisanello, a graphic and logical matching between the ideal representation

of the city and the past Trebisonda/Trebizond/Trabzon seems possible. Probably this is nothing more than a parallel due to an occasional series of coincidences, but it keeps on suggesting that the idea for a fantastic town may develop from oral transmission, both the place of the legend and in its own way the far eastern city with its foreign emperor and princess are parts of a world between real and fantastic of that age, so both may exchange each other being a part of the same imagistic way of formulating a background. In this, the story of a city far away, coming from the words of travellers and foreign visitors may influence and be the perfect reference in an artwork that has to express fascinating contents. Silene in Libya was as well a distant and fabulous place, the exchange between fidelity to the 'Golden Legend' and a poetic change of location, may be stimulated by the contacts with the court of the last Byzantine Emperor. It is probably just a fantastic story, mere speculation that opens the vision to a world of incredible events and places, perfectly in line with the imaginative strength of the graphic language of the International Gothic. A rich occasion for an intellectual investigation that has not enough evidence nor enough solid references for solving all the knots of this representation, but is a worthy challenge for any art, architecture, archaeological landscape scholar. Maybe even an interesting graphic exercise for any architecture student to enhance its capacity of graphically representing ideas and planning visual communication, in the hope of learning valuable contents that maybe will help them in valorising and enhancing the historical town instead of converting it into some sort of thematic park, gradually deprived of real values and then converted into a real flat background to everyday life.

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Notes

[1] The general shots for documenting the architecture and the artworks were taken using a Nikkor 16-35mm F4 AF Zoom lens, using the camera handheld. The specific shots of the fresco were taken using a Sigma 150-500mm F4,5 AF Zoom lens, all the shots with the tele-zoom lens were taken from a robust tripod.

[2] A Nikkor 35mm F2.8 AF lens was used for the photogrammetry, operating with the camera handheld, setting the sensor sensitivity on 320 ISO and the lens stopping down at F4. In this way, about 600 shots were taken to cover all this sector.

[3] The processing gave back a polygonal model of 142 million triangles mapped with four textures of 16.000 by 16.000 pixel.

[4] The distortions from the lenses were corrected using ePaper PTlens software.

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Joseph Michael Gandy and the Drawing of the Unfinished Consols Transfer Office

Francisco Martínez Mindeguía

Abstract

In 1799, Joseph Michael Gandy made a drawing of a hall of the Bank of England, the Consols Transfer Office, which John Soane had designed between 1797 and 1799. In it, a watercolour, the hall appeared unfinished, without the final stucco, or the carpentry of the holes, or the lantern of the dome and without laying the paving slabs. It might initially look like one of the drawings that Soane used to commission his assistants to follow the progress of the works, although it had more of the look of a Roman antiquity like those Giovanni Battista Piranesi showed in his engravings. The drawing showed only a fragment of the hall, centred on the central space under the dome and the one that surrounds it. Its objective was not to show what the hall was like but the aesthetic qualities of its unfinished appearance, derived from the simple geometric design of the forms, the chromatic contrast between the materials, the graphic contrast of the surfaces and the mysterious lighting. An operation that Gandy carried out based on a theatrical approach that sought to emotionally involve the observer and motivate him to understand the final objective of the drawing, which this did not really show. The purpose of this article is to understand this drawing, the reason that justifies its condition and the way in which Gandy managed to transmit its content.

Keywords: Joseph Michael Gandy, John Soane, Consols Transfer Office, fragment, iluminación misteriosa.

Introduction

In the field of architecture, drawings have to be understood, since the architect uses them to think, know, project and, also, to represent his proposals, transmit the reasons that justify them or the ideas contained in them, to himself or to the others. This function turns this drawing into a language that, as such, is constructed with codes and conventions that, perfected in time by practice, guarantee that its content is transmitted and understood correctly. However, and for this reason, the communication capacity of these drawings is limited: it is effective when it conforms to these codes, but relative when it intends to solve problems not previously solved and, therefore, not codified. A building, no matter how complex it may be, can be formally described by means of plans, sections, elevations or another of the usual representation conventions. But understand the reason that justifies the changes in the photomontages of the project for Friedrichstrasse, of Mies van der Rohe, and that of the final charcoal drawing is an uncertain operation, which requires an interpretation that will not be sure or complete. The same thing happens with other architects whose drawings we admire, such as Palladio or Otto Wagner. We admire them because, despite the difficulty of the effort, they make what they say is understood, although it seems that it is always possible to understand them better. They are drawings that require a certain effort from the reader and, therefore, must be able to attract their attention, so that he interpret that their apparent contradictions, ambiguities, unknowns or opacities are not errors or the

Fig. 1. J. M. Gandy, The Consols Transfer Office unfinished [Abramson 1999, p. 236].

result of incapacity, but a sign that there is a content to decipher. Understanding them requires knowing the subject they expose, the conditions in which it take place and its purpose, if possible. This ability has led to value the drawing as the most extraordinary means that the architect has had to communicate. One of these is the one that, in 1799, did Joseph Michael Gandy of the Consols Transfer Office of the Bank of England, designed by the architect John Soane [1] (fig. 1). The objective of this article is to analyse this drawing to understand its content, its intention and the way in which Gandy constructed it.

Joseph Michael Gandy (1771-1843) was an architect with an admirable graphic production, which still forces us to reflect on his drawings and to discover what they seem to hide. Brian Lukacher described him as a visionary architect in 2006 [Lukacher 2006] incorporating him into the wake of influence of Giovanni Battista Piranesi, with whom he shared an interest in an architecture of the fantastic that he did not intend to be built. He was an architect who combined the drama of Piranesi with the sensitivity of the landscape aesthetics of the English watercolourists [Lukacher 2006, p. 52]. John Summerson valued him as the "English Piranesi" and as an architect who represented the spirit of 19th century England, reflecting the poetics of William Wordsworth, Walter Scott or Samuel Taylor Coleridge [Summerson 1998, pp. 121, 134]. Gandy returned from his tour through Italy in 1797 and immediately began working in John Soane's office as his chief perspectivist. He began in 1798 and left it in 1809, to establish himself on his own, but the professional relationship with Soane remained, as he continued to commission him drawings of his works, both to finish convincing the clients and for the annual exhibitions at the Royal Academy. Soane valued his graphic skills and Gandy knew how to give the image that Soane's works needed. Possibly, it was the imagination that Gandy applied in his architectural fantasies that allowed him to see the hidden magic of Soane's projects, which his technical ability knew how to transmit. It has even been suggested whether it was not Gandy's vision influenced Soane's ow. [Darley 1999, p. 146].

The drawing

Joseph Michael Gandy made this drawing in 1799, when he was working in Soane's office. It shows the Consols Transfer Office unfinished, with the walls not covered

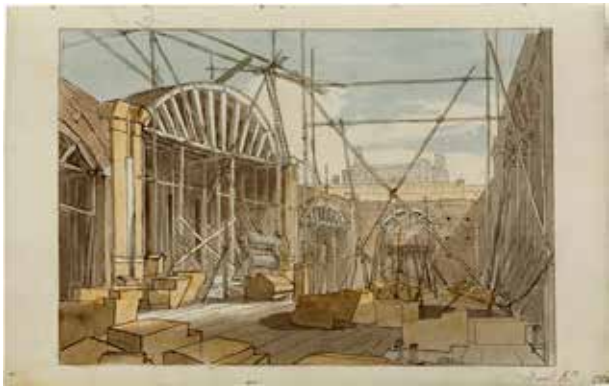

Fig. 2. S. J. Soane (office), The Consols Transfer Office under construction [Sir John Soane's Museum, Ref. SM 63].

Fig. 3. J.M. Gandy, The Consols Transfer Office finished [Abramson 1999, p. 237].

with stucco, the pavement slabs without laying, nor the enclosures in the window openings, nor the oculus of the dome and without the decoration that it would finally have. With this aspect, it could be one of the drawings that Soane commissioned the students of his office to follow and document the development of the works. It was an activity that allowed students to know the processes, mechanisms and activity of construction, acquire facility and freedom in drawing and "discover many effects of light and shade which only a close observation [...] can give" and "observe and treasure up in his mind a variety of forms and ideas that the same buildings when finished would not convey" [2].
However, although it is evident that the work is not finished, it does not seem that it is under construction either. There are no evidences that suggest a construction activity in progress, as occurs in other drawings of this type, even of this same space [3] (fig. 2). Except for the lack of the pavement, which allows to shows the metal braces that join the bases of the pillars, and a ladder that is supported on the wall outside the hall, in the background, it lacks what does appear in the drawings of this type, such as scaffolding, centrings, trestles or materials stockpiling.
Drawings of the state that the hall would have once finished are preserved, one of them by Gandy himself [4] (fig. 3). By comparing them, it is possible to realise to what extent the drawing shows what the final decoration was going to hide. It was a different beauty derived from the simple geometric layout of the forms, from the chromatic contrast between the materials of the supporting structure, basically brick and stone, and from the graphic contrast derived from the distribution of the brick and the *terracotta* pieces [5].
As Soane would explain, the "forms and ideas that the same buildings when finished would not convey", forms of which, only by drawing them with their effects of light, shade and colour, it was possible to preserve and transmit the combative capacity they contained.

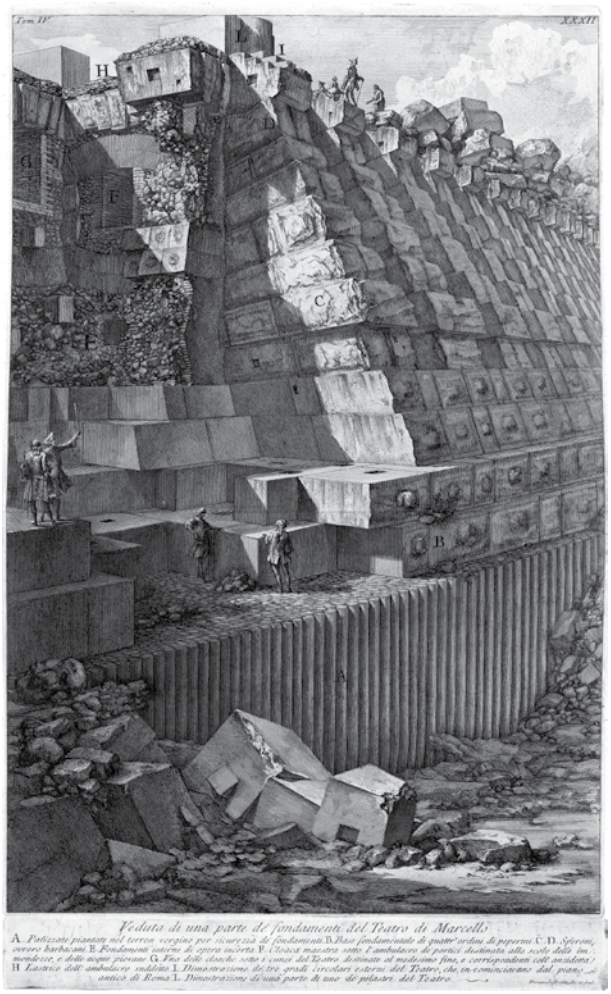

Fig. 3. J.M. Gandy, The Consols Transfer Office finished [Abramson 1999, p. 237].

The ambiguity of the drawing

The bare appearance of the hall and some non-casual clues in the drawing suggest the image of Roman antiquity from the Piranesi prints. On the one hand, the metal braces under the pavement and the hollow cones of the dome that, by showing them, emulate Piranesi when he

highlighted the structural expertise of Roman buildings [6] (fig. 4). On the other, the staircase that is supported on the outer wall, recalls the one that Francesco Piranesi put inside the Pantheon [7] (fig. 5). Also recalls the ones used by the participants of the Grand Tour to climb the Roman monuments, to measure and draw them, which allows to deduce that this is a building with a category similar to those of Rome [8]. Finally, Eva Schumann-Bacia, in her book *John Soane and the Bank of England* [1991, p. 70], interprets that the gaps in the walls, together with the glassless window openings and the atmospheric incidence of light, create the image of an ancient ruin [9] (fig. 6). Perhaps the drawing does not really want to suggest the image of a ruin when compared to the one Gandy had made of the Rotunda a year earlier, in a perspective similar to those of the younger Piranesi [10] (fig. 7). This is a romantic image of the Rotunda in ruins, among rubble and partially invaded by vegetation that, in an imaginary future, had to be equated with buildings like those of Hadrian's Villa in Tivoli. Our image of the Consol Transfer Office is not of this type, but it shares its ambiguity and its mystery. It is not a ruin, nor a building under construction, but neither a *non finito* that its author could not or did not know how to finish. Rather it is a work stopped before finishing, suspended in time, in silence, in a process that inevitably will not be able to stop: an image that could also be interpreted as the "sublime frisson of temporal doom consoled by architectural immortality" [Abramson 1999, p. 231] [11].

On the other hand, the image shows the influence of the *Carceri* of Giovanni Battista Piranesi [Piranesi 1761, plate VI] (fig. 8). It is also the incomplete image of a space that exceeds the limits of drawing, a complex space that cannot be fully encompassed or understood. As in them, the dark sides frame the image and the light leads the reading towards the upper part of the drawing, towards the hollow of the dome that connects the interior with infinity. It is a perspective *per angolo*, with a theatrical conception whose objective is not that the shape of the space was understood but to convey its immeasurable, sublime and tragic character. But in addition, in its rudeness, the diversity of gaps, vaults and surfaces, the abruptness of transitions, and its ability to surprise and evoke, it shares the aesthetic of the picturesque that Uvedale Price defended [1796, p. 61] and perhaps that of Richard Payne Knight [12]. All these factors place the drawing within the cultural contemporaneity of Gandy.

Fig. 5. F. Piranesi, Interior del Pantheon [1768].

Fig. 6. Piranesi, Gallery of Statues at Hadrian's Villa in Tivoli [1768].

The reason for the drawing

The decision to draw the hall in this state could be influenced by the disclosure of a defamatory pamphlet by an anonymous author, which circulated in London in 1796, was read in the Architects' Club and ended up being published in the *Observer*. It was a satirical poem that ridiculed the style of Soane used in the Stock Office of the same bank, built between 1791 and 1793. A style that the libel described as "barbarian" and "unnatural", for its abstraction and simplification of the classical orders, accusing him of having eliminated its figurative coherence and its tectonic logic. It was a style of free proportions, in which symbolic orders reduced to vertical strips and ornate bands replaced pilasters and entablatures (Summerson 1989, p. 85). A style of abstract ornaments, taut surfaces, dramatic lighting, and anti-classical fragmentation, which sought to overcome the eclectic choice of styles of the time [Abramson 2005, p. 193], opposed to the artisanal, imitative and predictable tradition of the construction field [Hanson 2003, p. 50].
The criticism was offensive to Soane, because the hall had been the result of an intense elaboration that completely defined his style, a work that would be key in his career and that was to influence his later projects [Summerson 1989, p. 87]. In 1799, Soane sued the editor of the *Observer* for the publication, but lost the trial [Abramson 1999, p. 218]. Days before the sentencing Gandy made this drawing [13], although it was not shown to the public until 1815, in the reading of Lecture XII that Soane gave at the Royal Academy. It was not the drawing of the Stock Office, which had received the injuries, but the one of the Consols that had just been built, but his motivation affected both. Soane had accepted to design the Consols with a more conventional and orthodox treatment of the orders and decoration [14], increasing the curvature of the arches and the height of the dome and making the Consols the most Roman of the bank's halls [Schumann-Bacia 1991, p. 73]. Following the process of abstraction in which Soane had simplified the design of the orders, reducing it to a simple graphic issue, in the drawing Gandy eliminated the decoration that had centred the object of criticism, to bring to light the classical qualities that the critics had been unable to recognize. The drawing does not seem to have had any other function than to illustrate this reasoning, nor another recipient than its authors, perhaps, as a personal reaction faced the foreseeable outcome.

Fig. 7. J.M. Gandy, The Rotunda in ruins [Abramson 1999, p. 231].

The Consols Transfer Office

The Consols Transfer Office continued a compact group of four halls built around the Rotunda, following the model of the first of them, the Bank Stock Office [15] (fig. 9). The model, with small differences in each case, was a rectangular plan with four central pillars that defined a square in which a dome was located and that extended to the perimeter walls, with barrel vaults, in the short sections, and groin vaults, in the lengths, allowing to open lighting holes in the perimeter [16]. Located outside this compact group, the composition axes of the Consols did not coincide with those of these halls, and its access, despite continuing the axis of the Four Per Cent Office, was made by a corner of the hall, in opposite position to the door that is seen on the left of the drawing, for an inconsequential place. An access that, by altering the regularity of the previous halls, prevented seeing the dome until it had passed one of the central pillars, surprising the user.

Point of view and framing

If the three previous drawings of the hall are compared (figs. 1-3), in the last two, the two opposite planes of the central hall can be seen, because the point of view has been located

within it. They are drawings that try to be understood how the hall is, and as usual, they orient the perspective perpendicularly to the background plane. On the other hand, in ours, Gandy only shows one of the sides of this hall, because he places the point of view outside the central nave, behind one of the pillars of the dome, which appears in shadow and limits the scene by the right. In reality, the perspective point of view is not as close to the pillar as it seems but further back, geometrically outside the hall [17] (fig. 10). From this point of view, the perspective could have been similar to the one Gandy had made a year earlier from the Stock Office [18] (fig. 11), which showed almost the entire hall. Initiated in the same way, Gandy renounced showing the entire hall and opted for a reduced framing that concentrated interest in the space under the dome, the vaulted extensions and the large openings that the structure allowed (fig. 12). By reducing the framing, increased the effect of the chromatic contrast of the stone pillars, achieved a better reproduction of the graphic contrasts of the ceramic. It also improved the effect of natural lighting: a light not "too bright" and with "uniform shadows" [19], from which the provenance is not seen and which could almost arise from the materials themselves. A light that the materials reflect and that, as William Hazlitt said, is the "light of poetry" that, while it shows us the object, throws a sparkling radiance on all around it that "reveals to us, as with a flash of lightning, the inmost recesses of thought, and penetrates our whole being" [20]. It was the "mysterious light" that Soane claimed in architecture to define character, as he defended in his Royal Academy lectures [21].

Gandy opted for a theatrical approach, which showed the image that an observer would have when entering the hall, overcoming the dark pillar and surprised by the light of the space under the dome. A theatricality that is common in other Gandy compositions: evident in the theatrical curtains that frame the perspectives of the Pitzhanger Manor breakfast room and library, the Cricket Lodge library or in the lighting and scenery of the watercolour in which Soane appears among his buildings built between 1780 and 1815 [22]. The drawing seems to convey the emotion at the discovery of something unexpected, something that was hidden, a mystery, as a resource to claim from the observer's imagination to complete what the drawing does not explicitly show [23]. Inevitably, the operation reduces the ability of the drawing to show what the hall is like, although only relatively, since it is the half of a symmetrical space and also it is shown the half of each arch. It shares with it the laconic form of the treatises

Fig. 8. G.B. Piranesi, Carceri [1750, Lam. VI].

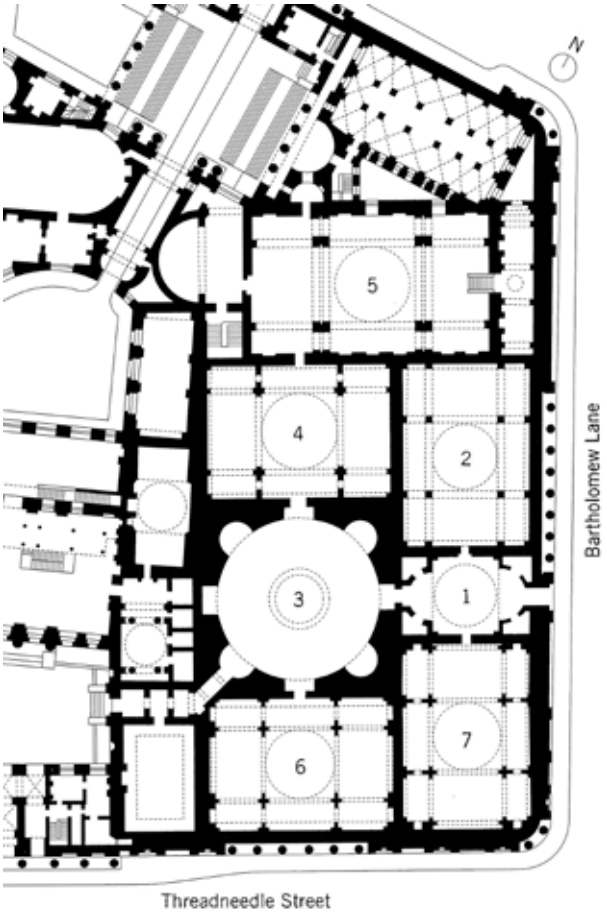

Fig. 9. Plan of the Bank of England, East fragment. Codes: 1, Bartholomew Lane Vestibule; 2, Bank Stock Office; 3, Rotunda; 4, Four Per Cent Office; 5. Consols Transfer Office; 6. Old Four Per Cent Office; 7, New Four Per Cent Office [Abramson 1999, p. 213, modified].

of Jacopo Barozzi da Vignola [24] or Andrea Palladio [25], also applied by the engravers of Roman architecture. It was the same reasoning that Gandy would go so far as to expose to Soane, in 1803, when he was drawing the interior of the Cricket Lodge library, that "pictures of Architecture may avoid the repetition of the parts of a uniform design, so that it informs the spectator of the Architect's whole intent" [26].

The persuasion of a fragment

In this approach, possibly Gandy shared what was stated by Nicolas Le Camus de Mézières, in *Le Génie de l'Architecture*, about the importance of capturing the observer's attention from the first moment: "the first glimpse must hold us spellbound; the details, the masses of the decoration, the profiles, the play of light, all conduce to this same end" [Le Camus de Mézières 1780, p. 64] [27]. This here translates into the selection of a characteristic fragment capable of conditioning the perception of the observer, so that it orients his reasoning to come to identify the global idea: a meaning that the observer has to discover because the drawing only provides the means, but does not explicitly expose it.
In our case, the observer notices that the drawing shows the hall in a state that is not real or definitive, and this draws his attention. We know that it is a fragment of the Consols Transfer Office although, stripped of its final decoration, it is difficult to recognize and could be understood as a space without a name. It is an autonomous fragment, completely detached from whole of which it is part, but whose objective, paradoxically, is to represent it in order to understand it [28]. A fragment shows the hall converted into a Roman antiquity that, stripped of moral connotations, is perceived as an aesthetic experience that is timeless. The apparent autonomy of the fragment, its instability and the refusal to show the entire hall, allow it to generate its own context and its own reasoning: perhaps, the experimental proposal of a new aesthetic that does not consist of the arbitrary copy of decorative styles, but in the understanding of creative processes. A fragment that contains a polemical intention, an experience that, instead of suggesting nostalgia for an admirable but irretrievably lost past, becomes the proposal of a new aesthetic language, based on the purity of the form and qualities of the materials. Unlike Piranesi, Gandy's drawing does not start from nostalgia but from responsibility for an activity in the present and the discovery of a new language.

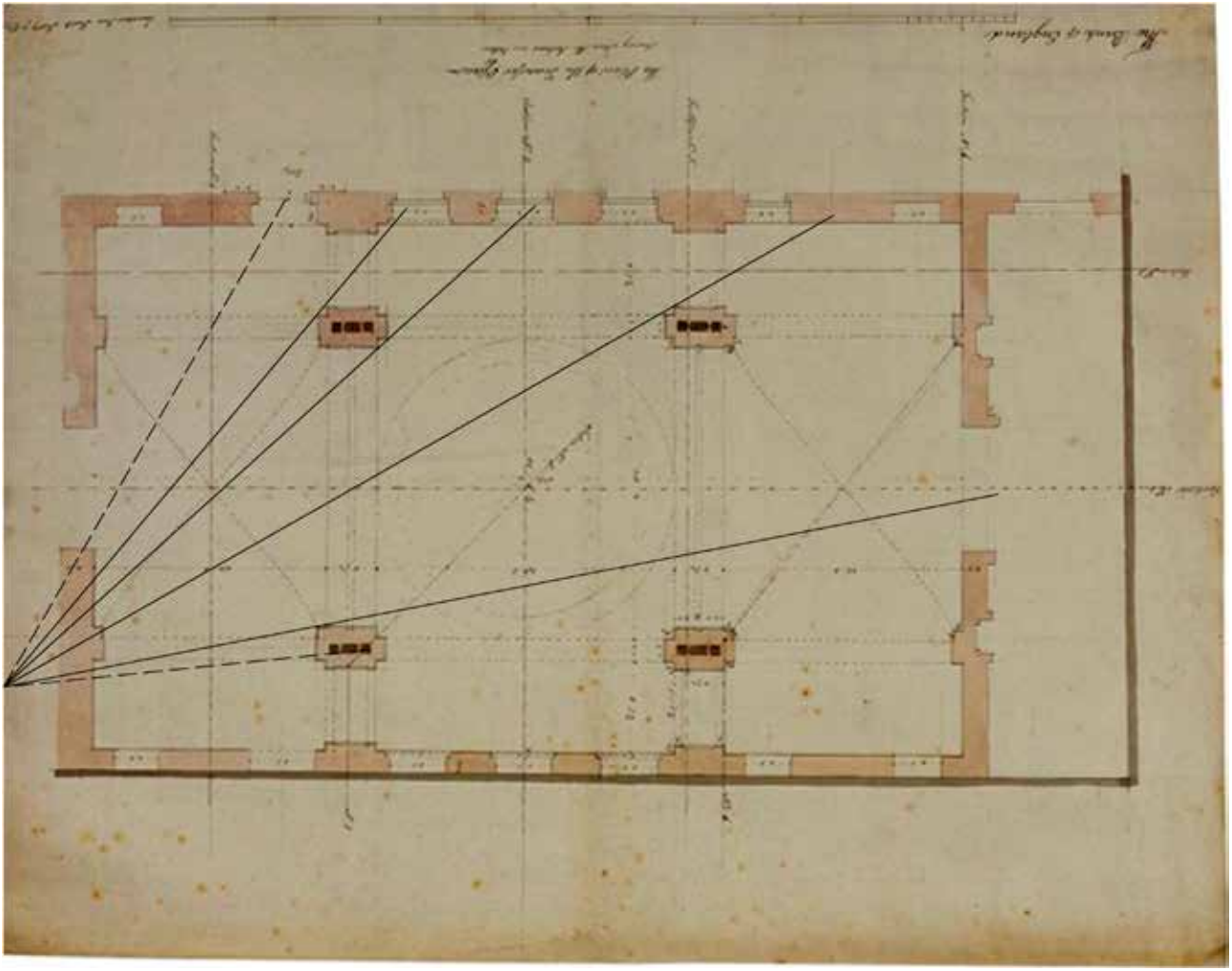

Fig. 10. Approximate restitution of the perspective point of view of the drawing, on the floor plan of the Consols Transfer Office [from: Sir John Soane's Museum, (9) volume 74/52].

Fig. 11. J.M. Gandy, The Stock Office [Abramson 1999, p. 227].

Fig. 12. J.M. Gandy, The Stock Office, central fragment [from: Abramson 1999, p. 227].

Conclusion

The communication ability of drawings is limited when dealing with non-coded subjects. For this reason, the draughtsman avoids reaching the end and chooses to suggest it, sharing resources of poetic language, in which the true meaning of the poem is the one that the poet omits [29]. A part that the draughtsman silences, either due to the inability of graphic language or due to the need for this poetic communication. This silence is the conclusion that the reader has to complete and that constitutes the true key to what John Dewey [1934] defined as the artistic experience. This indeterminacy relativizes the conclusion and maintains the drawing as a living organism that has not yet reached its end.

Gandy apparently uses the image of antiquity as a resource to activate a thought that goes beyond Soane's defence. Thus takes advantage of the suggestion ability of the ruins and the engravings of Giovanni Battista Piranesi. Regarding the ruins, said Thomas Whately [1777, pp. 130, 131] that the "imperfection and obscurity are their properties; and to carry the imagination to something greater than is seen, their effect. […] All remains excite an enquiry into the former state of the edifice, and […] suggest ideas which would not arise from the buildings, if entire". Gandy works with this ability of suggestion in his defense of Soane, who also shared the idea that the ruins "must tell their own story" and "it is by the association of ideas that excite the mind that we feel interested" [Watkin 1996, ***Lecture X***, p. 626].

Regarding Piranesi's "strategy of fragments", said Dalibor Vesely [2006, p. 47] that "the ruins are seen as a source of inspiration for modern design". An idea similar to that proposed by Pierre Gross [2010, p. 25] about Palladio's interest in Roman architecture and its representation, that was to find again "the starting point of a reflection that should lead him […] to rediscover the passage of the Ancients and to rebuild […] the overall result they had reached".

In the drawing of the Consols Transfer Office, Gandy exposes a mystery that leaves unsolved, in an indeterminacy that constitutes its main attraction. The interpretation to which the reader arrives will be questionable, but it will allow to intuit the way in which the communication is produced and the true capacity of the graphic language. For us, perhaps, the interest of drawing is not so much the final understanding of the subject exposed as to come to understand the subtlety of its construction.

Notes

[1] The drawing is kept in London, in the John Soane's Museum [Ref. SM 11/6/6], measures 720 x 1018 mm, is signed by Gandy, dated 4/29/1799, and has been published in Abramson 1999, p. 236. John Soane (1753-1837) was the architect of the Bank of England between 1788 and 1833, and designed the Consols Transfer Office between 1797 and 1799. The hall was demolished in 1915, along with other parts of the building.

[2] John Soane, in Lecture XII, as a professor at the Royal Academy (12/3/1815, 21/3/1833, 12/2/1835) [Watkin, 1996, p. 657-658].

[3] Drawing of this hall under construction, not signed by Gandy and dated October 1798, kept in London in the John Soane's Museum [Ref. SM 63], and published in Woodward, 1995, p. 10.

[4] Drawing by J.M. Gandy, with figures by Antonio van Assen, from 1799, preserved in London, in the John Soane's Museum [Ref. SM 11/43], and published in Richardson-Stevens, 1999, p. 237.

[5] Soane used terracotta hollow cones in the construction of the vaults and the cupola, which in the drawing are distinguished from brick by their larger size and their circular section.

[6] An information that, in many cases, was difficult to verify. The image is the "Veduta di una parte de' fondamenti del Teatro di Marcello", [Piranesi 1756, vol. IV, pl. XXXII].

[7] "Veduta interna del Panteon", signed by Caval. Piranesi F[rancesco]: Piranesi 1768.

[8] Perhaps the staircase of the engraving and the rules that appear on both sides were also intended to point out the detailed study that Francesco Piranesi made of the building: Focillon 1918, p. 131.

[9] "Rovine d'una Galleria di Statue nella Villa Adriana a Tivoli", Piranesi, *Vedute di Roma*, published in 1770.

[10] Drawn in 1798 and exhibited in 1832, at the Royal Academy, under the title "Architectural Ruins, a vision." It is preserved in the Sir John Soane Museum, (29) P127, and has been published in Richardson and Stevens, 1999, cat. 133.

[11] Daniel Abramson's expression really refers to the drawing of the Rotunda.

[12] Richard Payne Knight, who, in 1777, valued the rudeness of the Paestum ruins as an artful negligence; Claudia Stumpf, ed., 1986. *Richard Payne Knight: Expedition into Sicily*, London: British Museum Press, p. 136.

[13] The drawing was made on April 29 and the sentence is May 18 [Hyde, 2005, p. 160].

[14] Sir John Soane's Museum, collections.soane.org/SCHEME643 1/3.

[15] Modified fragment of the Bank of England plant, published in Abramson p. 213. Códigos: 1. Bartholomew Lane Vestibule; 2. Bank Stock Office (1791-1793); 3. Rotunda (1794-1795); 4. Four Per Cent Office (1793-1797); 5. Consols Transfer Office (1797-1799); 6. Old Four Per Cent Office (1798-1799); 7. New Four Per Cent Office (1818-1823).

[16] The structure of this hall is often related to that of the Massenzio basilica, due to the similarity of its plan. As for the situation of the dome in the center of the hall, Soane was also able to take into account the structure of the church of San Carlo ai Catinari, in Rome, which he was able to know and which was published in de Rossi, D. (ed.). (1721). *Studio d'Architettura Civile.* Roma: D. Rossi, vol.III, 24, of which Soane owned a copy.

[17] Approximate deduction of the point of view situation as of the plan of the project of the hall that is conserved in London, Sir John Soane's Museum, Ref. SM (9) vol. 74/52.

[18] The drawing is preserved in London, in the John Soane's Museum (Ref. SM 11/4/1), is signed by Gandy, dated 7/6/1798, and has been published in Abramson, 1999, p. 227.

[19] As advised Le Camus de Mézières [1780, p. 67].

[20] William Hazlitt, *On Poetry in General*; tal como aparece en Zeitlin 1913 [p. 82].

[21] Lecture VI, in 1832 [Watkin, 1996, p. 598].

[22] Watercolour of Michael Gandy, *Selection of public and private buildings of Sir John Soane*, which was exhibited in 1818 at the Royal Academy.

[23] On the subject of theatricality in Gandy's drawings it is worth consulting the article by Furjan, H. (1983). Sir John Soane's Spectacular Theatre. In *AA files*, 47, pp. 12-22.

[24] In the introduction "A i lettori", to his Regola [1562], Vignola warned readers that he was not going to repeat the concepts or the names of the parts: "i membri quali sono comuni à più ordini, doppo che saranno notati una volta sola nel primo ordine che occorrerà, non se ne farà più mentione nelli altri". This moderation was also applied in the elevation of some orders, of which he only showed half, or in their plants, in which he managed to condense different levels into a single projection.

[25] Palladio's case is perhaps more evident, since many of the plates in the *Quarto libro* only show half an elevation or a section.

[26] Letter from Gandy to Soane, January 29, 1803, published in Bolton 1927, p. 124.

[27] Le Camus's reasoning refers to architecture, although it could also be applied to drawing.

[28] In fact, the architect's drawing is always a separate image of the building in order to represent it, eliminating the confusion that the experience contains.

[29] According to Heidegger's idea that the true meaning of a poem remains unspoken and must be understood; what finally cannot be said is the hidden meaning of the poet's work [Harries 1976, p. 497].

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Visionary Experiences

Seeing Without Watching. Musical Visions by Norman McLaren

Edoardo Dotto

Abstract

Among the 'unconventional' graphic practices, around the middle of the last century, in the circles of avant-garde cinema, that of drawing directly on film, with the most diverse techniques, became widespread, making films in which figurative abstraction was often used. Among the most successful films of this genre, there is Begone Dull Care, *a work by Norman McLaren made with the contribution of Evelyn Lambart, in which –with a distinctly visionary trait and using the most diverse techniques– an animation is built perfectly synchronized with music specially written by jazz pianist Oscar Peterson. After having taken into consideration the story of the making of the film, in the following note we examine the works McLaren refers to in order to build his graphic language, mature and surprising, and the different forms of connection that the author has established between music and the images, showing how in many cases these overcome the construction, albeit veiled, of any form of musical notation, thus avoiding the banal direct correspondence between sounds and images, pushing in the direction of the realization of completely visionary abstract image sequences.*

Keywords: artistic avant-garde, abstract film, Norman McLaren, Evelyn Lambart, visionarity.

Introduction

In 1949 the video maker Norman McLaren together with his collaborator Evelyn Lambart completed *Begone Dull Care*, a short movie of seven minutes and fifty seconds made on 35 mm film which, like other works by him made in the same period, constitutes a cornerstone in the history of abstract animation cinematography. In the movie a modality of relationship between music and images is refined, hitherto explored only by some pioneers such as Oscar Fischinger, Len Lye and a few others [1]. In *Begone Dull Care* the connection between images and music –specially composed by the jazz pianist Oscar Peterson, then 24 years old– is so dense that they seem to spring from one another, as if the visual forms in movement were the result of a visionary imagination triggered by the sound flow and vice versa. The film was awarded in 1950 with a *Special Genie Award* for experimental filmography [Pinson 2017, p. 101].

Much of the originality of the film –although McLaren was not the first to propose this method of realization– lies in the fact that the animated images are created by painting directly on the surface of the celluloid film (fig. 1) or by scratching the emulsion with some metal tips, taking care to synchronize the different passages with the musical sequences already recorded. The film, therefore, is made without the use of the camera, using the film –so to speak– as the support of a very long continuous drawing, drawn without considering the

Fig. 1. Norman McLaren working on Begone Dull Care, 1949. <https://blog.nfb.ca/wp-content/uploads/2013/08/mc-121.jpg> (accessed on 2021, september 27).

separations between the individual frames. During the viewing of the movie, the projection machine mechanically divides the continuous strip into a sequence of images lasting 1/24 of a second, giving the impression of diachronically scrolling the drawing on the film while witnessing the continuous flow of the music.

Norman McLaren

The son of an interior decorator, Norman McLaren was born in Stirling, Scotland, in 1914. In the wake of his father's interests in 1933 he moved to Glasgow to attend the School of Fine Arts where he developed a deep passion for cinema and where he founded a group of filmmakers interested in classical Soviet filmography (Eisenstein, in particular), French and German [Rondolino 1959, pp. 35,36; McWilliams, Dionne 1990; Jordan 1953, pp. 1-3]. During this period, he began to develop great interest in the works of some avant-garde directors who explored the possibility of composing abstract moving images. After making the first promotional and advertising films, in 1936 he was fascinated by *Color Box*, a film by the multifaceted New Zealand artist Len Lye who led him to experiment with making films traced directly on the film without resorting to the use of the camera. After a short stay in London in 1939, he left for New York where on his own behalf and at the invitation of the Guggenheim Museum he made a series of small abstract sound and color films, including *Star and Stripes* and *Dots* and participated as an animator in the making of *Spook Sport*, a film by Mary Ellen Bute.
In this period, already at the age of 27, McLaren had had the opportunity to assimilate the style of his main authors of reference –Fischinger, Lye and Bute– and had to his credit about twenty films made in increasingly prestigious locations, so as to place himself as a young promise in the field of experimental cinema. In 1941 the pioneer of documentary filmmaking John Grierson, also Scottish and emigrated to Canada, in charge of founding the National Film Board of Canada, asked McLaren to move to Ottawa where he would work for the rest of his life, enjoying a freedom almost absolute. Over the years McLaren built a solid work team modeling it on their needs and the specific qualities of their employees. She worked extensively with actor Grant Munro, collaborated several times with composer Maurice Blackburn and above all shared a good part of his path with animator Evelyn Lambart whose creative streak supported McLaren more than once in the definition of his operating method. Lambart was also born in Ottawa in 1914. Hearing deprived from an early age, she was directed to visual art studies becoming in 1942 the first female animator at the *National Film Boureau* of Canada. His collaboration with McLaren lasted from 1944 until 1965. Lambart's inventive and methodical spirit supported McLaren as assistant director in the making of other extraordinary films such as 1956's *Rythmetic*, 1960's *Lines: vertical*, 1962's *Lines: Horizontal* and *Mosaic* of 1965. Despite the public recognition that McLaren bestowed on her, her contribution to the making of these films still appears too undervalued today. In any case, Lambart stressed several times how the most intense and productive collaboration with McLaren was the one developed in *Begone Dull Care* [McWilliams 2017; Rosenthal 1970, p. 11].

Begone Dull Care

The collaboration between Norman McLaren and musician Oscar Peterson originated from a chance meeting after a concert in Montreal, during which McLaren explained that he was interested in music for the abstract film he was working on. Peterson soon went to the *National Film Boureau* to see some of McLaren's works such as *Dots* and *Loops* and, having figured out what music was suitable for this type of film, he immediately accepted with enthusiasm. He then began to propose a series of pieces and musical fragments that the two selected together and that Peterson elaborated in the following days in a sequence of different songs that –recalls McLaren– had very little to do with the initial ideas [Pinson 2017, p. 103, McWilliams 2017; Rosenthal 1970, pp. 10, 11; Rogers 2014, pp. 74 and 76]. In this way, a completely unpredictable result was reached which, however, perfectly suited the spirit of the project and the rhythms of McLaren's animations.
Peterson's music for *Begone Dull Care*, played by a trio consisting of piano, double bass and drums, is divided into three pieces, in the classic Allegro-Andante-Presto sequence, and is pervaded by the joyful intelligence and grace that Peterson would have further developed in the following fifty years of activity.
As we said, *Begone Dull Care* is made without the use of the camera, making exclusive use of the drawing on the film and the scratches on it [Jordan 1953, pp. 4-6; McWilliams 1991, pp. 82-84]. Having the recorded song available and having to synchronize the images on the film with extreme precision, it was essential for McLaren and Lambart to be able to pin the duration of each musical succession directly on the celluloid in order to have precise references on where to start and end a specific sequence. To identify the points of the music track where a sound fragment was located, they used an oscilloscope and marked the different points of reference on the film: "the music was measured, note by note, phrase by phrase, etc. The measurements, transferred to a 'dope-sheet' which charted the music on paper. The measurements were numbered, and these numbers were marked on the 35 mm celluloid, between the sprocket holes and along the edge of the film" [McLaren 2006, p. 5]. In this way, the individual parts to be animated were identified with care and it was possible to proceed quickly to create them one after the other, verifying with slow motion that the images were appropriate and perfectly synchronized with the music [Dobson 1994, p. 203]. As McLaren said "we made *Begone Dull Care* in shots, as it were, the shots being defined by the length of the musical phrase. We'd do maybe five or six versions, after which we'd run them on the moviola and choose the best. Some were painted as the moviola was moving, and we'd dance the brush full of paint to the rhythm of the music in the picture-gate" [Collins 1998, p. 40; Pinson 2017, p. 105].
The very close control, the proximity that the authors maintained with the sequence of shapes just traced, allowed an immediate confirmation that the use of the camera –imposing the times for development and printing– would never have allowed. The ability to instantly check the film and make corrections and improvements allowed Lambart and McLaren to lay out a very long visual work on the film, allowing ample room for improvisation, like what Peterson did with music. For *Begone Dull Care* McLaren had not made a storyboard or a script and at each working session he and Lambart had only a vague idea of how much they would draw [Dobson 2006, p. 176]. Moreover, the use of slow motion and the immediate verification of the consistency between images and music made it possible to prevent the entire system of the film from being ineffective or even boring. In fact, McLaren said "many years ago I was confronted with a problem regarding abstract film visuals. It is relatively easy to make a one or two minute abstract film that will hang together and be a unity. But with an eight or ten minute abstraction, it is much more difficult. One runs the risks of creating either too much monotony, or too much diversity. Some kind of format or structure seemed necessary to vary the uniformity or to discipline the variety. I found that some of the forms which music has evolved (to solve the same problem) lent themselves to abstract visuals. I used the ABA form of European classical music in *Begone Dull Care* and *Spheres*, and a short rondo-like form in *Short and Suite*" [Pinson 2017, p. 108; McLaren 1977, p. 25; Dobson 2006, p. 204].
The techniques used to trace the shapes on the film were the most varied. McLaren and Lambart used watercolors, painting on both sides of the film (figs. 2, 3), India ink, spray paint, cell painting [2]. They imprinted the textures of some fabrics imbued with color, used grains of dust to shield the film during spraying, used

Fig. 2. Norman Mc Laren, Begone Dull Care, 1949, stillframe. In the frame it is clear how the surface of the film is painted on both sides in order to obtain the superimposition of different layers of watercolor and ink.

Fig. 3. Norman Mc Laren, Begone Dull Care, 1949, stillframe. As you can see, the red spots overlap a light brown haze probably obtained by applying the brush in the direction of the length of the film.

different types of stencils or –especially in the slower motion of the film, the Andante– they scratched the celluloid blackened by the emulsion.
The process used to make films without the use of a camera is described with generosity and precision by McLaren himself in a pamphlet published by the *National Film Boureau* in the 1950s [McLaren 1958]. With a series of witty and accurate drawings and some concise captions, all the tools and techniques needed to draw directly on the film are shown with punctuality and precision (fig. 4). The description is so detailed that one has the feeling of being able to perfectly replicate the technique developed by Len Lye and perfected by McLaren. The main part of the booklet concerns the making of films in which the images are caged in the individual frames –as in *Loops* for example– but in the final part McLaren points out how the making of films drawn on the film regardless of the cage of the individual frames, just like *Begone Dull Care*, it's even simpler.

Music and Images

Throughout his career, Norman McLaren used music in his films in different ways, alternating ways that depended on the type of film he wanted to make and the different forms of collaboration he intertwined with authors and performers [Rogers 2014, pp. 75-77; Bethônico, J. M., Chaves 2015, pp. 35-38; Mok 2017].
For example, in *Spheres* of 1969, made with René Jodoin, the music is a Bach fugue performed by Glenn Gould which becomes the occasion for a visual interpretation aimed at showing Bach's complex compositional mechanics. In this case [Bazzana 2004, p. 330] McLaren could interact with Gould only on aspects relating to the choice of the piece without having –obviously, due to the complex personality of the pianist– any role in his interpretation. The music in this case was taken as an established fact and the animation slavishly follows its development with an almost descriptive approach.
In other films such as *Loops* and *Dots*, both from 1940, the soundtrack is directly drawn by hand on the film –with brush and India ink– obtaining a series of modulated sounds with a characteristic timbre. The technique, further perfected over time, has for years been a sort of 'trademark' of McLaren's films [Dotto 2014, pp. 191, 192].

HOW TO MAKE ANIMATED MOVIES WITHOUT A CAMERA

NORMAN McLAREN

Things needed:

1. *A chair*  for the artist to sit on.

2. *A table*  for the artist to sit at.

3. *A board*  fixed securely on the table at an angle to allow the artist comfort while drawing.

4. *A hole*  about 2" by 10" (50 mm.×250 mm.) cut in the board to let light through from behind.

5. *A lamp or mirror or even a wide sheet of white card*  to place on the table behind the hole, to give illumination or to reflect skylight or daylight through the hole.

6. *Two strips of wood*  for fixing vertically onto the board about 3 1/2" (90 mm.) apart, thus making a channel on the board above the hole.

The film holder:

7. *A piece of wood* about 3 1/2" by 21" (90 mm.×533 mm.), to slide smoothly up and down in the channel.

8. *A row of pegs along one side of the piece of wood*  so that the artist's free hand can easily push the wood up the channel a little at a time, while he is drawing frames of film. The pegs should be on the left hand side for the right-handed artist, and on the right hand side for the left-handed artist.

9. *A groove*  along the entire length of this piece of wood to hold the 35 mm. film. The groove must be 35 mm. wide and have lips on either side to hold the film securely in place. The lips should overhang about 1/8th of an inch (3 mm.) and should not press on the edges of the film enough to prevent it being pulled through the groove.

10. *A hole*  about 1" by 19" (25 mm.×480 mm.) should be cut out of the centre of the groove to let the light through from behind.

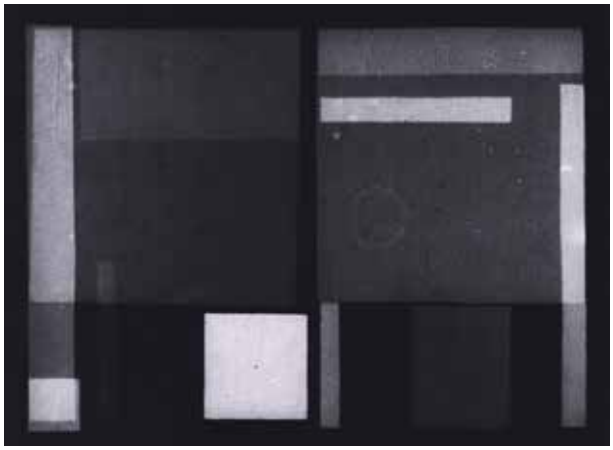
11. *A piece of frosted or ground glass, or thick ground celluloid* to be countersunk into this hole, so that the film held in the groove will have a solid but transparent support.

12. *A rod*  fixed *below* the table to carry 1000' (304 metres) roll of blank 35 mm. film for drawing on. The film will feed upwards between the artist's knees and into the groove in the film holder.

13. *A bin*  placed on the far side of the table from the artist to catch the film as it drops down from the top end of the channel. The drop should be sufficient to let the wet ink image drawn on the film dry before it hits the bottom of the bin.

Fig. 4. Norman McLaren, two pages from Cameraless Animation, 1959. The playful and light-hearted style of McLaren's drawings becomes the means for a precise description of the production technique of films made without the use of the camera.

In other cases, the music was commissioned directly by the author, often to musicians with whom he had an extraordinary affinity and a habit of work, as happens with the music composed by the Canadian musician Maurice Blackburn who worked several times for the *National Film Boureau* and composed, for example, the soundtrack of *Lines: Vertical* from 1960. *Begone Dull Care* also belongs to this category of film, in which the music is the result of a precise and intense interaction between filmmaker and composer. In this case the music, even if there is no precise script to refer to, seems already predisposed to intertwine with a visual history, although still completely vague. McLaren himself writes "There was much give-and-take between us, in the sense that Peterson often did things on the piano that for me gave rise to new visual ideas; on the other hand, I had already certain visual ideas which dictated that he do certain things in the music. From his abundant improvisation of him I was able to select from and arrange ideas that would inspire us when I and Evelyn Lambart came to make the picture" [McLaren 2006, p. 5].
In some films such as 1955's *Blinkity Blank*, these different modes coexist, and the soundtrack entertains various and surprising relationships with the images.
In any case, in no other film as in *Begone Dull Care*, McLaren and Lambart manage to achieve together – paradoxically– such unity with music and such independence from it. The final effect of the film is to create two communication tracks, perfectly synchronized from a rhythmic and emotional point of view, without noticing the supremacy of one over the other. The authors are able to design a film that interprets the music without representing it, that comments on it without telling it, building a flow of images that is totally pertinent. Precisely from this point of view *Begone Dull Care* is a fully visionary film, a sequence of images in which the relationship with music is placed on a level of absolute equality and in which musical improvisation –free but clearly structured in advance– triggers a sort of hallucinatory sequence of images, solidly controlled by the rigor of the technical and interpretative tools



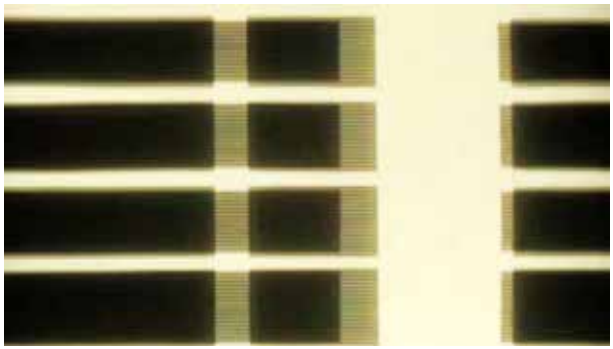


Fig. 5. Hans Richter, Rhythmus 21, 1921, stillframe.

Fig. 6. Walter Ruttman, Opus IV, 1925, stillframe.

Fig. 7. Oscar Fischinger, An Optical Poem, 1938, stillframe.

implemented by the authors who, with the exception of a few frames, never use recognizable forms, making total use of an unprecedented repertoire of abstract forms. In the movie, the filmed sequence transcends the structure of the music but maintains a very close relationship with it, resulting in the construction of a unity between sound and image that probably neither McLaren nor Lambart would ever achieve again.

References

As we said, in the period in which *Begone Dull Care* was made there was already a solid tradition of "absolute films" –as abstract films were also called– in which non-figurative images were presented, sometimes supported by a soundtrack. In this context, the main references useful to illustrate McLaren's visual and technical background around 1940 are many but in this note, for reasons of clarity and space, it seems sufficient to indicate –not in strict chronological order– only five works, in the knowledge that it is a reductive choice that excludes works of great importance such as, for example, Duchamp's experiments [3].
The first is *Rhythmus 21* from 1921 by Hans Richter, a three-minute film in black and white, in which a series of abstract images, consisting mainly of white rectangles, move on a black background, accompanied by a soundtrack (fig. 5). The film is made with the use of stop motion –thus shooting the individual frames with the camera– and proposes from a visual point of view a meditated alternation of solids and voids, ordered and measured.
The second is *Opus IV* by Walter Ruttman of 1925, in black and white, for about four minutes in which an original composition of horizontal and vertical lines in motion is shown which, thickening and thinning, rapidly change their relationship with the background (fig. 6).
The third is *An optical poem* by Oscar Fischinger of 1938, a film lasting almost seven minutes in color in which the relationship between sound and image is even more dense and intense than those already described. On the notes of Listz's *Second Hungarian Rhapsody* in this film, made famous also thanks to the distribution of the film giant Metro Goldwyn Mayer, a series of colored geometric shapes changes form intertwining with iridescent backgrounds in a flood of persuasive and captivating shapes and colors (fig. 7).

Fig. 8. Mary Ellen Bute, Syncromy 4 Escape, 1938, stillframe.

Fig. 9. Len Lye, Colour Box, 1935, stillframe.

The fourth film is *Syncromy 4 Escape* by Mary Elle Bute, from 1938 for four minutes in color, in which the forms that are composed on different levels draw on a more varied and effective technical and expressive repertoire (fig. 8).
The film that most inspired McLaren is certainly *Color Box*, already mentioned, by the multifaceted New Zealand artist Len Lye of 1935. The film, made for the British General Post Office under the guidance of John Grierson –as we said, the man who would involve McLaren at Canada's *National Film Boureau*– it's a three-minute color animation, shot without a camera, tracing shapes and colors directly on film, just like *Begone Dull Care*. Like the latter, the images are not divided into frames and Lye's drawing –a lucid and unscrupulous experimenter– unfolds freely over long sequences of the film (fig. 9). Obviously, the *Color Box* experiment, clearly focused on visual narration rather than on the relationship with sound –a Cuban 'danceable'–, shows a much lower degree of finiteness than *Begone Dull Care*. In any case, it is impossible not to notice how *Color Box* is the result of an extraordinary research that has given the avant-garde filmography repertoire a complete experimentation of languages and forms, ready to be assimilated by McLaren's sensibility. In some way, Lye's abstract and –also in this case –visionary approach finds its evolution in *Begone Dull Care*, both in the perfect integration between images and music and in the fullness of the visual story.
If the avant-garde films just mentioned can largely justify McLaren's approach, we must not forget how around the 1940s the foray of abstract figuration into cinema was an object of general interest and was going through a period of great splendor. For example, a collaboration between Oscar Fischinger and the Disney film 'giant' for the realization of a part of the film *Fantasia* is widely documented. Starting from 1938 Fischinger was consulted for the sequence in which *Bach's Toccata and Fugue in D minor* is proposed (which by the way is the same music used by Bute for *Syncromy 4 Escape*) and produced a series of screenplay proposals and some sketches. Unfortunately, the collaboration had no concrete outcome and that part of *Fantasia* unfolds a series of images that are placed at the limit between the abstract and the figurative, proposing an unstable balance between recognizable figures and fantastic forms.

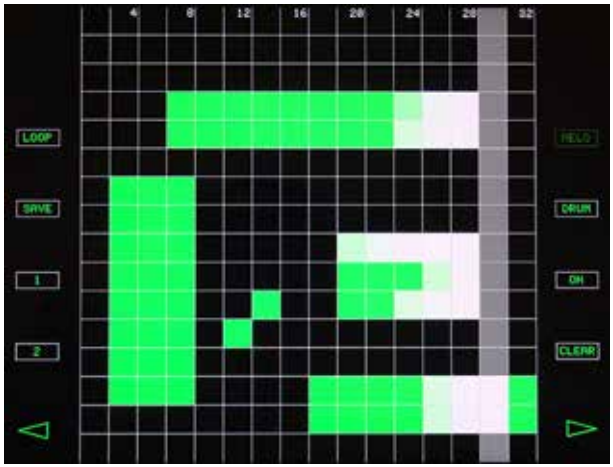


Fig. 10. Kraftwerk, Kling Klang Machine, tablet application, 2009. This app allows you to easily compose short sound loops in the style of Kraftwerk by resorting to drawing on square matrices of huge pixels that set the frequency of the sounds or the scan of the rhythms.

Fig. 11. Bjork, Biophilia, tablet application, 2011. The transcription of the score of Bjork's songs uses an abstract and persuasive language that makes the individual notes recognizable, giving them iridescent colors and dimensions. Unlike what happens for Begone Dull Care, this modality is directly referable to a form of musical notation.

Conclusions

Even in the context of experimental films, the relationship between images in sequence and music often ends in the search for a sort of correspondence between sounds and forms which –by analogy– could be classified within some form of 'notation'. Even though the forms of contemporary musical notation [Valle 2002, pp. 187-190] –while remaining anchored for functional needs to the category of mnemonics– exclude the obligation of a direct and punctual relationship between music and its graphic transcription, opening up areas of greater freedom and indeterminacy for the latter need to establish a 'one-to-one correspondence' between forms and sounds.
If we also take into consideration quite recent examples, we can indicate several cases –moreover of great aesthetic refinement– in which forms are used to describe, underline, represent the musical sequences [Dotto 2014, pp. 196, 197]. In this sense, the abstract images involved in programming Kraftwerk's *Kling Klang Machine* (fig. 10) or the colorful transcriptions of the persuasive music of Bjork's *Biophilia* (fig. 11), can be referred to forms of notation, in which each sign it corresponds in an identifiable way to a sound or a group of them, in a very similar way to what Kandinsky proposes in *Point Line Surface*, when through the juxtaposition of small black circles he transcribes the beginning of *Beethoven's Fifth* (fig. 12).
Rather, the work of McLaren and Lambart in *Begone Dull Care* shows an overcoming of this form of descriptive relationship between single notes and visual

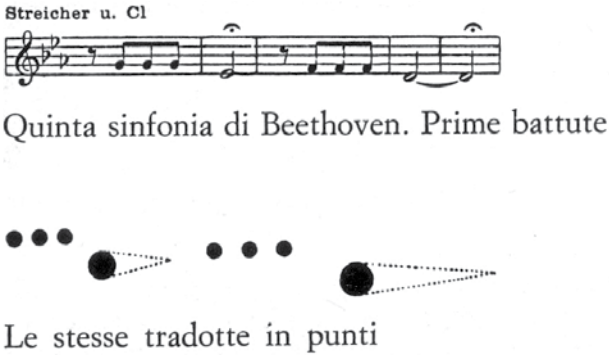


Fig. 12. Vassily Kandinsky, Punkt und Linie zu Fläche, 1925, p. 42. There is a one-to-one correspondence between the notes on the staff and the Kandinsky points. This form of representation coincides with a transcription of musical notation.

elements by arranging the approach to a full vision, in which, paradoxically, the adherence to the musical text is deeply identified with pure image creation. The music and the film seem to chase each other in a game of subtle advances and slight delays that manage to determine an unprecedented link between the two different levels. In this film the authors give unequivocal proof of how technique and rigor can be perfectly intertwined with visionary creativity and the freedom of invention and how the development of a precise operating method is the most effective tool to travel profitably still hidden areas –in this case– of abstract drawing and avant-garde filmography.

Notes

[1] All the films mentioned in the text, except for Walt Disney's Fantasia, are available on the web. In selecting the films to be submitted as an example, whenever possible, the choice of material that is easily available on the web was favored, indicating each single active link in the references list. To substantiate the reading of the text, it is strongly recommended to view the films indicated, considering that a sample view of the sequences of each work may also be sufficient.

[2] *Cell painting* is a technique with which it is possible to fragment the application of the color spread on a surface (even with the help of hot air or a flame) to obtain a sort of 'cretto' that gives the impression of an organic cell tissue.

[3] Purely by way of example, see *Anémic Cinéma* of 1926: <https://www.youtube.com/watch?v=dXINTf8kXCc> (accessed on 2021, september 27).

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The Visionary Drawing of Explorers

Salvatore Santuccio

Abstract

Some people who have made history with geographical discoveries and contributed to the evolution of knowledge about our planet have translated the emotion of their discoveries into drawings. In this text, we examine three examples of graphical narratives testifying to great geographical and scientific discoveries. The first is the axonometric drawing of Timbuktu by René Caillié, which presented for the first time an image of this place made mythical by the difficulty of reaching it. The second consists of the profiles and painted cards of landscapes observed by a 22-year-old Charles Darwin as seen from the sea while sailing on the Beagle between South America and Oceania, unknown worlds at the time. The third example is the geographical exploration of David Livingstone in Africa, which culminated in a very interesting drawing of Victoria Falls, which was unknown before then. This image also informs us about the explorers' specific interest in reportage drawing, given the inclusion in Livingstone's group of the graphic artist and painter Thomas Baines, who would follow the exploration to depict the most unexpected views that the group observed. What emerges is the role of drawing as an original testimony for distant observers, but also as a story of strong emotion and fascination with discovery at the limit of distorted vision, where emotion prevails over scientific data, sentiment over objective narration.

Keywords: drawing, discovery, narration, vision, explorers.

Introduzione

> "The possibility of photography with artificial light was established. Nothing remained but to move on to the desired application. The underground world opened an infinite range of operations no less interesting than those on the surface" [Nadar 1982, p. 80].

Thus Nadar recounts his emotion around 1861 regarding the possibility of exploring the underground realm of Paris through photographs. As is known, this exploration would be a breakthrough in the history of photography and knowledge about Paris. For the first time, a mysterious, unexplored territory was presented to the world through images. The catacombs and sewers of Paris revealed their mysteries in images produced through the ingenuity of the great French photographer. Thus developed the idea that new discoveries could and should be shown through photographs; the idea that documentary photography could provide the first and most immediate access to knowledge about new worlds. The same was also true of Armstrong's photos from the Moon and the Mariner IV probe on Mars.

But how was discovery narrated before the invention of photography? How was the emotion of breaching unspoiled spaces described to the world?

Drawing was certainly a fundamental part of the iconic narration of new worlds and new realities.

The immediateness of recounting what was discovered underlies the explorers' fascination with drawing. This moved between objective reconstruction, scientific clas-

sification, and emotional imagination, placing the view of new things at the centre of a moment of immediate representation, which is often more emotional than real, and as such, visionary. "Things seen with the eye and manifestly reproduced with the hand reveal a particular type of immediacy; they are presented as relating to types of representation created directly by man" [Kemp, 1999, p. 34].
As Robert Macfarlane writes, "Notebooks and sketchbooks are never only receptacles for finished thought. Their materiality shapes the nature of record. So it is that –reading them back– we can catch glimpses of perception in action, awe as it strikes, or fear at its first-point" [Lewis-Jones, Herbert 2016, p. 9]. In the history of geographical discoveries, drawing has mainly been used for drafting and adjusting geographical maps. The most direct and relevant relationship between discovery and graphical production was precisely in this field, an ancient field that has always followed man's primordial instinct, that is, to control a territory: "When a Tahitian traced a map to explain to Captain Cook what he knew about the geography of the Pacific, it was clear that he and his people were familiar with the idea of representation. In pre-Columbian Mexico, a series of footsteps was used to indicate the streets. Cortés crossed Central America following the canvas map that a cacique had given him" [Wilford 2018, p. 20].
In the cases addressed here, however, excluding part of Charles Darwin's contribution, the issue is the drawn image of places, not their transcription in plan, but the visual perception of the discoveries, the graphical transposition of the views perceived upon their discovery. The drawings by Caillié, Darwin and his companions, and Livingstone recount this emotion. The drawings addressed here present the images of new places to a public seeing them for the first time. In doing so, there is a strong 'visionary' component to this reportage. The drawings recount the fulfilment of an aspiration to know, a 'dream' realized by these authors. In this sense, the definition of 'visionary' attributed to these drawings does not refer as much to its negative meaning bordering on mental disturbance present in the Italian etymology [1] as to the English meaning of the term "visionary, which generally holds markedly positive characteristics that immediately took root. It describes someone with a clear vision of the future and how to welcome and guide it with a nearly

Fig. 1 R. Caillié, Tonbouctou, first version, pencil and watercolour, 1827.
Fig. 2 R. Caillié, Tonbouctou, second version, pencil and watercolour, 1828.

prophetic character; it describes someone who shows an extraordinary imagination, a powerful creative vein. The great inventors and politicians, the most inspired and inventive artists thus become visionaries" [Visionario, etimologia e significato] [2].
The drawings presented here in their development are a revelation both for those making them and for a public unaware of the places described, who could finally appreciate the images, even with the author's decisive emotional filter. As Berger says, "the drawings present hospitality to the invisible companion at our side" [Berger 2017, p. 132].

Timbuktu by René Caillié (1827–1828)

René Caillié had a strange destiny: passing into history as the first European to return alive from Timbuktu, the mythical city, the door to the Sahara. His expedition was particularly interesting with respect to organization and risk, since he was travelling alone and his scant drawings constitute precious documentation, since they were the first of this legendary city to be seen in Europe. Born in France in 1799, René Caillié lost his parents at an early age and at 16, he embarked on a French military ship for Saint Louis, in French West Africa. Two years later, he returned to Africa to sail up the Senegal River with a British mission, and in 1824 he was back in Saint Louis, developing the idea of reaching Timbuktu.
Being familiar with the indigenous populations of Western Africa and their adversity to French expeditions, he decided to travel alone, pretending to be an Arab and renouncing the vast court of black porters that the Europeans normally flaunted. Based on his idea about the expedition, he obtained financing from the French governor of Saint Louis for an 8-month stay with the nomadic people of Southern Mauritania, where he learned Arabic and Islamic customs. Following this, he decided to self-finance the trip to Timbuktu, but he became aware of a 10,000-franc award from the Société de Geographie of Paris for the first person who could provide original information about the city. After working in Sierra Leone and Guinea to earn enough money for the expedition, he left from Kakony, near Boké on the Nunez River in Guinea. He moved east to Senegal, then crossed the Upper Niger River at Kouroussa. Here the trip was interrupted. Caillié fell sick and remained where

Fig. 3 A. Earle, Negroes fighting, Brazil, 1824.

Fig 4 C. Martens, Sketch from the album of drawings in Devon, 1828–1932.

Fig 5 C. Martens, Fuegian Beagle Voyage, 1834.

he was for five months, from 3 August 1827 to 9 January of the following year, in the village of Tiémé, in today's Ivory Coast. He left for Djenné in Mali, where he stayed until 23 March. From there, he proceeded to Timbuktu via boat on the Niger River. On 22 April he reached the city he had always dreamed of: "Finally we have arrived happily in Timbuktu, just when the sun touched the horizon, I saw this capital of Sudan that had been the goal of all my desires for so long. And upon entering this mysterious city, the object of searches by the civilized nations of Europe, I was overcome with an inexpressible feeling of satisfaction: I had never experienced anything like it and I was extremely happy" [Caillié 1999, p. 212]. The city is described in its form and brick building consistency, as well as in its more anthropological and cultural aspects. The textual description is accompanied by some small plans and a wonderful watercolour axonometric drawing that constitutes, in fact, the first clear image of this city. The axonometric watercolour drawing is organized as a sum of small, more or less cubic building blocks and other domed volumes similar to huts/tukuls. Some important volumes of significant size emerge at the centre. Everything around it is sand (fig. 1). The drawing was produced in two versions, one following the other, in which the layout of the buildings is intensified, and the gestures of the passers-by are modified, a true second version (fig. 2). Caillié's axonometric drawings clarify the urban morphology and support his verbal description in the report book: "The city of Timbuktu might be three miles long; it forms a sort of triangle. The houses are large, higher, and have no more than a ground floor; for some, a cabinet was mounted above the entrance. They are built of somewhat round bricks, rolled in the hands and dried under the sun; down to the height, the walls resemble those in Djenné. The streets of Timbuktu are clean and rather large, enough for three riders to pass. Ahead and behind, one sees many straw huts that are nearly round, like those of the Fulani herdsmen; they serve as lodging for poor people and slaves that sell merchandise on behalf of their masters" [Caillé 1999, p. 219].

In contrast to the common European idea that wanted Timbuktu to a fantastic city, an El Dorado of Africa, Caillié assesses its qualities objectively; he finds its defects and hides no delusions. First of all is its location, already practically in the desert, sand everywhere, the impossibility of turning this centre into a productive pla-

Fig. 6 J. Lort Stokes, Killing a Kangaroo, 1848.

Fig. 7 S. Covington, The Iron Pot Light at the entrance to the River Derwent, Tasmania, 1836.

ce. "Although one of the largest cities I have seen in Africa, Timbuktu has no other resources than the salt trade; its soil is not at all suitable for cultivation. It draws from Djenné all that is necessary for supplies – millet, rice, plant oils, cotton, fabric from Sudan, eggs and confections, candles, soap, pepper, onions, dried fish, pistachios, etc." [Caillé 1999, p. 220].
After a stay of 15 days, René Caillié joined a caravan expedition that, crossing the Sahara, reached Fez on 12 August and from there he travelled to Tangier, where he embarked for France. He was awarded in Paris by the Société de Geographie and won the 10000 francs for being the first European to convey precise information about the city of Timbuktu. He would also receive the Legion of Honour, a pension, and other recognitions, not the least of which was the publication of his travel journal in 1830. At the age of 31, Caillié was already a celebrity in the field of geographical exploration. Unfortunately, he died shortly thereafter, in 1838, from tuberculosis. Still today, his images of Timbuktu are poetic, unforgettable icons of this mysterious, fascinating city.

Darwin's Voyage around the World on the *Beagle* (1831–1836)

For the second voyage of the brigantine HMS *Beagle*, from 27 December 1831 to 2 October 1836 in Terra del Fuego and the East Indies, the captain Robert Fitzroy asked Francis Beaufort, a hydrographer in the navy, to find a cultured gentleman with a scientific bent who would be interested in doing research during the trip and who would also make an interesting travel companion. Word spread among the professors at Cambridge and, through personal connections, Charles Darwin, then 22, was designated as scientific guest on the voyage [3]. The ship crossed the Atlantic Ocean, made hydrographic surveys along the coast of part of southern South America, then crossed the Pacific Ocean, reached Tahiti and Australia, and ended by circumnavigating the globe [4]. Planned for a duration of two years, the mission lasted nearly five. Darwin did not travel alone, but at his side were always different technicians specialized in surveying and also some artists.
One of these was Augustus Earle, a talented British painter who had documented the living conditions in the places visited by the *Beagle* on the first part of the

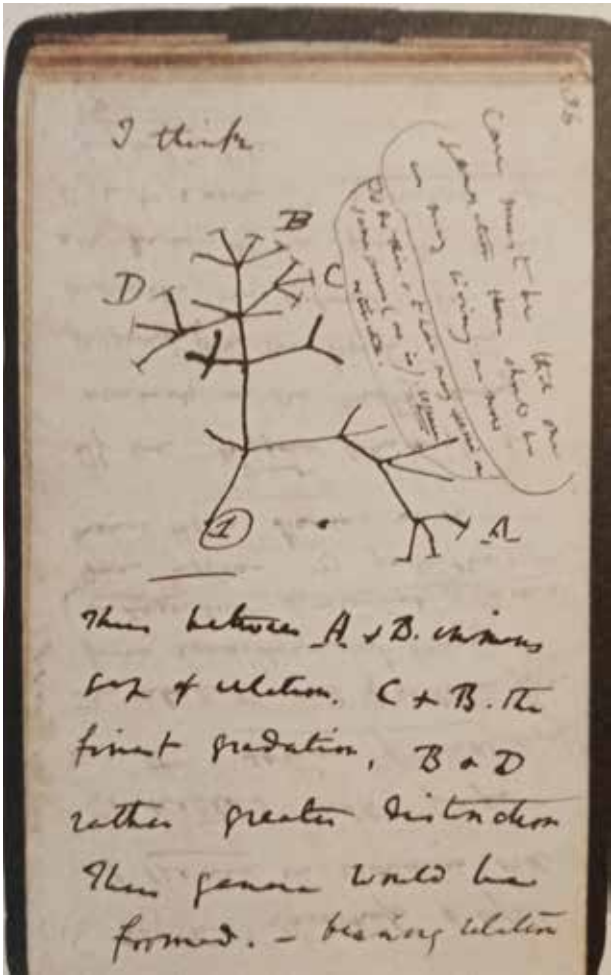

Fig 8 C. Darwin, page from a travel notebook with a drawing of the Tree of Life, undated.

trip (fig. 3), having to abandon the trip in Montevideo in 1833 due to ill health. Darwin had this to say about him: "Earle makes an excellent guide, as he formerly lived some years in the neighbourhood: it is calamitous how short & uncertain life is in these countries: to Earle enquiries about the number of young men whom he left in health & prosperity, the most frequent answer is he is dead & gone" [Viens 2012, p. 42]. Earle worked alongside Darwin, illustrating what he classified and catalogued. Captain Fitzroy himself noted in the ship's log: "We men have trapped an abundance of fish, or should I say, entire schools: we just had to pull up the net at the right time (the start of the tide). Since most of these animals were unknown to the naturalists, Mr Earle drew them carefully and Mr Darwin stored them in fish bowls" [Darwin 2018, p. 116].

When Earle left the trip, he was replaced by Conrad Martens, a landscape painter eight years younger than his colleague and a fine sketcher, as can be seen in many of his travel notebooks with pencil and watercolour drawings housed at the State Library of New South Wales (fig. 4). Martens became sincere, lifelong friends with Darwin, a friendship that lasted even after his on the *Beagle* (fig. 5) ended at Valparaíso, Chile in late 1834. Together with these two artists, another two figures very close to Darwin influenced him during the trip. The first of these was second official John Lort Stokes (fig. 6), a navy official and explorer who also had great artistic capacities and shared the stern cabin with Darwin. The second was Syms Covingt, a violin-playing sailer taken aboard as the scientist's personal assistant, who would follow him beyond the adventure of the *Beagle*. He was also an able drawer, who left behind some elegant sketches from the bridge of the English brigantine (fig.7).

In this framework, it is clear how Charles Darwin's geographical and cultural interest met with the artistic experiences he was developing within, stimulating him to produce some excellent watercolour maps and profiles of the coast. Darwin produced 15 travel notebooks: Cape de Verds, Rio, Buenos Ayres, Falkland, B. Blanca, St. Fe, Banda Oriental, Port Desire, Valparaiso, Santiago, Galapagos, Coquimbo, Copiapó, Despoblado, and Sydney. The notebooks are full of annotations and reflections on the most varied topics, from geology to zoology, botany, ecology, meteorology, ethnography, anthropology, archaeology, and even linguistics. Together with the-

Fig. 9 C. Darwin, Profile of the Chilean coast, with geological annotations and colour wash, 1934.

se scientific notes, there are also financial documents, purchase lists, reading notes, essays, and items from his personal diary together with maps, drawings (fig. 8), and well-made profiles of the coast (fig. 9) observed from the sea, often with geological annotations. In this case, the drawings are for classification and captions and rarely does he linger on the ecstatic view; they tend more towards scientific notations. Darwin seems to leave the visual communication of the places they discovered to his more capable travel companions, limiting himself –which is no small matter– to drawing in a pragmatic, methodological way, while leaving an exciting production rich in experimentation to produce a testimony that remains one of the most important contributions to the history of contemporary scientific knowledge.

Africa Coast to Coast by David Livingstone (1851)

David Livingstone is probably the most famous English explorer of Africa. For Livingstone, one cannot speak of a single trip. His life was entirely focused on continuously venturing out on new African explorations, at the cost of seeing the deaths of his best friends, his wife Mary Moffat, and many dreams, from the creation of missions that were then closed due to illness, aggression, and the impossibility of management, to the dream of sailing the Zambezi River, broken by the awareness of the presence of great numbers of rapids, waterfalls, cataracts, etc. The most lively and even the longest part of Doctor Livingstone's life was spent on his African voyages. It is not by chance that upon his death, his body was transported more than a thousand miles through semi-unexplored territories by his two loyal assistants Chuma and Susi, to be returned to England and buried in Westminster Abbey, while his heart remained in Africa, buried in the place of his death, Lake Bangweulu.

Livingstone's travels served as an opportunity to write a large number of travel notebooks. These small notebooks are full of notes and text written in a thick, orderly calligraphy. At times there are drawings, these also often supported by written considerations in the margins. The drawings are made with ink and watercolour, and lend merit to a certain drawing ability. There are often maps, plans that summarize the routes taken, giving rise to geographical curiosities that constitute the main push for him to move around such unexplored territories.
In this perspective, the main voyage Livingstone made was probably the one in 1851. This was the trip in which 'His 8000-km journey encompassed the first authenticated crossing of the continent from coast to coast by a European' [Lewis-Jones, Herbert 2016, p. 160]. The goal of this trajectory was to open easier itineraries across the African continent to favour exchange and trade with Europe, supporting the routes with the great water basins and verifying their navigability in the perspective of an easier passage from the eastern coast, where the Europeans arrived, to the western, which was rich and unspoiled. As mentioned above, Livingstone travelled more than 8000 km. He started at the mission in Chobe moving towards Linyanti, in today's Botswana, and from there to Luanda in Angola, on the Atlantic coast. From here, the true expedition began upon the return to Quelimane in Mozambique. The route covers more than 4500 km, cutting Africa from the Atlantic coast to the Indian Ocean and crossing Angola, Namibia, Botswana, Zimbabwe, and Mozambique and making first contact with the Zambezi River, which would then be the object of further explorations in 1858.
On this long, articulated path, Livingstone also made the most celebrated discovery of his career, the Mosi-oa-Tunya, which he renamed Victoria Falls in honour of the Queen of England. Returning some years later for a second visit in August 1860, he made an excellent

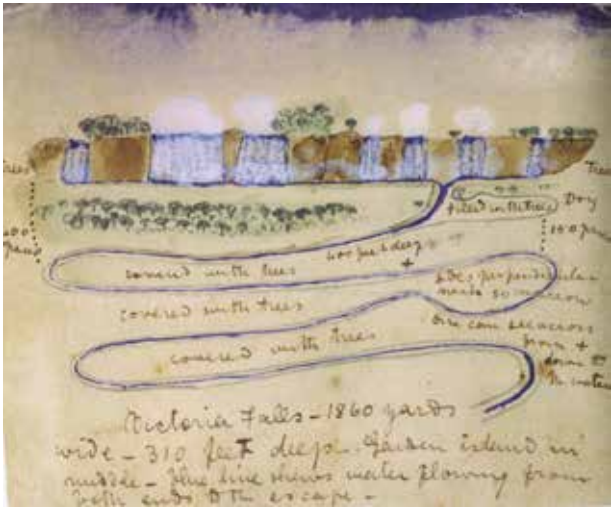

Fig. 10 D. Livingstone, Page from the voyage notebook with the drawing of Victoria Falls, Pencil, pen, and watercolour, 1860.

drawing of the same waterfall (fig. 10). It is an unusual drawing. The falls are seen in elevation and offer the view of a wide face of water, elements of bare rock alternating with rivulets that collapse in the drop, and vegetation all around. A sort of plan starts at the bottom of the falls that presents the sinuous path of the river, its sharp bends, its zig-zag path.
For a short part of his exploratory career, Livingstone was accompanied by a person of ambiguous reputation but extraordinary graphical capacity: the artist Thomas Baines. English by birth but raised in South Africa, Baines garnered a bit of fame as a narrative artist of events in the Fronter Wars of 1842 and some trips on the Orange River in 1848 and Australia in 1852. In 1858, he was asked to join Livingstone's expedition on the Zambezi and he embarked on the trip with the role as drawer and manager of the provisions stock. This second task would be fatal in his relationship with Livingstone because he was accused –no one knows whether with pretext or not– of stealing some canvases from the stock to make portraits while Livingstone was laid up with malaria. He would be distanced from the expedition, but some of his drawings (fig. 11), even those made later in the same area of exploration, are certainly the most interesting graphical reportage of the cultural overview of explorations close to the world of David Livingstone.

Conclusions

These three experiences of travel and discovery, documented through texts, notes, and annotations but also many drawings, define an educational role and the spread of knowledge, central to the drawing. The drawings of Timbuktu or Victoria Falls, in particular, convey visual knowledge of those places and lead to an immediate response to the thirst of visual curiosity about such places. Before photography, which would completely revolutionize reportage, drawing was the favoured medium for spreading images of new explorations. It is not by chance that these voyages, starting with the particular case of Callié, were made with an entourage of drawers called precisely to visually recount the emotion of the places.
This had already occurred, for example, with Goethe's trip in Italy from 1786 to 1787. He was accompanied by

Fig. 11 T. Baines, Mangroves at a fork with the Kongone River, Zambezi, watercolour, 1859 November 22.

artists of a calibre such as Hackert, Tischbein, or Kniep, who shared the practice of drawing on a daily basis. "As soon as our shapely innkeeper hangs the three-burner brass lamp and says "good night", we gather round and set out the sketches and drawings made during the day. Then the discussion opens: if this subject would not perhaps have been taken from a more favourable point of view; or if the character has been guessed; finally, about all the initial general requests one can judge starting with the first sketch. Counsellor Reiffenstein has the ability to organize and preside over these meetings with astuteness and authority. But this laudable intuition is particularly due to Jacob Philipp Hackert, who has the art of drawing and painting nature with incomparable taste. Artists and amateurs, men and women, old and young, he left no one in peace, but encouraged everyone to put themselves to the test based on their qualities and strengths, himself setting a good example. This custom of coming together and entertaining a society, counsellor Reiffenstein knew how to faithfully continue even after his friend left and now we see how nice it is to keep alive the interest and activity of each individual person" [Goethe 2010, 138].

In the case of these great discovery missions, however, drawing not only represents the pleasure of documenting the trip; it also holds pre-eminent educational value. What is drawn is then presented to the public as a testimony and from it metabolized as an icon of new worlds and new knowledge. The interesting aspect, however, is that this spread of images is based on subjective experiences, ecstatic expressions of those who painted surprising experiences, coveted views, fulfilled aspirations. Reportage drawings are never neutral; they are experiential, subjective, imbued with emotion. These three experiences allude to many others: the drawn explorations of the Amazon by Maximilian de Wied (1815–17) and Hercule Florence (1826–29); the drawings of mythical ascents in the mountains, such as Edward Norton's expedition to Mount Everest in 1924 or those of the Rocky Mountains by Arthur P. Colemans at the beginning of the 1900s; the explorations in idealized territories of Maghreb and beyond, typical of orientalist painting. Drawings, therefore, are at once a scientific report and emotional discovery, data and sight, certainty and legend. In this dichotomy lies one of the most interesting applications of narration via paper, pencil, and colours.

Notes

[1] The Treccani dictionary says: "visionary (f. [der. of vision]. - 1. One who has vision, supernatural visions, or visual hallucinations: a holy man, a fanatic v.; a paranoid v. subject; a mentally feeble and v. girl; as a noun: a v.; v. often play the role of angels in the literature. 2. extension. One who imagines and believes real things that do not correspond to reality, or who makes unrealizable drawings; a dreamer: v. politicians, reformers; and as a noun, being, or being considered a v.; How can you believe that v.? 3. In the language of art criticism, one sometimes speaks of v. painting or v. art in general to characterize (as an objective judgement) figurative works produced by artists, mostly self-taught, schizophrenic, or nevertheless affected by mental illness. In film criticism, instead, the term is used with reference to directors with a particular capacity to create situations and images that are fantastic, unreal, and with a strong visual impact (regarding v. talent, one speaks of, for example, the director F. Fellini with his film *Satyricon*)" [Treccani n.d.].

[2] "Visionaries are ahead of their time, always thinking creatively. You could say that a visionary can envision what the future holds and come up with solutions that fit that picture. Those wild ideas aren't always met with appreciation though. Skeptics think that visionaries aren't grounded in reality. And usually the visionaries tell them to stop being so shortsighted!" [Vocabulary n.d.].

[3] In his ship's log, Captain Robert Fitzroy clarifies Darwin's recruitment: "Concerned about not losing any opportunity to collect useful information, I suggested that the hydrographer go in search of a scientific, educated person who would want to share the lodgings I had to offer, in order to profit from this visit to far-away, little-known countries. Captain Beaufort approved this suggestion and wrote to Prof. Peacock at Cambridge, who spoke with a friend, Prof. Henslow, who indicated Mr Charles Darwin, grandson of the poet Dr Darwin, as a young man with promising talent, keen on geology and well understood, passionate about all areas of natural history. As a consequence, I invited Mr Darwin to be my guest on board, who accepted with some conditions. Authorization was obtained for his embarkment, and the order was given by the Admiralty for him to be added to the ship's records for the purposes of supplies. The conditions requested by Mr Darwin were that he would be free to quit the Beagle and the expedition at any moment he chose, and that he would pay the just subsistence costs aboard my vessel" [Darwin 2018, p.12].

[4] The Beagle visited the Cape Verde Islands (January 1832), Brazil (April–July 1832), Montevideo and Buenos Aires (July–November 1832), Tierra del Fuego and Cape Horn (December 1832 – January 1833, February 1834), the Falkland Islands (March–April 1833, March–April 1834), Patagonia (April 1833 – January 1834), the western coast of South America (Chiloé, Valparaíso, Lima: June 1834 – July 1835), the Galápagos Islands (September–October 1835), Tahiti (November 1835), New Zealand (December 1835), Australia (Sydney, January 1836; Tasmania, February; King George's Sound, March), Cocos Islands (Keeling, April 1836), Mauritius (April–May 1836), Cape Town (May–June 1836), and Saint Helena and Ascension (July 1836).

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Alberto Carpiceci: Drawing Fantasy Architecture

Marco Carpiceci, Antonio Schiavo

Abstract

This contribution focuses on the visionary component of Carpiceci's architectural composition. An 'integral architect' and a humanist, Alberto Carpiceci (1916-2007) graduated from the Faculty of Architecture in Rome in 1939.
As a follower especially of Vincenzo Fasolo, whom he assisted for a while, Carpiceci learnt History and Stiles of Architecture, not only of the ancient Rome but of both Renaissance and Baroque, too. He focused not so much on decorative details but on the aspiration to the large-scale project, the magnificence, both monumental and celebrative components.
This cultural background triggered his passion for Michelangelo and, above all, for Leonardo, one of the main topics of his research over his whole lifetime.
Leonardo's architectural drawings, which inspired many other visionary architects, such as Ètienne-Louis Boullée, were studied and redrawn by Carpiceci, becoming one of the keys to understanding his visionary architectures.
Fantastic summaries of several influences being strayed throughout history were reworked by Carpiceci's creative soul and constructive mind through the medium of the drawing, which has always been the nodal point of his work, not only concerning architecture but tout court.

Keywords: fantasy architecture, history of representation, Rome, Leonardo da Vinci

Introduction

The professional career of Alberto Carlo Carpiceci was always marked by a constant balance between dream and reality, fantasy, and concreteness. He always blended the objectivity of the study of the past, of the classical architecture surveys, with a more subjective component. Thus, the analysis of reality, integrated with his 'visionary spirit', evolved to create something new, not imagined before.
This creative process was made possible with the practice of drawing, the primary tool that has always accompanied him during his whole academic training and his carrier as an architect.
The drawing, through all its various facets and different interdisciplinary approaches –drawing as expression, drawing as representation, drawing as documentation [Vagnetti 1958]– becomes a core aspect, even in the more methodological processes of survey, especially of ancient architectures, and therefore in their redrawing. It becomes not only a study tool, but even an incentive to accentuate his creative process still further, increasing his knowledge, but above all his imagination, the primary aspect in the creation of the visionary architecture.
A critical act of investigation, drawing may become rational and irrational at the same time, allowing to make a connection with other spaces and dimensions.
In this case, Carpiceci's drawings have, primarily, a significance in the representation and communication

process. However, these drawings, although remained on paper, as an architectural representation, never lose "the character of 'design project writing'" [Di Franco 2014, p. 7] becoming themselves 'construction'.
Subsequently, when deeply analysed, they often take on a different role, turning into a tool able to indirectly express the intents, hopes, and ideals, a work in its own right, even overtaking –conceptually– the architectural practice.
Thus, the drawing progressively acquires an independent expressive goal that emancipates itself from both architecture and painting. It is a tool that is "as light and immaterial as powerful and constructive: tracking and grammar of the imagination. […] An irreversible path of a 'prometeic' mind, substantiated by drawings and metaphors, that is by 'pre-dictions'" [Di Franco 2014, pp. 7-9]. As confirmed by Vittorio Gregotti, the drawing has "the will of proposing something authentically autonomous, self-expression, fragment of a dream, of memories, illusions or truths, as a manifesto of its own view towards the new artistic poetics of architecture, or even more radically, as representation of an ideal of social utopia, or just of a unrealised project with a high ideal content, sublime image of a cornerstone which remains unknown compared to its realization» [Gregotti 2014, p. 16].
Drawing fantasy architectures takes the value, also in this context, of a tool characterized by an ephemeral realism, belonging to the sphere of thought and imagination. A critical path of a cultural agency, because as "writing is acting in the world" [Benedetti 1998, p. 139], as the drawing is.

Biographical fragments

When a young man, drawing –intended as a creative path– was already central to the interests of Alberto Carpiceci. It was the greatest instrument to materialize his ideas, thoughts, and imaginations. Between 1925 and 1930, he made his first visionary sketches, focused on fantasy stories and places, and strange futuristic objects, marginally inspired by the imagery of Jules Verne. In addition to this sphere, strictly associable with fantasy and pure imagination, mention should also be made of the whole scientific and humanistic research, which immediately appeared as the beginning of an ideal process to become an 'integral architect', in the wake of Gustavo Giovannoni.

The influence of Leonardo's architecture.
Since the beginning, Carpiceci develops an immediate association between his drawing and imagination and those of one of his greatest masters, Leonardo da Vinci, an all-time protagonist in the art of inventing through the use of drawing yet constantly suspended between science and art. By the mid-1930's, he inaugurated his studies on Leonardo, which will become more and more extensive and specific up to his admission to the *Centro Ricerche Leonardiane* and *Ente Raccolta Vinciana*, in the 1960's. Such a research has always been characterized by a constant passion, never exhausted through time, but cadenced by a path of "inner maturity, in light of a personal and original interpretation of classics" [Ferri 2020, p. 25].
Carpiceci deeply appreciates Leonardo's drawings. He's completely fascinated and describes them as marks "traced with unparalleled mastery and fullness of expression" [Carpiceci 1984, p. 5]. Leonardo's drawings do not show an "utopic dream out of reality, but a systematic and progressive experimentation, led through countless projects on real problems. […] In his drawings, like no other at this time, we can relive the essential moment of research" [Carpiceci 1984, p. 5], a research that is in touch with reality, and not directed towards the creation of "extravagant fantasies or utopic distractions on ground-breaking curiosities, as other architects" [Carpiceci 1984, p. 5].
According to Summerson, Leonardo "was interested in architecture more philosophically and theoretically than on a designing level, according to orthodox forms of antiquity" [Summerson 2000, pp. 26-27]. This position is confirmed by Leonardo's *Tempio Ideale* (almost exclusively with a central plan), which was studied and redrawn by Carpiceci [Carpiceci 1984, p. 72] and inspired his visionary projects. Another remarkable project is Leonardo's *Teatro da Predicare* (fig. 1) [Carpiceci 1984, pp. 44-54; Carpiceci M. 2010, p. 72], which is associable with the typology of a *locho dove si predicha* (a place where one can preach). A sort of 'futuristic' project, it shows a truncated cone-shaped structure with a spheroidal inner cavity. In the middle of this shape is the apex of a cylindrical structure served by a helicoidal stairway. The spherical concavity is crowded

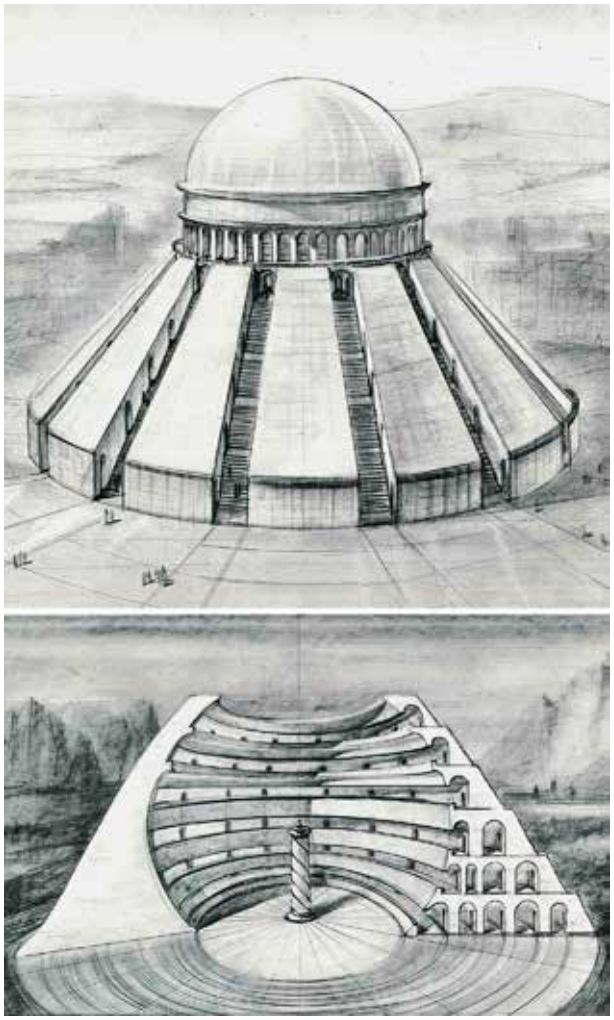
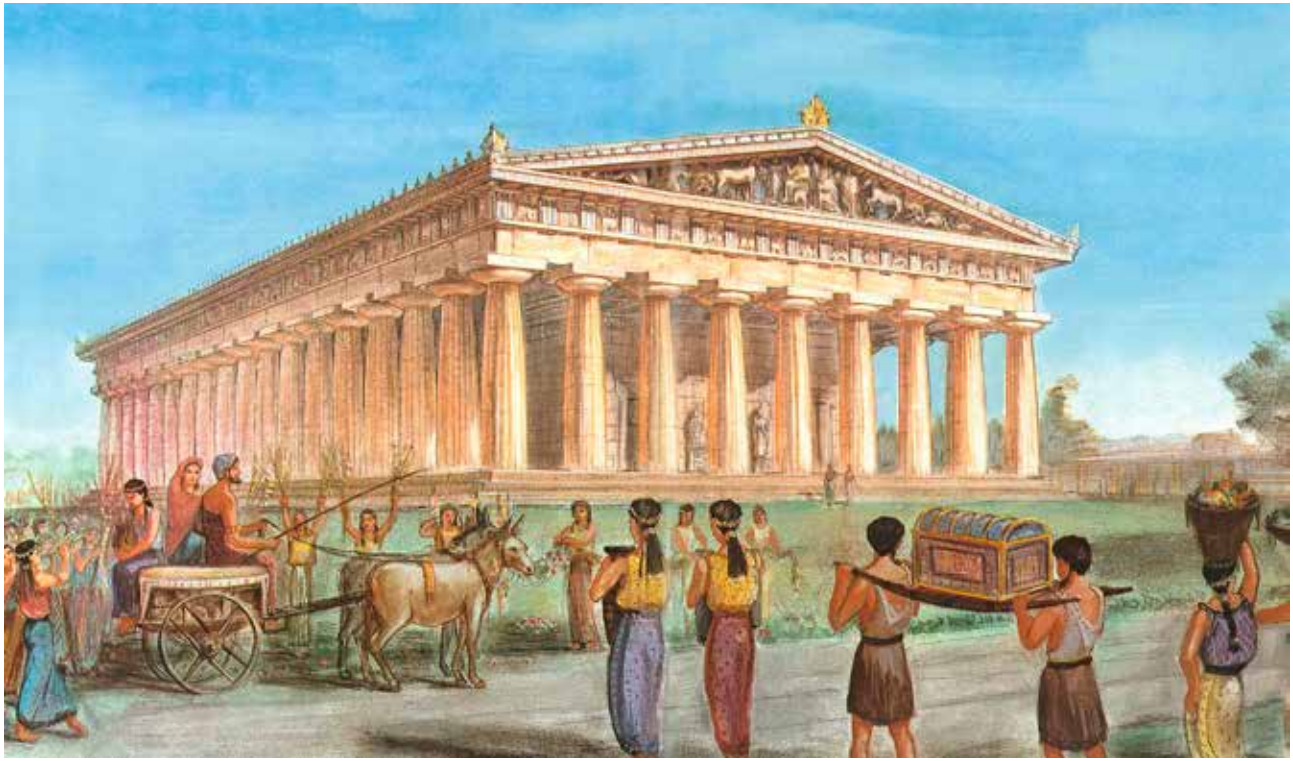


Fig. 1. Leonardo da Vinci, Prospettiva e sezione prospettica di un progetto per un 'locho dove si predicha' (reconstruction by A. Carpiceci).

by balconies connected to the entrances of the various stories of the building, which in turn are connected to other entrances linked by long steps, dug all along the conical outer surface. The entire complex is covered by a windowed drum, topped by a spherical dome. Leonardo presents this project with a perspective view and a section, which is perspective, as well; however, only the latter shows the balconies and the inner structure with the annular galleries, and this because –in Leonardo's mind– there'd be an open-air alternative solution.
Both these centric plans greatly influenced some of earliest fantasy architecture conceived by Carpiceci.

The partnership with Lorenzo Ferri.
The partnership with Lorenzo Ferri, his upcoming brother-in-law, was among the fundamental factors concerning Carpiceci's growth, in terms of artistic and cultural receptivity. Carpiceci was deeply influenced by Ferri in the studies about Leonardo and more. He argued that both Leonardo and Michelangelo were "pole stars, in the name of art as promoter of knowledge and Truth, which only the artist can interpret and spread; an artist as a deep connoisseur of human and natural life" [Ferri 2020].
In 1930, at the age of fourteen, the young Alberto –at the time student at the San Giuseppe Institute– thanks to his friend and future colleague Mario Leonardi, was invited at the St. Peter's oratory, where Ferri used to teach. Ferri was indeed a proper artist, a teacher but also a master for several young disciples, and a great speaker of humanistic culture. "In the drawing teaching, Ferri was an investigator, a forerunner; he invented the arm gymnastic, and used to speak about synergy between music and forms and rhythms [...] He conceived his atelier as a Renaissance workshop and incorporated the notion of 'Art as a Teacher', absorbed during the apprenticeship years. Alberto Carpiceci was the most gifted disciple; later he capitalized the master's lessons about the charcoal techniques for the sketches, developing it at virtuous levels. The traditional teaching is indeed inescapable: disciples must learn the art of drawing, the basics; they must copy from the old masters, such as Leonardo, Raffaello and Michelangelo" [Ferri 2020, p. 33].
The cultural interaction between them is total, a bijective relationship that leads to a mutual enrichment. Often, it is Alberto himself, with his strong visionary drive, to

Fig. 2. Poseidonia, the old Paestum, Temple of Hera (reconstruction by A. Carpiceci).

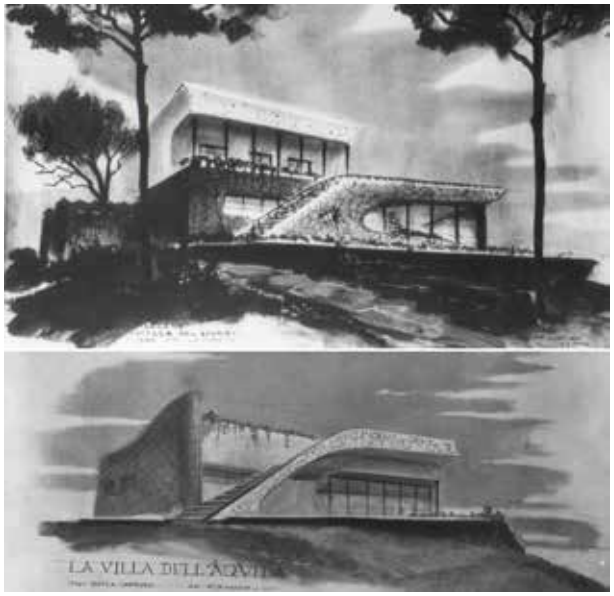


suggest and inspire Ferri, a character marked by a strong idealism, new fields of interest.
Alberto Carpiceci, thanks to his multiple interdisciplinary interests and his artistic training with Ferri, was able to get both scientific and artistic certificates in June 1933. An excellent undergraduate education to face the next five years at the Royal School of Architecture in Rome.
In 1935, when a sophomore at the school of Architecture, Carpiceci was admitted to the French Academy, as well. After two years, he was also accepted as scenographer student to the *Centro Sperimentale di Cinematografia*. In parallel, he kept on working with Ferri and studying independently Leonardo as an architect, probably with a further guidance of another master of him, Vincenzo Fasolo. Fasolo, a professor of History and Styles of Architecture, used to teach his students through the drawing. He intended not so much to reproduce the mere decorative details but to investigate what he used to call 'architectural values'. He analysed, in a not unrealistic way, the proportions, the constructive feeling, the spirit of greatness and magnificence, in particular of the romans ruins, which were even more celebrated during the 1930's for both cultural and political reasons.
To Fasolo, drawing was a "means of clarifying ideas and concepts, and a synthesis of observations"; in addition, in his opinion "drawing is an observing, and therefore a way of thinking" [Fasolo s.d., p. 11]. His approach was fundamental to Carpiceci's formation and studies.

The role of archaeology.
The archaeological studies were a key aspect for the development of Carpiceci 's growing visionary drive, too. Between 1939 and 1940, Ferri and Carpiceci, who graduated in November 1939, went to Paestum during the survey campaign coordinated by Roberto Vighi, an eminent archaeologist, respectively as 'architect' and 'draughtsman'. Their contribution will be fundamental in the studies of the Italic theatre and the basilica.
Figure 2 shows Carpiceci's reconstruction of the latter, a 5th century B.C. peripteral Doric temple. This unique façade, with 9 columns, reports the bipartition of the temple (Hera and Poseidon). Instead of a trussed roof, the central colonnade inside the building suggests a covering with sloped beams, placed on both perimetral and central colonnade.
On June 10th, 1940, Italy entered the war, and in November of that year, Carpiceci obtained the architectural licence in Venice. On July 6th, 1941, Carpiceci took part of the war as an artillery soldier with the military 'university company'. He was sent to Santa Maria Capua Vetere, close to Salerno, where Ferri, in May of that year, started working in the *Superintendency.* In a letter of that months, Carpiceci wrote that "since I'm on very good terms with colonel Pagliano, if Ferri requires me, I could spend a week to focus on the theatre in Paestum, which Ferri cares. I curb my impatience to write down, to shape on huge sheets and to bring back to life evocative visions of disappeared worlds" [Ferri 2020, p. 39]. These words testify of the role of drawing for Carpiceci, a primary tool to create new words, dreamed architectures, as a result of his visionary self, and both architectural and artistic culture.
But first he was committed to figure out the disappeared architectures of the classicism, and subsequently his own visionary projects. In addition to Paestum and the villa with the exedra in Anguillara Sabazia, he was called to reconstruct the Italian architectures in St. Petersburg, the Leptis Magna port, Velia, Pompei and all the way back to ancient Egypt.

His first visionary projects.
In a letter of July 24th, 1941, he described the temples to be drawn by himself: "while I listen to the 3rd movement of Respighi's *Fountains of Rome*, I see the

Fig. 3. A. Carpiceci, Atrio del Tempio Massimo (A. Carpiceci Archive).



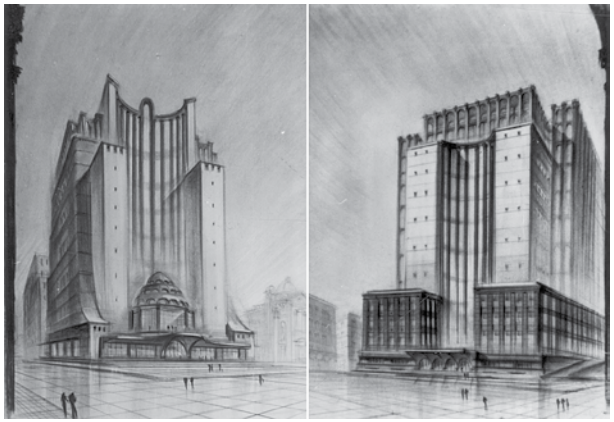
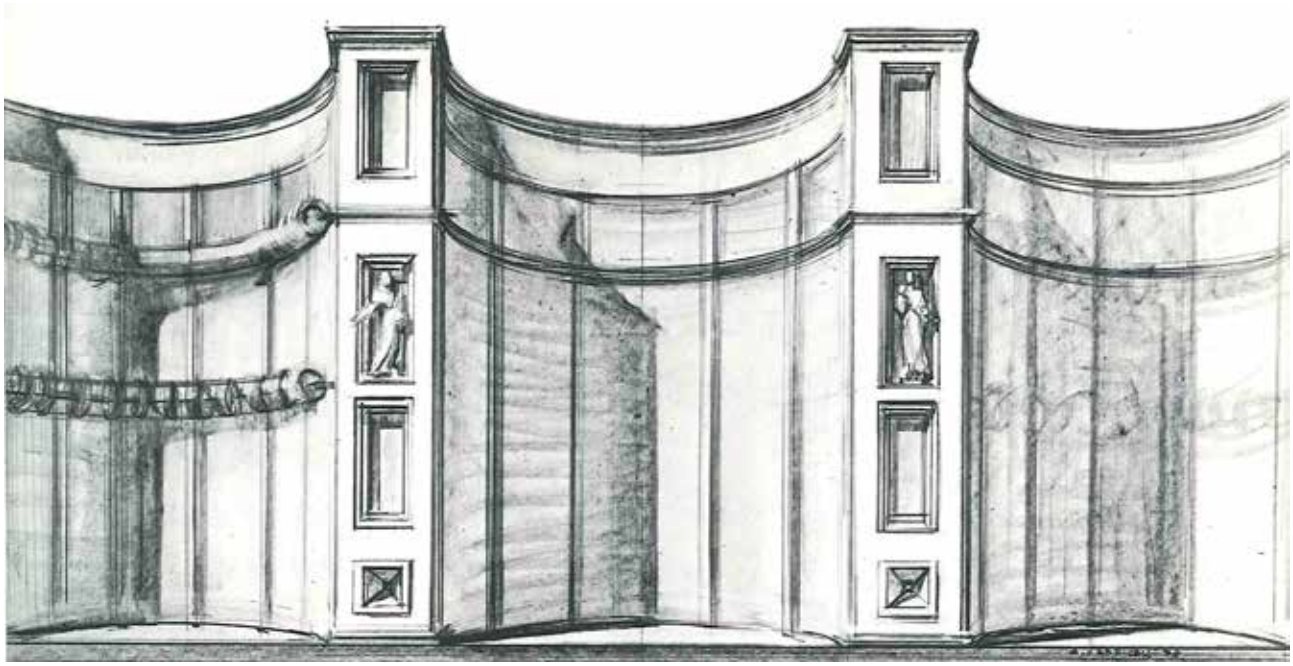


Fig. 4. A. Carpiceci, Villa del Sogno and Villa dell'Aquila, 1949-50 (A. Carpiceci Archive).

Fig. 5. A. Carpiceci, Skyscraper in piazza Santissimi Apostoli, Rome (A. Carpiceci Archive).

temples of the immensity which I'm drawing here in the studio. They are a big thing in me: when I close my eyes, they rise as being real before me, as a superhuman symphony. Now music plays the ringing of bells, that day that my […] our temple will come true, there'll be hundred, thousands of bells ringing in celebration" [Ferri 2020, p. 39].
The temples he is writing of are two: the *Temple of Resurrection* and the *Temple of Redemption*. The first one was directly inspired by the villa in Anguillara Sabazia with its exedra, which he studied with Vighi and Ferri, and was part of a publication.
The second one, with a central plan in which a forest of pointed arches converges, refers to the circular building of Nocera Superiore, close to Salerno, that is the Paleo Christian baptistery of Santa Maria Maggiore. Sort of dreamed architectures, they will be materialized in two huge drawings made in charcoal.
In a letter of January 1943, after moving from Santa Maria Capua Vetere to Monte Mario, Rome, Carpiceci describes the vision of the eternal city: "Rome is beneath me, and every day I head down, over there I reach Leonardo and some sweet maiden. But to create in this bustle is impossible […] we should meet at least for a day […] ideas will grow and, may it be, they'll come out more beautiful and superb than before. The monument should give the idea of this massive conquest: the air […] from the architecture, from the figures you must feel the harmony of the spaces, the immensity of horizons that are renewed in a single space, absolute and perennial" [Ferri 2020, p. 40].
At the end of the war, in 1945, Carpiceci and Ferri shared a house in *via dei Gracchi*, Rome. From this very period, two new ideas emerged: first, an idea of a new movement called *Resurrectio*, conceptually symbolized by the temple drawn by Carpiceci, which was to house a new sculptured decoration conceived by Ferri; second, an evolution and an ideal synthesis of the previous projects, called the *Atrium of the Maximum Temple* (fig. 3).
Last visionary projects and the continuation of classical studies. With the resumption of his professional activity as an architect, Carpiceci reduced the partnership with Ferri and the work on their visionary projects stopped. After the war, Carpiceci imagined new fantasy architectures with a closer bond with reality, where, on one hand the philosophic contribution is belittled, on

Fig. 6. Leonardo da Vinci, concave shapes (reconstruction by A. Carpiceci).



the other the value related to the architectural composition increases. *Villa del Sogno* and *Villa dell'Aquila* (fig. 4) represent two ideal residences to be built in a natural and pristine environment. *Villa Ciardi*, built in Fregene for the businessman Ciardi [1949] just traced the architectural concepts of these projects, finally finding a concrete example in the built architecture reality. Parallel to this, the utopian project of a skyscraper in *piazza SS. Apostoli* in Rome [1948] had a different fate. Carpiceci drew two versions of this building (fig. 5), but it remained an exercise in style, with both compositional and pictorial value, maybe over-ambitious and strictly personal, but well grafted in the Roman Baroque tradition.
The monumentalising of the concave solution, used in both versions but with different forms, binds to both Lodovico Cardi (called Cigoli), who designed something similar for the façade of St. Peter's Basilica, and, again, to Leonardo. The former designed a unique solution for the entrance, based on the realization of a sort of 'in negative' narthex, a large niche that welcomes. In trying to remain consistent with the design idea of Michelangelo, Cigoli projected the interior apse onto the façade of the basilica, in a kind of ideal joining between beginning and end (fig. 7).
In the original drawing of the Tuscan genius, redrawn by Carpiceci (fig. 6), Leonardo writes a text, full of anagrams, which, normally mirrored, recounts a journey to Rome and Naples (the so-called *Memorandum Ligny*). The text is written around a drawing, previously traced, and this can be read in its caption: "*Questa sia vestita dj tela* e *poi inchiotata*" (this to be dressed in canvas and then stuck). The text suggests a project for a theatre background; maybe an ephemeral covering for a permanent scenic structure [Carpiceci 1984, p. 273].
However, these two projects for *piazza SS. Apostoli* became a premise of another visionary project, but this time more concrete: the skyscraper in Caracas

Fig. 7. Ludovico Cardi called 'Cigoli', proposal for the new St. Peter's basilica façade.

Fig. 8. A. Carpiceci, D'Ambrosio palace, Caracas (A. Carpiceci Archive).

Fig. 9. A. Carpiceci, D'Ambrosio palace, Caracas (A. Carpiceci Archive).

for the Italian businessman Pompeo D'Ambrosio (fig. 8, 9). This strong vision of Carpiceci took a role even more crucial in the ideal reconstructions of the vestiges of the past. Examples can be found in the graphic reconstruction of *Leptis Magna* port (again in collaboration with Vighi), the C*anopo* in Villa Adriana, Hadrian's mausoleum (fig. 10), all the projects for the St. Peter's basilica [Carpiceci 1983] and the architectures of ancient Egypt [Carpiceci 1980].
The reconstruction made by Carpiceci in figure 11 shows the four-sided access porticus to the pharaoh's residence, composed of a theory of slender and painted wooden columns. Above the entrance door there's the big solar disc, symbol of Aton, the absolute god. The reconstruction is not based on archaeological evidence, but from the observation of bas-reliefs and paintings present in tombs contemporary with Akhetaton, like the one that belonged to Merira II, and the TA26, known as the royal tomb.

Alberto's pencil

Alberto's perspectives never have a rigorous mathematical-geometrical basis. He used to pay attention primary on a study or a well-structured idea, but never on a determination of the drawing based on projective principles.
Generally, his first task was to sketch, on a sheet of cardboard 50 x 70 or 100 x 70 mm, a first idea of the image he had in his mind. A sort of *ermeneusi* of the cerebral image. Being accustomed to life drawing, he was able to face the blank sheet with wide lines, and keeping on drawing, like he was focusing the image from his mind that, little by little, was specified as good as possible; after that, he used to draw the horizon line, and on this he signed the vanishing points of the main directions. All his perspectives, which can be either central or accidental, present a vertical picture-plan. Bird's eye views tend to the axonometric projection, without (almost never) any suggestion of convergence of the vertical lines. Perspectives bound to a more immersive and addictive sensation, always have the horizon line at a natural level, or slightly higher, and the vertical lines are always parallel; rarely a little convergence is hint, maybe with the aim of creating a sort of conceptual e*ntasis* of the architecture.

Fig. 10. Mausoleum of Hadrian, Rome 139 d.C., after the emperor's death (reconstruction by A. Carpiceci).

Fig. 11. Egypt, Akhetaton (now El-Amarna), Akhenaton's palace (Amenofi IV), XIV century B.C. (ideal reconstruction by A. Carpiceci).

Perspectives without a human presence are really rare. The presence of human figures looks vital to give the sensation of the architectural dimension, and to describe, sometimes, the function of that built environment.
The drawing technique was based on the initial use of graphite; harder pencils for the initial phases for the materialization of ideas, and gradually softer ones (fig. 12); at the end, sometimes he used to draw, on the sides and in the foreground, trees, or architectural structures to frame the drawing, framing it in a sort of proscenium.
Colours were realized with a mixed technique of pastel pencils and compatible-coloured chalks, more or less shaded until the achieving of the wanted texture. Ultimately, stronger marks of dark colours to fix definite lines, and the use of white lead, where needed, the to achieve the requested light.

Conclusions

It is clear, in the end, how the critical study of the past ideally blends with the imagination process of new fantasy architectures, representing a necessary premise of them. This strong visionary drive of Alberto Carpiceci takes a fundamental role, not only in the reconstructions of the past, existed but no longer visible, but also in several unbuilt projects, remained partly on paper, partly in his mind.
In the last century, Carpiceci was one of the few able to implement a process both scientifical and artistic, which, using the instrument of drawing and of its various levels, can bring back to life what doesn't exist anymore and what never existed, except in the imagination of great architects of the past, which he studied.
This process becomes, in his work, a source of inspiration as well, capable to blend, ideally, with his creative power, giving place to the drawings outlined here; escaping from too direct references, but exploring his fantasies, drawing them with the same scientifical criteria, increased during his continuous studies.
And just as knowledge seems to fade in front of the imagination, so "imitation seems to stop where vision begins" [Füssli 2000].

Fig. 12. Carpiceci, Arch of triunph (A. Carpiceci Archive).

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Dōmu by Katsuhiro Otomo. From Reality to the Imaginary, Architecture As an Integral Part of the Narrative

Alekos Diacodimitri, Federico Rebecchini

Abstract

Katsuhiro Otomo (Hasama, 1954) is universally recognized as one of the masters of the Japanese comics industry. Akira (1982), a science fiction story set in a location characterized by endless skyscrapers, is certainly his most internationally known work. Two years before giving life to the world of Akira, Otomo laid the foundations for the creation of a coherent urban scenario in Dōmu, *A Child's Dream.* Dōmu's *story is entirely set in an intensive Japanese condominium, a huge snake building called Tsutsumi Danchi. An architecture that Otomo represents in too much detail to be his own invention. The reference for Tsutsumi is in fact the Shibazono Danchi, a building of intensive housing located in the Saitama prefecture. Otomo, like an expert director, selects the location, distorting and shaping it to fit his vision. Through dramatic and highly detailed perspectives, Otomo makes the Tsutsumi Danchi one of the protagonists of the story. The paper aims to investigate how much drawing allows one to manipulate a simple suburban architecture to satisfy a creative vision. A dead inanimate object within the narrative becomes alive, pulsating with information. The drawing thus allows, like a cinematographic shot of a visionary author, to create a new world (tangential to the real one) but absolutely new and which has a life of its own.*

Keywords: Otomo, Manga, Comics, Japan, Danchi

Introduction: Katsuhiro Otomo's ouvre

During his youth in Hasama (Miyagi Prefecture, north-eastern Japan), Katsuhiro Otomo was a frequent visitor of the small local cinemas, where he used to attend several films on the same day. Among his favorite films were *Easy Rider* and *Butch Cassidy*, motion pictures that were the children of the more authorial and less frivolous New Hollywood that preferred shots calibrated between dynamism and drama. Otomo's passion for this type of storytelling finds in the comics an outlet immediately within his reach, leading the young author to decide to dedicate himself body and soul to the *mangaka* profession [Barder 2017].
In 1973, when he was only nineteen, he moved to Tokyo; after just over a decade he will manage to direct one of the most successful Japanese animated feature films ever: *Akira* (1988), the culmination of a path marked by a grueling apprenticeship started in the world of comics, with hundreds and hundreds of pages drawn every year. During the first years of his career, Otomo published numerous short mangas in Kodansha's *Young Magazine* (A "*Seinen*" magazine, suitable for a mature audience aged 17 and over), leading to the serialization in 1982 of his most famous series - *Akira* in fact - which was immediately a huge success.
The years preceding *Akira* are those of the continuous training, in which the author is inspired by numerous Western works of art (an example is the mechanical hand holding a reflective sphere that appears in the

short story *Fireball* of 1979, a reinterpretation of Escher's *Hand with Reflective Sphere* of 1935) and from comic books, finding inspiration in the work of the French collective *Humanoides Associes*. On the pages of *Metal Hurlant*, the group's magazine-manifesto, the visions of the famous Jean Giraud (aka Moebius) are the ones that most inspired the then twenty-year-old Otomo. It is possible to notice this stylistic influence in particular in the short stories collected in the volume *Memories* (1977-1982), which show an attention to the themes and to the construction of the narrative typical of the *Humanoides*, but even more to the graphic style, through the use of long shots, more cinematographic cuts, barren and boundless landscapes, as well as a delicate and very careful hatching, able to convey the materiality of the different surfaces.
In the manga *Akira* (1982-1990) these characteristics are a fundamental component. Through masterfully calibrated drawings, Otomo gives form to a cyberpunk story set in the streets of Neo-Tokyo. The pages are a riot of meticulously detailed urban scenarios, in which Otomo uses his expert eye to dramatize the scenes [Beaujean 2019]. Cinematic shots, bold cuts and a fast pace lead this manga to be universally recognized as a masterpiece of Japanese comics. Given the extraordinary success, after a few years of serialization of the manga, an animated film adaptation is planned. Otomo, who had already worked a few years earlier on two anthologies of animated shorts entitled *Manie Manie* and *Robot Carnival* [SF-Encyclopedia 2021], is in charge of directing the project. The architectural quality already seen in the manga, also the result of the work of the background artist Satoshi Takabatake [Takabatake 2020], is further enhanced in the film. The team of artists led by Otomo gives life to a dynamic, bright, extremely lively and pulsating Neo-Tokyo; mammoth skyscrapers pile up seamlessly. While not enjoying immediate commercial success with time *Akira* became a cult recognized worldwide, helping to define the visual and thematic imagery of the cyberpunk genre.
How do you go from short mangas set in limited urban scenarios, typical of Otomo's early career, to *Akira*'s iconic settings? How did the mangaka learn to control the architectural space so well, expanding it and enhancing it if necessary? The answers to these questions can be found in the pages of Otomo's work immediately preceding *Akira*, dated 1980 and entitled *Dōmu*.

Fig. 1. K. Otomo, Cover of the Japanese edition of Dōmu (Otomo 1983, p.1).

The manga called *Dōmu*

The graphic and thematic characterization of Otomo's production in the late 1970s seems to be heading towards a more classic science fiction (as demonstrated by his work on the aforementioned *Robot Carnival* and the character design for the animated film *Harmageddon*). Yet, on his first approach to a long-term story, the mangaka decides to opt for a contemporary urban scenario, leaning on one of the maxims of Japanese comics, "tell what you know" [1]. Inspired by the master Osamu Tezuka, who after completing his studies in medicine created *Black Jack* (the story of an illegal doctor ready to treat anyone who needs him), Otomo draws on what he already knows well: life within a huge housing complex on the outskirts of Tokyo. In one of his rare statements that arrived in the West, he says: "At the time [when he just moved to Tokyo] I was living in a newly developed area just outside of central Tokyo. The people I met were the type one only finds in a big city. For example, a carpenter I used to drink with at a nearby bar went into a total moral decline soon after I met him. On the other hand, the bartender at that same bar was a former criminal trying to become a decent citizen [...] While I was living in the area, a huge new public housing project was completed and soon filled with low income couples with newborn babies. They never seemed to adapt to this sort of crowded urban living, but they found themselves trapped in that world. Nevertheless, I enjoyed being around those people" [Otomo 2001, pp. 241, 241].
Otomo was a keen observer, but also a voracious reader of manga of all kinds. His reference author was Shotaro Ishinomori, known for creating characters such as *Kamen Rider*, the *Cyborg-009* group or *Ryu, the Cave Boy*. Among Ishinomori's minor works is *Sarutobi Ecchan*, the story of an ordinary-looking girl who lives in a Japanese residential neighborhood and who hides incredible powers. Otomo takes inspiration from this work to rework the theme of the "child with special powers", declining it in a more modern and mature way. One of the protagonists of *Dōmu* is in fact a little girl with psychic powers named Etsuko: the little one will be the only one able to counter the heinous crimes committed as a game by an old man - also a possessor of psychic powers - named Mr. Cho. These crimes attract the attention of the police, who begin to investigate the series of suicides and strange deaths that occurred at the *Tsutsumi Danchi*, the scene of events that immediately presents itself in all its alienating majesty.
Serialized on the pages of *Futabasha*'s *Action Deluxe* magazine from 1980 to 1981, the manga *Dōmu* (a neologism coined by the author composed of the ideograms "dream" and "child" and translated into the Italian edition as *Dōmu - Sogni di Bambini*) is a turning point in Otomo's career. For the publication in volume (*tankobon*), Otomo complements his story by adding pages; like a skilled movie director, he inserts additional scenes to improve the management of the story's rhythm (fig. 1). In almost 240 pages he tells a complete story, which combines horror elements with others of the most refined science fiction, all set in an urban setting so truthful and realistic to be scary. Otomo at the time already had an assistant to help him [2], and when the serialization of *Dōmu* begins, the mangaka is at work on two other short stories (*Apple Paradise* and *The Feeling of War*), producing 553 published pages during that year. According to cartoonist James Harvey (one of the leading experts of the Japanese master) such productivity is mainly due to the birth of his son Shohei, and the consequent need to earn more [3]. The American comics industry has well-defined roles (screenwriter, pencil artist, inker, colorist and letterist), in Japanese comics instead, especially in the first years of activity when it is difficult to pay an assistant, the individual author must take care of most of the work. A conception of the profession as a mission, which in contemporary Japan can be found in every work environment. *Dōmu* becomes for Otomo a game changer, which allows him to make the leap from the short story to one with a greater foliation, bringing him considerable success: in 1983 *Dōmu* won the *Japan Science Fiction Grand Prix Award*, a prestigious literary prize never awarded to a comic book before. The reasons behind this success are many: a compelling story, a mature and aware storytelling, a growing tension, and above all a graphic quality that in *Dōmu* reaches a completeness that will only be surpassed by the subsequent masterpiece: *Akira*.

The scenario: the genesis of the *Tsutsumi Danchi*

The main setting of the *Dōmu* events is the *Tsutsumi Danchi*, a residential complex so well characterized and central to the unfolding of the story that it can be considered to all intents and purposes as an active character in the events. Like a living organism, the *Tsutsumi* changes over the course of the story to meet the narrative needs of its author. "My interest in illustrating is a matter of seeing the people and things around me and not a matter of longing to see beautiful scenery. More than the picturesque, I love those places alive and sweltering with humanity… Come to think of it, I suppose I enjoy places sweltering with humanity precisely because they lack artificiality. Tokyo itself looks like a mess. Inharmonious, completely devoid of artificiality. Next to traditional Japanese architecture you might suddenly find a Spanish style villa. Some people say it's ugly but I'm fascinated by such places." [Otomo 2001, pp. 241, 241].
Otomo is fascinated by the disorder of the Japanese capital. Fascinated by all those small distortions that make it so lively and less artificial. His watchful eye moves from the picturesque characters that populate it to its streets, which are also full of useful ideas for narrating. Since what makes a drawn image alive and credible are often even the small details, it is common practice in the world of comics to use photographic references in order to grasp those aspects that give credibility and life to a drawn scene [4]. For *Dōmu*, Otomo feels the need to have original images, alive, not artificial, capable of allowing him to create a coherent scenario. He will tell: "I had the idea for the basic plot, but I had difficulty in deciding where to set the story. One day I read a newspaper and a small article caught my eye. It said that at the Takashimadaira Estates (a huge public housing project complex on the outskirts of Tokyo) dozens of people killed themselves each year by jumping from the buildings. I suddenly realized that there was the setting for Dōmu" [Otomo 2001, pp. 241, 241].
In the Japan of the Economic Miracle, this kind of huge housing complexes were not something rare: immediately after the Second World War, Japan embarked on an unstoppable economic growth, which saw construction as one of the leading industries. Intensive urbanization transformed the Japanese soil within

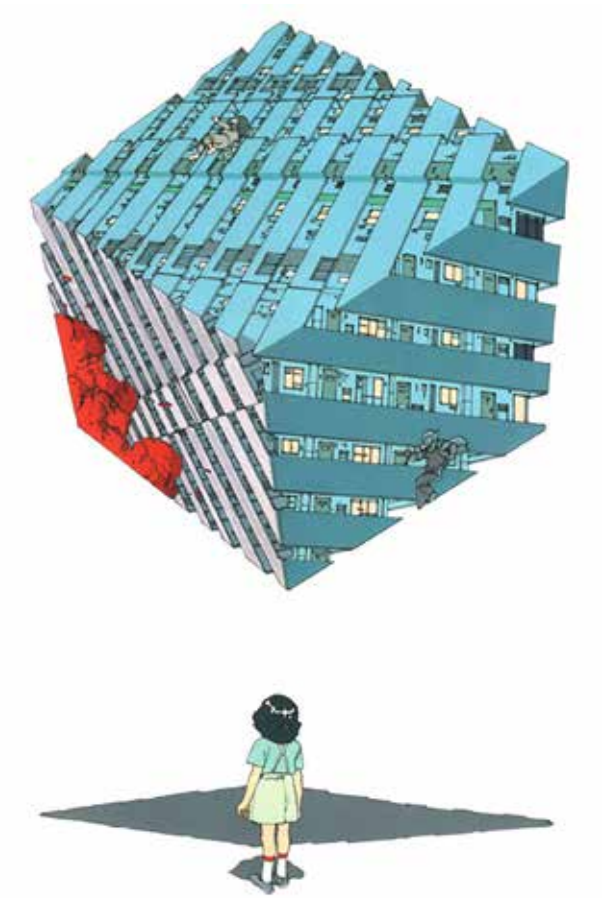

Fig. 2. K. Otomo, Promotional image for Dōmu (Otomo 1989, p. 11).

a few decades, demolishing historic fabric to make way for skyscrapers or directly spreading like wildfire throughout the available territory. This rapid construction is explained by the highly efficient *Design-and-Build* system, where the design and construction part is in the hands of a single contractor who takes care of everything. The system is employed by a handful of companies known as the *Big Five*. It is estimated that they are behind about a third of Japanese construction [Montagna 1994], making the gigantic housing complexes such as the *Takashimadaira* interventions that it is not difficult to define frequent and that in Japan take the name of *Danchi* [Botting 2003]. When everything is delegated to a single client, who has in speed and productivity his strong point, it is impossible to expect an aesthetically (or conceptually) satisfying result. This has brought Japanese cities to an extreme standardization where a series of banal and anonymous architectures extends as far as the eye can see. *Takashimadaira* is a result of this urban fabric. An housing complex that articulates in unimaginative repetitions becomes an alienating and disturbing place. A perfect location to set a story of deaths occurred in mysterious circumstances.
Otomo presumably first collects some newspaper clippings depicting the complex, then he goes personally to the *Takashimadaira* and makes a photographic survey. The anonymous thirteen-storey slat buildings, arranged in lazy repetition, are located in the north-west of Tokyo, enclosed in a lot bounded by *Takashima-dori* high-traffic road and *Akatsuka* park. All around, a small-scale fabric gives even more prominence to the grandeur of the complex's intensive construction. Starting from this conformation Otomo begins to imagine a story by adding, where necessary, other buildings as a reference. Within the manga there are often buildings and interiors that have nothing to do with the *Takashimadaira* but rather seem to be coming from a different *Danchi*. Some Japanese fans have managed to identify the main source of inspiration for *Tsutsumi*: it is the *Shibazono Danchi*, a housing complex located in the Saitama prefecture (north-west of Tokyo) [Mizushima 2012; Caponyan 2013]. The block is composed of buildings with different shapes. A fifteen-story snake building unfolds 500 meters in length. Other buildings, some of which have courtyards and others (service build-

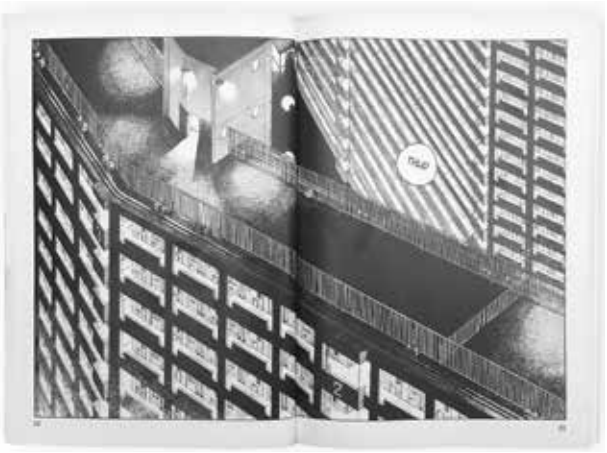

Fig. 3. K. Otomo, Double splash page from Dōmu. The author uses axonometry to detach the viewer from the scene and give a repetitive rhythmic scan to the image to suggest the alienating nature of these residential buildings (Otomo 2004, p. 22-23).

Fig. 4. Comparison between a page from Dōmu (Otomo 2004, p. 48) and references taken from Google Maps and Google Earth (graphic elaboration by the authors).

ings) have a stockier look, extend over the area. A circular square in the center and discreet street furniture all around fill the voids between buildings.
Also for the *Shibazono* it is likely that Otomo used both photos taken personally (for details and shots at eye level) and photos taken from newspapers or illustrative brochures of the building (relatively young as it was built in 1978) [5]. In no case has there been a slavish reproduction of a photo, Otomo never seems to have traced portions of images. His drawings are always the result of a skimming of information with an autonomous perspective reconstruction of the image. In the assembly of different references, Otomo gives life in all respects to the *Tsutsumi Danchi*; it is no longer the *Takashimadaira*, nor the *Shibazono*, what is proposed on paper is the result of the vision of an experienced comic book director, who selects the most suitable shots to tell his story. Otomo shapes the architecture of his references as a demiurge: through his intervention the facades of the buildings gain or lose details depending on the needs; significant portions are removed and others added, the distances between them are shortened or dilated, the buildings are delocalized, cut, rotated, mirrored and repositioned on stage. Significant in this sense is a promotional image of the manga that depicts a cube suspended in the air with the young Etsuko observing it from beneath (fig. 2). Each face of it is the deformation of a facade of the *Danchi* which is projected onto the plane becoming two-dimensional. Along the vertices of the cube this projection re-gains its three-dimensionality, in an Escherian play of perception. Elements such as an explosion or a character in flight are also projected, becoming the manifesto of Otomo's play of spatial deformations for dramatic, visual or narrative purposes. Only by deconstructing frame by frame the system built by the author it becomes possible to understand its vision.

The reconstruction of the *Dōmu* settings

Just as in the real world there are numerous cinema enthusiasts who go in person to the most iconic locations of their favorite films in order to deepen their production development, in the same way this research experience aims to propose a sort of "virtual survey" of the architectures that Otomo chose to use as location for his story. The ultimate aim of the research is therefore to elaborate a simplified model of the fictitious residential complex of *Tsutsumi Danchi* within which it is possible to reconstruct the spatial location of the events narrated in the story. In this way it is possible to reconnect the imagined places to the corresponding real references, understanding where and how the space has been deformed and altered by the author to favor the needs of the story. The space is then configured as the result of a stratification of references, assembled not necessarily to have a coherence with reality, but rather to place itself at the service of the narrative. It is evident how Otomo works on his comic as a real director, and as such he treats his locations with the same approach: the *Tsutsumi* acts as a stage for a story with strong horror connotations and must therefore also convey, to some extent, a sense of estrangement in the reader through an enhancement of its most alienating characteristics. From a graphic point of view, this translates into the representation of what we can call a "*Frankenstein building*". A mutating place, composed by chunks and bits of other buildings, giving no reference points to the reader. The numerous night scenes (in a play of light and shadow) as well as the stylistic homogeneity of the references (which conceals any location problems) further enhance the sense of estrangement that the *Tsutsumi* manages to instill.
The reconstruction experience is structured in different operational phases. In the first phase, an in-depth scan of the whole manga was carried out: page by page, panel by panel, we went to identify all those shots in which the background architecture of the events narrated was (even partially) recognizable. The version of *Dōmu* used for this research is the one published in a single volume in the United States by the publisher *Dark Horse Comics* in 2001 [6]. As for all Japanese comic publications of those years, Dōmu was adapted for the western publishing market by reversing the pages, mirrored to make them conform to the sense of reading from left to right, opposite to the Japanese direction of reading. This implies that, in order to be able to correctly recognize the buildings represented, it is necessary to mirror the pages to bring them back to

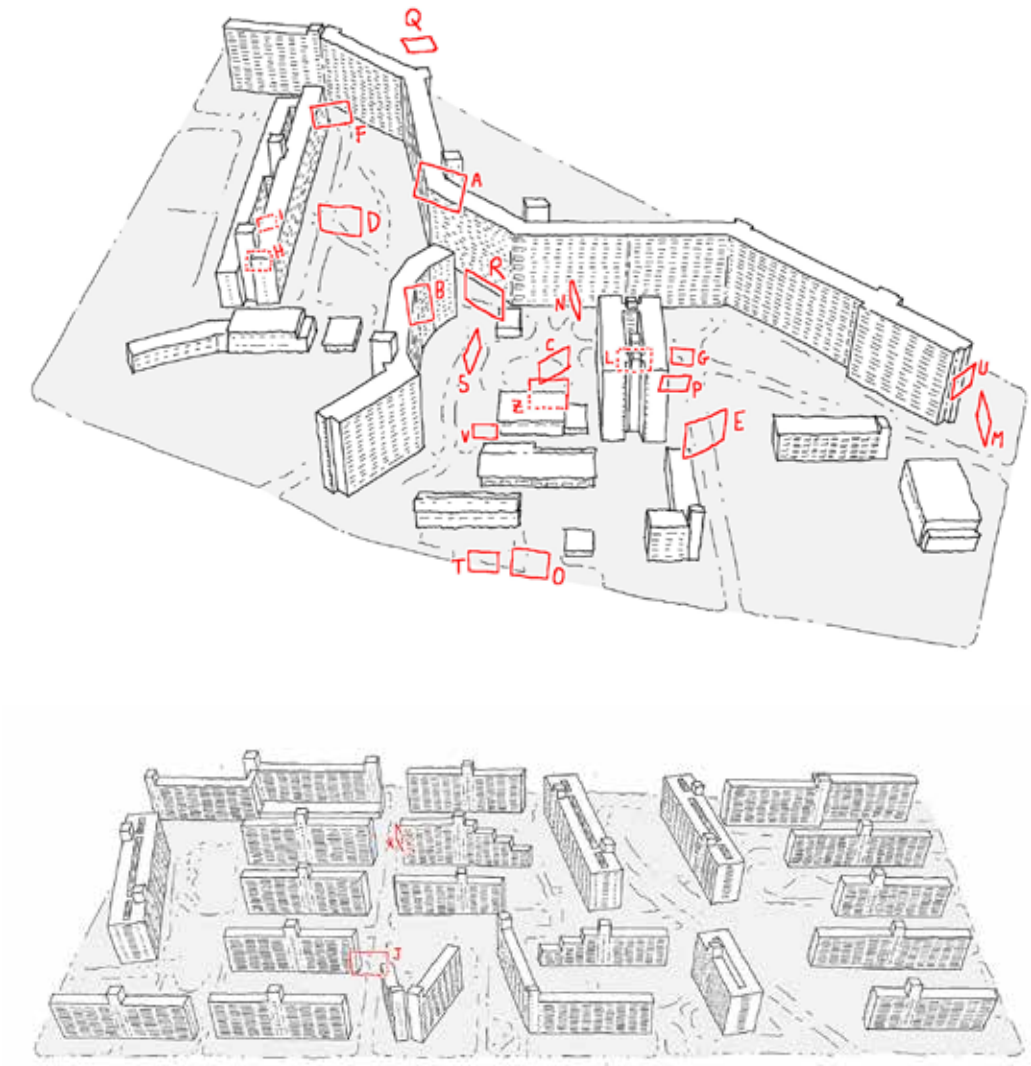

Fig. 5. Bird's-eye perspective reconstruction of the Shibazono Danchi, digital drawing created on ProCreate. The red frames locate the shots of the manga that were possible to link with the real buildings (graphic elaboration by the authors)

Fig. 6. Bird's-eye perspective reconstruction of Takashimadaira Danchi. Digital drawing made on ProCreate. The red frames locate the shots of the manga that were possible to link with the real buildings (graphic elaboration by the authors)

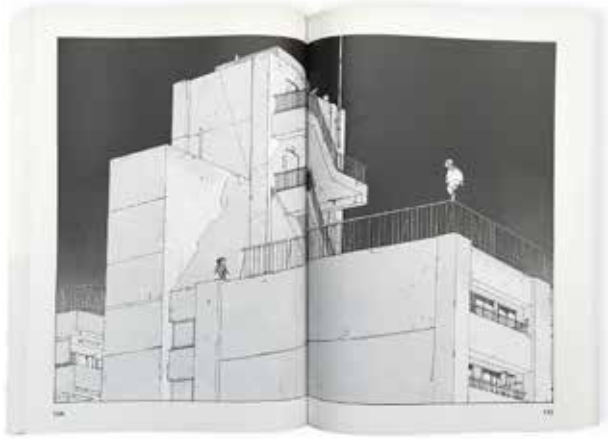

Fig. 7. K. Otomo, Splash page from Dōmu. Perspective view from below in vertical picture. By keeping the picture vertical and moving the camera far away from the scene, the author avoids overloading the scene with excessive drama, communicating sobriety and detachment. Time seems to stop before plunging back into action (Otomo 2004, p. 134-135).

Fig. 8. Photo collage (Inu 1941-1966 2014) and references taken from Google Earth. The images refer to the drawings presented in Fig. 3 and Fig. 7 (graphic elaboration by the authors).

their original sense of reading. Only in some special cases this operation is not necessary: some double splash pages (two pages placed side by side to compose a single panoramic image, see fig. 3) and some establishing shots without dialogue have not been overturned in the western adaptation. Once identified, all the frames were linked to each other. The aim was to find any spatial inconsistencies within the same narrative sequence. Often, exactly as happens in the world of cinema, a rigorous logical and spatial correlation between the exterior and interior of a scene is not necessary: the illusory space of the scenography, be it real or drawn, tends to favor the needs of the narration, exploiting some morphological aspects of architecture to circumvent reality. For example, in fig. 4 we see a page where two buildings that are supposed to be of the same housing complex are shown. The two are actually the result of two different references, the *Takashimadaira* for the upper image and the *Shibazono* for the lower one.

Once this complete list of all recognizable shots was obtained, a second operational phase focused on the recognition of the architecture through a systematic comparison of the drawings with the reference buildings used by the author. Through the 3D navigation of *Google Maps*, all the recognizable portions of the buildings and the spatial location of the camera for each shot within the two residential complexes were identified (figg. 5, 6). A letter was associated with each useful shot, so as to refer to the specific page of the manga. Although the internal paths of the residential complexes are not covered by the *Google Street View* photographic acquisition campaign, where possible the data deduced on the 3D model of *Maps* has been integrated with that of *Street View*, to have a better photographic quality of the facades and to compare the images going into more detail (figg. 7-9).

The shots were inserted through rectangles within a simple bird's eye view of the two residential complexes, reconstructing the position of each shot and mapping the entire model with Otomo's drawings. This mapping has led to several considerations.

It has been noticed that most of *Dōmu*'s settings have *Shibazono* as a reference (21, compared to only 2 in *Takashimadaira*), a complex with a more articulated conformation that is best suited as a location.

Fig. 9. Comparison between an establishing shot extracted from Dōmu (Otomo 2004, p. 113) and a photo of the reference building (Inu 1941-1966 2014).

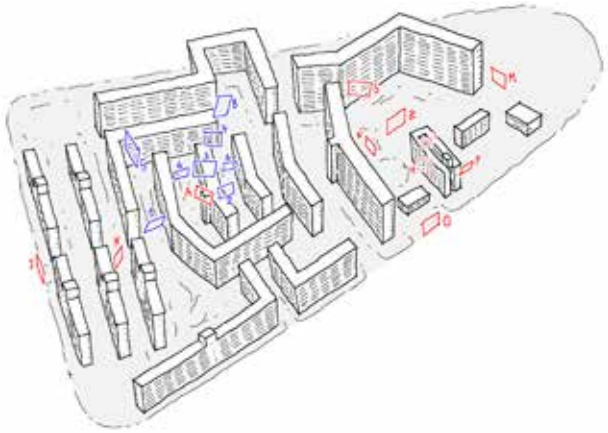

Fig. 10. Reconstructive model of the Tsutsumi Danchi, the residential complex invented by Otomo. The frames in red represent the images directly attributable to the real references, while those in blue are the direct invention of the author. Intuitive military cavalier axonometry. Digital drawing made on ProCreate (graphic elaboration by the authors).

Otomo hardly reproduces the details of the buildings slavishly; his goal is to replicate the scenographic presence of the references, the sense of incumbency that they cause, often enhancing it through a perspective deformation designed to increase the perceived height or depth. For scenes that need visual continuity Otomo uses single recognizable elements (a water tank, a structure with fire escapes) rather than aiming for a coherence of views. The goal is to have dramatic shots, dynamic when they need to be and static when the narrative demands it.
The study of the single pages also shows how many shots do not have direct references to reality. Even forcing shots and viewpoints, neither the *Takashimadaira* nor the *Shibazono* allow to reconstruct the aforementioned views. It follows that precisely these shots are the real creation of Otomo who increased the extension of the *Tsutsumi* producing images in which the buildings multiply in sequence. The serial repetition of the *Takashimadaira* is applied to the *Shibazono*. Operating translations, additions and exaggerations the *Tsutsumi Danchi* is born. The views for which there is no univocal reference (indicated with the blue color in fig. 10) allow, if combined with those extrapolated from the real (indicated in red, and equivalent to those seen in fig. 5 and fig. 6) to draw in a more complete way the development of the *Tsutsumi*. The model of Fig. 10 tries to give spatial coherence to images that do not seek it at all, leading to a *danchi* which is none other than one of the many conformations that the *Tsutsumi* could have in Otomo's mind. Every single frame, whether it is consistent with reality or entirely invented by the mangaka, provides a quantity of visual information. This quantity, like pieces of an incomplete puzzle, can be assembled to reconstruct the development of the *Tsutsumi*. In specific frames the alienating seriality of *Takashima* (on the left in fig. 10) finds links with the corners of the *Shibazono*. The development of the complex is articulated taking pieces mostly from the *Shibazono* (which we have seen to be the main reference) and then being denied by a more rigid and serial extension in some suggestive bird's-eye shots of the area (fig. 11). *Tsutsumi Danchi* slowly takes shape thanks to distant but often overlapping frames, becoming a new and original architecture.

Conclusions

The result of *Dōmu*'s in-depth and systematic study is a model capable of logically describing an imaginary architecture characterized by a relevant ephemeral component. The representations transcend real references and become something new in the hands of the author, making *Dōmu* a perfect example of how architecture and its visual manipulation can be fundamental in the success of a creative vision linked to a narrative work. The model created gives substance to this random form, to this mental project that has never materialized as a total image put on paper. The possibility of being able to spatially arrange and systematize the invented drawings with the more real ones in a single reference allows us to investigate the creative process of a world-famous author and grasp the logic behind it. The result is that the *Tsutsumi* turns out to be a mutable and alienating place, which changes and unfolds in a disturbing way as the story progresses. This mutability is exemplified in the pyrotechnic finale, where the *Tsutsumi* seems to scale in size in a frantic rhythm to finally reach a liberating explosion (fig. 11). In the epilogue, the mystery is solved and the *danchi* returns to normal, crystallizing into a renewed state of calm.

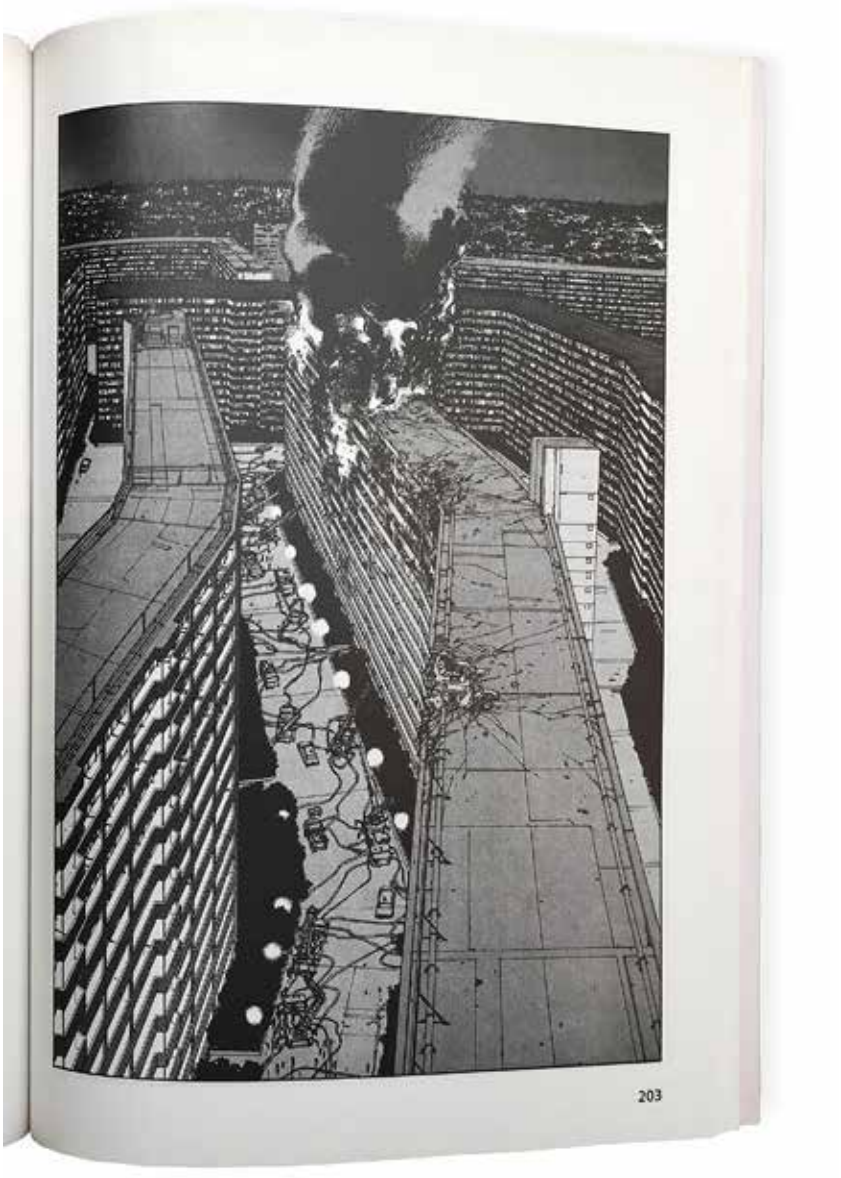

Fig. 11. K. Otomo, Splash page extracted from Dōmu. The bird's eye view shows the rescuers reaching the burning building (Otomo 2004, p. 203).

Notes

[1] Vincenzo Filosa, cartoonist and translator of numerous manga masters, says in an interview: "The rule that ran in all the editorial offices of the Japanese magazines of the '60s,' 70s, '80s (such as Garo, Comic Baku, Beat Comics) was: tell what you know, tell no more, tell what you know" [Moccia 2021] (min. 27:45) (accessed 2021, August 21).

[2] Akihiko Takadera was Otomo's only assistant at the time. It is very likely that he was the one who took care of much of the actual creation of the backgrounds (Anime news network n.d.).

[3] James Harvey in 2014 compiles the most exhaustive and complete timeline of the work of Katsuhiro Otomo, accompanied by the number of pages drawn, assistants and personal considerations. Timeline courtesy of the author.

[4] Hideaki Anno in the volume Proto Anime Cut shares part of his collection of photos of construction sites, demolished buildings and light pylons, used as a reference for the scenarios of the Evangelion anime. Riekeles 2011, pp. 244-249.

[5] Kawaguchi Shibazono Danchi #14. (n.d.). <https://www.emporis.com/buildings/1518231/kawaguchi-shibazono-danchi-14-kawaguchi-japan> (accessed 2021, August 21).

[6] The other reference is the edition published within the initiative *I Classici del Fumetto- Serie Oro di Repubblica*, n.52, to date the latest Italian edition available and on which the same reversals of the 'US edition.

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Drawing Creator of Worlds. Criticism and Representation of the City in Comics

Sara Conte, Valentina Marchetti

Abstract

In the Walking city *illustrations, large insect-cities walk the earth, while the materialization of what will be the interconnection concept is the protagonist of the project for the* Plug-in-city. *This was a vision where megastructures populate the world, while single housing units, transfigured into space capsules, hook and unhook there. In these utopian visions, Archigram blend graphic codes of* Marvel *covers, Pop Art references and the language of science fiction comics. The graphical medium, thanks to the immediacy of the sign and the vividness of the colors, is the ideal tool to give back a radical image, which is able to bring out bolder concepts than the traditional ones. The fusion between architecture and comics thus becomes instrumental in the creation of a futuristic vision, which starts from the analysis of a nearby reality. The world of comics also deals by nature with the drawing of an environment aimed at portraying real or ideal cities or real caprices, where architectures distant in time and space are mixed, sometimes with fantasy elements or projects never realized, to form new plausible imagery. Today more than ever, the comic strip is not limited to passively reflect the society, but it offers a criticism and it opens reflections also on architectural and urban issues. Through the analysis of the drawings of some exemplary comics, the research proposes to highlight the creation of visionary worlds capable of focusing on specific architectures and on the contemporary city.*

Keywords: comics, visionary architecture, criticism, drawing, representation

Introduction

The comic strip, due to its nature of drawn image belonging to the worlds of representation and communication, represents one of the media that, in its attempt to make consistent the worlds of fantasy, utopia and imagination, has best highlighted the fantastic and sometimes innovative aspects of architecture, contributing to the formation of a collective idea of the future city (fig. 1). It is no coincidence that Archigram merges the graphic codes of Marvel covers with the style of Pop Art and the language of science fiction comics to represent the *Walking city* or *Plug-in-city*. In fact, architectural design does not exhaust its potential in the representation of elements aimed at construction, but is above all the concretization of a vision, the prefiguration of a space's transformation and the projection of an idea. At the same time, drawing is a criticism tool able to support a practical and theoretical reflection on the surrounding reality, as well as on the idea of real or ideal city, both present and future. The bond between comics and architecture goes beyond affinity and is a mutual and continuous influence that converges towards the representation of a vision of the city. The attitude of comics towards the exploration of architectural space is born with the medium itself. The construction of the set and the choice of its representation proceed in parallel with the creation of the story where architecture is used to develop new methods of constructing narrative time and to make criticisms of society or architecture itself. The symbolic power of architecture,

portrayed or involved in storytelling, allows readers to identify urban background scenarios or to involve them in fantastic worlds, arousing wonder or fear in them [Conte, Marchetti 2020]. In fact, as Enki Bilal points out, "Cinema by definition shows everything that happens, while literature requires the reader to imagine everything. Comics mix these two aspects" [Gravett 2014] thus giving more importance to drawing or words, the comics provide complete imaginaries and at the same time they stimulate the creation of mental images which are added to the visual narrative. On an iconographic and symbolic level, the comic strip makes recurring references to the idea of the ideal city and to the imagery of utopias. In fact, it is possible to connect Sant'Elia's drawings to the Neo Tokyo portrayed by Otomo in *Akira*, passing through the set designs of Friz Lang's masterpiece*, Metropolis,* in which Erich Kettelhut's contribution is undeniable. The references are not only formal: in the comics of the beginning of the 20th century, such as *Little Nemo in the Slumberland* or *Yellow Kid,* the city becomes with its skyscrapers an urban signal with a symbolic and alienating effect. Thanks also to the role assumed in the strips, the city began to enter the collective imagination, and was later deepened in American productions from *Flash Gordon* to the superhero metropolis, up to Frank Miller's *Sin City* (fig. 2). At the dawn of the twentieth century, in fact, the city, its spaces, its social dynamics and the urgency of narrating a rising class and its problems are some of the fundamental elements on which a critical imaginary of the city and its current or future transformations is being formed. In *Contratto con Dio* (1978), Eisner starts from an imaginary degraded neighborhood to draw the real New York through the typical characteristics of the buildings, alleys and architectural elements that make it recognizable.
Meanwhile in Europe, starting from the 60', authors such as Moebius were looking for a total graphic freedom by expanding their architectural settings towards parallel universes. These imaginary worlds, the offspring of moon landings and space missions, are proposed as architectures in which one could live and portrayed in decomposed and freer pages. Series such as *Valérian* by Christin and Mèziéres or *Les Naufrgés du temps* by Forest and Gillon or the first albums by Moebius and Druillet show a positivist attitude towards the future and a freedom that is expressed in the definition of scenarios, objects, shapes and colors. With the end of positivism, the emergence of other types of worlds increased. Examples are the ones

Fig. 1. Capriccio realized with images from Biomega by Tsutomu Nihei, Abara by Tsutomu Nihei and Batman. Death by design by Chip Kidd and Dave Taylor (designed by authors).

proposed by the duo Schuiten-Peeters who, in their Belgian-French saga *Le Città Oscure*, describe imaginary megalopolises where fantasies and references to existing places make up a universe in continuous expansion. In this universe, the cities, poised between utopia and reality like Italo Calvino's *Le Città Invisibili*, are the undisputed protagonists. Fusing Art Nouveau aesthetics, retro suggestions and utopian visions of every era, *Le Città Oscure* becomes a reflection of reality in a not far future.
In Japan, the homeland of the metabolist utopia, manga settings reflect the difficult balance between tradition, traces of the past and extreme innovation. In the stories of Katsuhiro Otomo, of which *Akira* represents one of the most interesting examples, metropolises are prophesied as the product of an apocalyptic future capable of erasing every trace or link with the past. Moreover, the mangaka Tsutomu Nihei imagines cyberpunk worlds where mega-structures, totally hybridized with nature, create multiple, simultaneous, and infinite spaces that seem to respond to the rules of a non-Euclidean geometry.

Fig. 2. In order: Little Nemo in Slumberland by Winsor McCay, on New York Herald 26th July 1908; Yellow Kid edited on New York Journal, on 27th March 1898; Flash Gordon by Alex Raymond n°173 of 1965 (designed by authors).

The fusion between architecture and comics thus becomes fundamental to the creation of a futuristic vision that is the result of the analysis of a nearby reality. Indeed, cartoonists, architects and artists could foresee the times to come and to imagine worlds that can only come in the future. Through drawing, cartoonists depict real or ideal cities or real caprices, which seem to refer to the works of Canaletto, to Aldo Rossi's *Analogous City* or to James Stirling's *Interrupted Rome*, where architectures distant in time and space are mixed, sometimes with fantasy elements or projects never realized, to form new verisimilar imaginary.
Although the boundary existing between the design of imaginary objects functional to the story and the design of real objects designed for construction is very thin, the design of images can also be consequential [Barbieri 1991]. Indeed, the same architectural imaginary, that comics, science fiction and cinema have contributed to create, is based on the sedimentation of perceptions, signs and memories that become with time real archetypes. In particular, referring to Gilbert Durand and Paolo Portoghesi, three main ones are identified: the archetype nature, the archetype history and the archetype machine [De Domenico 2013].
These three archetypes can also be recognized in the construction of the cities portrayed in the comic strips mentioned so far and in those we intend to examine. Considering the reference context in which the research moves, there are three main cases that will be treated. The first focus, starting from the analysis of *Batman. Death by design*, explores the use of drawing and comics as a critique tool used to express a position regarding the contemporary-future urban development and in this case the relationship with the architectural tradition. The second deals with the Japanese dystopian vision that, starting from Otomo's Neo Tokyo, outlines megalopolis with no links to the past and able to reinterpret Sant'Elia's visions in an imaginary world devoid of any positivism. It then moves on to the labyrinthine architectural scenarios constructed by Nihei, where we find references to the

Fig. 3. Examples of background rendering in shojo. Vignettes from Perfect World (2020) by Rie Aruga, edited by Star comics (designed by authors).

works of the Metabolists or architects such as Paolo Soleri. Finally, the last part deepens, through the study of the work *Souvenir dell'Impero dell'Atomo*, the construction of a retro-futuristic environment based on the association of styles coming from different periods or places, distant from each other in time and space, and of iconic futuristic architectures.

Comics as a critique of architecture and the city: the case of Batman. Death by design

Compared to other superhero stories, those belonging to the Batman universe are able to give greater importance to the creation and drawing of objects and architectural spaces in which the protagonist moves. Because of the very genesis of the language of modern comics and its relationship with urban space, it is difficult to think of the spaces portrayed in comics as mere descriptive apparatus, yet there are comics that are practically without background, such as old-style *shojo* where, although there are spatial coordinates of reference, the background is replaced by screens or shades (fig. 3). The central role of the objects and the city within the Batman universe is connected to the lack of superpowers of the protagonist, who therefore interacts with the environment in an active way by using gadgets, pulleys and cars. The same scenery of Gotham City, imaginative representation of New York in Bill Finger and Bob Kane's mind, becomes the protagonist of the story, renewing itself and assuming different values according to the designer, the narration, or the cinematographic version. The Gotham drawn by Mazzucchelli in Frank Miller's *Batman Anno Uno* is a city on a human scale, a symbol of corruption, alternating between misery and splendor. The hero's need emerges from its representation through the choice of distorted shots, dark shadows, non-white paper support, and Lewis' muddy colors. Although conceived by the original creators as a dark and gothic version of New York, Gotham has evolved in the imagination, due to the work of directors, set designers and cartoonists, absorbing values, meanings and images, aimed at representing decadence, corruption and splendor.

Fig. 4. Greenside's old Wayne Central Station; Roomhaus's proposal for the new station; architect Greenside jr. drawing the final design of the station inspired by his father's work (designed by authors).

An even more important role is played by the city and its architecture in *Batman. Death by design*, written by Kidd and drawn by Taylor, where Gotham is used to criticize contemporary architecture and in particular Rem Koolhaas' Bigness concept. The story is inspired by real events, such as the demolition of the *Pennsylvania station* in 1963 and the collapse of a crane in downtown Manhattan in 2008. The comic becomes a warning and a message, as powerful as a critical essay, about contemporary architecture and the processes that build and demolish cities today. The building speculation together with the most glamorous contemporary architecture, personified by the international archistar Kem Roomhaus, are the main antagonists of the story. The debate between demolition and preservation of architecture takes on great importance. The object of contention is the *Wayne Central Station*, Gotham's historic ruined station and legacy of Bruce Wayne's father. The Roomhaus' new project foresees a huge building with organic shapes, which recalls the architecture of Moebius and Calatrava (fig. 4). Starting point of the story are a series of collapses, prompting Batman to investigate the materials used, compliance, and the involvement of businesses and unions in the construction of the old station. However, these collapses also involve new architecture, such as the newly opened *Celing,* which Roomhaus "describes as a very simple design taken to its extreme, creating a new current of architecture called mini maximalism. The content of the little cloud picks up and synthesizes Bigness' concept by redefining it as mini-maximalism". For Koolhaas, in fact, "the Bigness is the point at which architecture becomes both maximally and minimally architectural: maximally because of the enormity for the object; minimally because of its loss of autonomy, it becomes an instrument of other forces, it becomes dependent" [Koolhaas 2006, pp.22, 23]. In addition to building speculation, the authors thus criticize the idea of out-of-scale architecture, indifferent to real needs and self-referential.

The effect of verisimilitude is achieved through the choice of framing, distance, and angle of the settings. The glass terrace of the *Celing*, which recalls the crowning of the *Twin Towers*, is initially portrayed from above, to emphasize its dominance over the city whose streets are highlighted in the background using orange, and to reinforce the parallel with the aerial walkway idea that characterizes the drawings of Sant'Elia, the sets of *Metropolis* and more generally the imagery of the future city. The sense of involvement is then underscored in the following vignettes which, assuming the human point of view, best render the sense of vertigo and discomfort caused by being suspended in the void. These imaginary architectures are rendered with great realism. Indeed at the end of the book, Taylor emphasizes how his Gotham is the result of the work done in architectural studios and of the search for numerous architectural references which allow the creation of a verisimilar world

Fig. 5. From top left: collapse of the crane; the Celing transparent terrace rising above the streets of Gotham; the city seen from above; Batman lying on a scaffold after a fall during a fight (designed by authors).

poised between imagination and reality. The human point of view is also used in the vignette relating to the collapse of the crane. Dynamism and movement are rendered using three-point perspective and the thickness of the lines, which increases in relation to the progressive approach. The bottom-up shots increase the feeling of oppression and discomfort, identifying the tall buildings with the symbol of power and reinforcing the criticism towards this type of architecture. While the top-down ones help to emphasize the height of the buildings and the city in general, placing emphasis on the verticality of the architecture that characterizes both Gotham and New York (Fig. 5). Also in *Le Città Oscure* series by Schuiten and Peeters, a critique of the development of the contemporary city and its mechanization is evident. In a mix of real references and Art Nouveau style, the cartoonists trace imaginary worlds made of cities closed in on themselves, where architecture is total and absolute.

Magastructures and dystopias: from Katsuhiro Otomo's Neo Tokyo to Tsutomu Nihei's paper architectures

In the beginning of the twentieth century, especially due to Futurism and the spread of the ideology of the machine, the idea of urban landscape in Italy changed from static to mobile. Among the architects who contributed to the construction of an Italian version of utopia between the two wars, it was Antonio Sant'Elia who presented a new way of thinking about architecture and the future city. Although unfinished, his paper architecture has been able to find realization outside of architecture itself. Starting from the German experimental cinema of the 1920s, passing through the representations of megalopolises present in numerous anime and manga, his work has become a fertile legacy for directors, illustrators, and writers. Through the *Manifesto of Futurist Architecture*, Sant'Elia enunciates a desire to break with tradition by imagining an architecture that cannot "be subject to any law of historical continuity" and that "has its reason for being only in the special conditions of modern life" [Sant'Elia 1914]. In his drawings, the architect uses geometric forms of Assyrian-Babylonian derivation whose monumentality is capable of distancing themselves from humankind. Buildings as separate entities are also found in the idea of the city presented in Lang's *Metropolis*, in Otomo's *Akira* manga or in Nihei's works, where modern man must resign himself to being a mere element of urban space. In the development of *Metropolis*, Lang inserts different elements that refer to the work of San'Elia. The same sketches made by Kettlehut show urban perspectives where high steel and glass towers rise above multi-level streets, overhung by suspension bridges, which have become a recurring element in many manga, anime and science fiction films (fig. 6). Another fundamental component taken up with different values by Lang and Otomo is the aforementioned break with the past. In this way, as Riffel argues, the city "is not just a generic avatar, but an avatar of a modern form of thinking, and as such, it must represent a complete break with history" [Rosati 2020, pp. 20-25]. Neo Tokyo, with its post-nuclear architecture and various cyberpunk contaminations, rises indeed from the ruins left by an explosion that razed it to the ground and is therefore totally new.
The urban form of these cities is in continuous transformation and the man inside is no longer the protagonist of the space. The *Mangaka* emphasizes the relationship

between man and city through perspectives where the human figure is absent or reduced to balloons or small silhouettes. The verticality is emphasized both through the perspective views portrayed by highways and bridges outside, which allow you to see the island in all its size and height with evident similarities to Manhattan, and using immersive shots in the streets or alleys inside. In this case Otomo exploits the use of central perspective, sometimes cutting off the end of the buildings and giving the idea of an infinite wall that rises above its inhabitants. Another recurring element is the ruin, represented with aerial perspectives, which emphasize the claustrophobic and unhealthy atmosphere of the city. However, among the ruins of the surrounding buildings one can recognize the facades of famous ones, showing how everything that was destroyed was then transformed and amalgamated into the new ultra-modernist structures (fig. 7).
This idea of a ruined Tokyo, subject to destruction, can also be linked to the post-atomic legacy of the events of the Second World War. The representation of the city absorbes and reflects the anxieties and ideas of various generations and social strata, which the *Mangaka* translate through the creation of imaginary Tokyo into shaky and extemporaneous realities. Other significant examples of this attitude can be found in the Neo Tokyo 3 of *Evangelion*, in perpetual crisis of destruction, or in the city of *One-Punch Man*, which reshapes the topography of Tokyo into sub-cities that are in turn destroyed by endless calamities (fig. 8).
Also the biological cities that characterize the manga of Tsutomu Nihei, an architect by background and specialized in the design of skyscrapers, are the main protagonists of his manga, surrounded by ruin and decadence. Through his constructions, Nihei portrays a world that is a cyberpunk metaphor for the contemporary metropolis. This world is made up of constantly evolving mega-structures, which extend as far as the eye can see through the juxtaposition of architectural elements and hybrid spaces in which nature and artifice come together. From a formal, conceptual and aesthetic point of view, Nihei's work can be traced back to the metropolises integrated into the landscape imagined by the Metabolists. Incorporating history and nature, the metabolist new cities should have

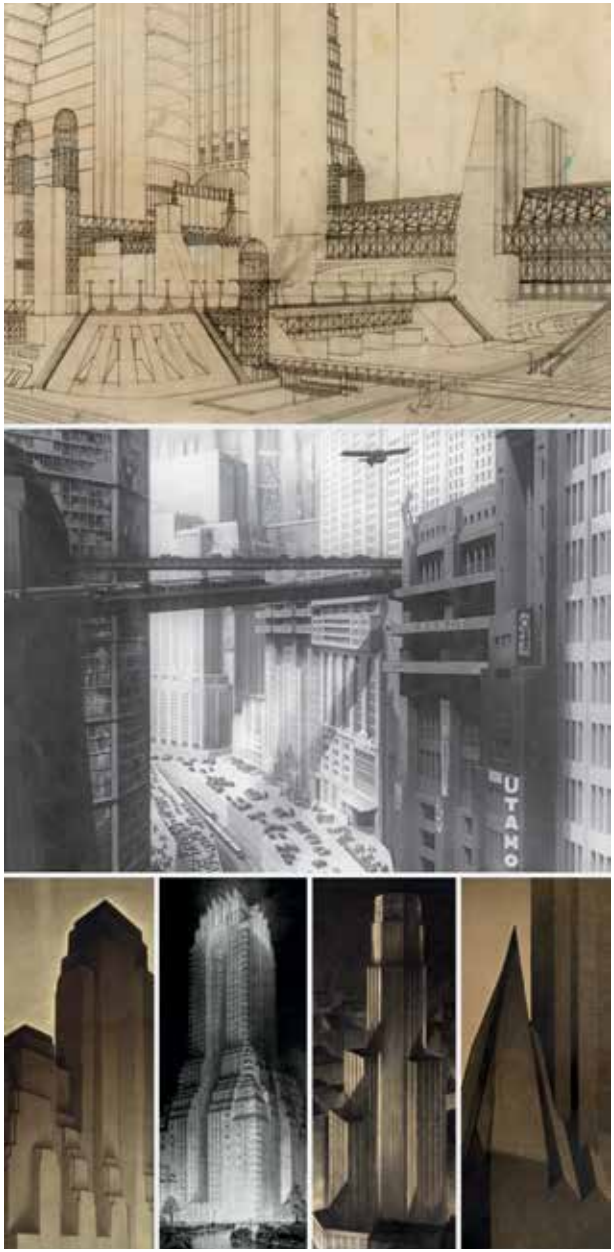

Fig. 6. The recurring forms of future cities. Excerpt from The New City by Sant'Elia, 1914; among the streets of Metropolis by Lang, 1927; composition of projects from The Metropolis of Tomorrow, 1929 by Ferriss (designed by authors).

expanded like living architectural organisms in harmony with nature. Nihei exaggerates this biomorphic aspect by proposing megastructures that grow in a natural but chaotic way. There is a strong reference to the famous scene in Terry Gilliam's *Brazil*, where enormous skyscrapers seem to rise from the ground in a unity between architecture and nature. His nervous lines, the use of black and chiaroscuro refer instead to the engravings of Piranesi, while the complex labyrinthine spaces drawn look to the works of Escher.
Nihei's world is populated by a post-humanity unable to dominate the architectural element, which has in fact taken over the human component. This position is emphasized by the mangaka through aberrated perspectives, tilted shots, inhuman points of view and the chromatic choice, where the contrast of black and white emphasizes the vastness of empty space and the oversized scale of the megastructures. Nihei sets these dystopian worlds thanks to the drawing. As pointed out in an interview in 2001, the buildings' details and the construction particulars, which may appear as secondary elements, are the result of a careful study, carried out also through the realization of plans and sections and aimed at making the environments work at their best to give verisimilitude. The story proceeds through continuous environments in which the orientation is lost and even gravity seems to change in an irrational way. Even points of reference such as the earth line or the sun are sometimes eliminated, as in the case of *BLAME!*, underlining the totality of these hyper-urban spaces. In these environments, nature does not follow the rules of rational urban planning but is totally out of control and assumes characters that can be considered hostile for the very survival of the human race (fig. 9).

Style and architecture combination: the image of the retro future of Souvenir dell'Impero dell'Atomo

As already seen, comics and architecture share the sphere of graphic representation, but the total freedom of the former allows us to better recognize the mechanisms used to build architectures that, although belonging to the sphere of imagination, move from real elements recomposed in a new way. Through sequences of different

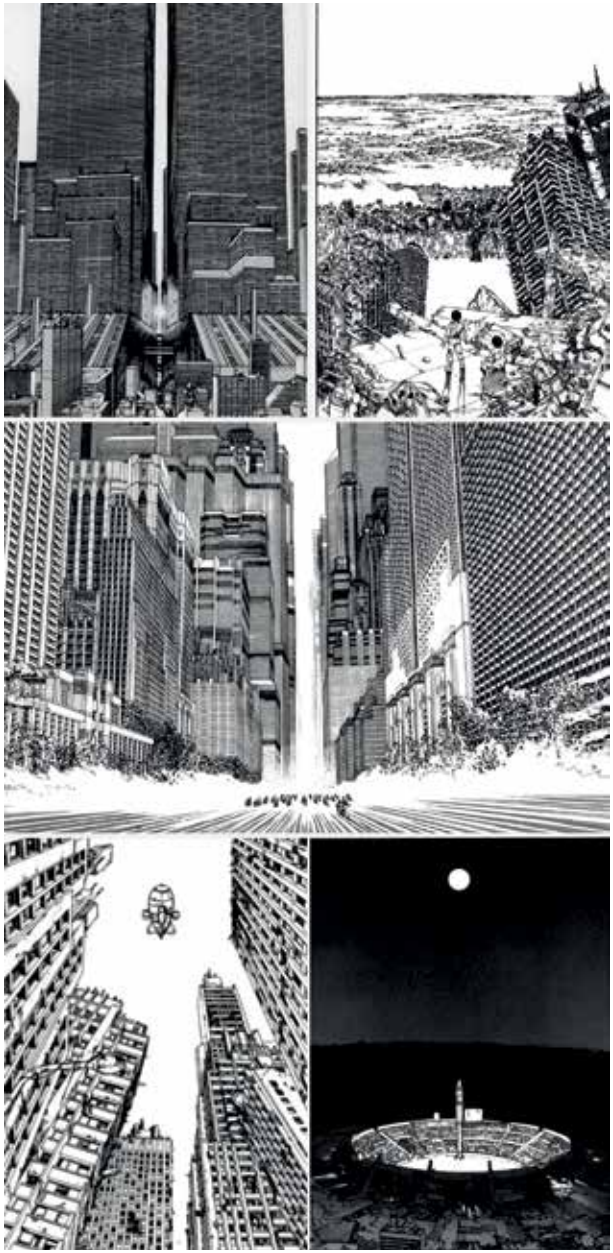

Fig. 7. Images collage from the manga Akira, vol. 5 and 6, by Katsuhiro Otomo, showing the scale of the buildings and the use of perspective (designed by authors).

images of the same place, the reader recreates in his mind the entire space of the story, giving it a dominant identity. As Scott McCloud points out, "space is to a comic what time is to a film" [McCloud, 2008, p. 15]. The space of the story, constructed through the mechanism of closure and the use of allegorical architecture, recalls the idea of the theater of memory that, for Frances Yates, gives shape to images of an iconic architecture resulting from the association of memories, dreams, and archetypes [Yates, 1972]. These mechanisms are also used to allow the recognition of deliberately realistic settings, for example in *Tramezzino* by Bacillieri, where the buildings by Caccia Dominioni, Magistretti, BBPR, become landmarks of the city, presenting Milan as the protagonist of the story. Fior in *Celestia*, on the other hand, exploits reality and unrealized projects to create a Venice on the borderline between imagination and reality, where unrealized projects such as Le Corbusier's *Venice Hospital* and Wright's *Casa Masiero* can be recognized. Outside the city, there is a mix of imaginary landscapes and architectures, such as the *Muralla Roja* by Bofill or the *Salk Institute* by Kahn. The recomposition through a spatio-temporal transposition of different architectural styles or citations of iconic architectures, relocated in places or times distant from their origin, becomes fundamental for the creation of imaginary architectures. One example is steampunk, in which architectures of Victorian and Art Nouveau inspiration are mixed with materials typical of the industrial period of the 19th century and modern technologies. In the series *Le città Oscure*, Schuiten and Peeters re-propose the sense of astonishment and wonder peculiar to the late nineteenth and early twentieth century by evoking its typical architectural styles. The authors recall the utopian impetus characterizing the architecture and urbanism of the period and bring together suggestions and imaginative elements derived from the Fifties and Sixties and symbolic of progress, such as plastic objects or aerodynamic vehicles. In the *Nikopol* trilogy, Bilal portrays the Paris, London and Berlin of 2023, juxtaposing the architecture of the city with urban icons that are distant from each other and creating a new imagery that is the result of the space-time short-circuit implemented. In *Souvenir dell'impero dell'atomo* the story itself plays on continuous jumps between present, past and future, which are dis-

Fig. 8. In order: One-Punch Man by One; Akira by Katsuhiro Otomo and a scene from Neon Genesis Evangelion Rebuild by Hideaki Anno (designed by authors).

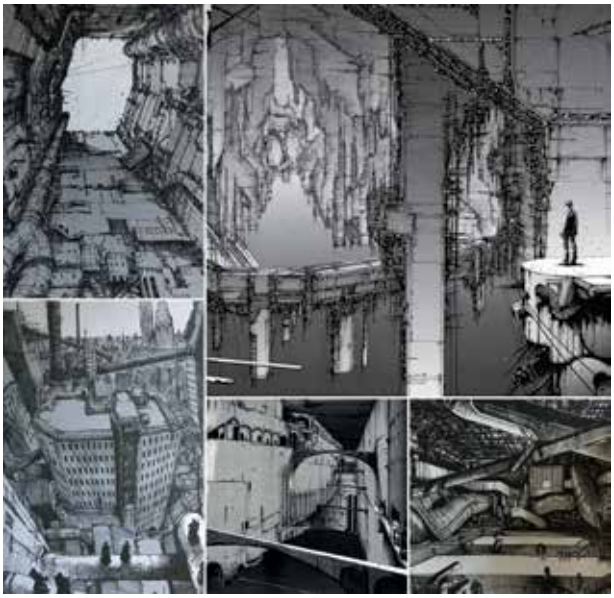

Fig. 9. Images collage from manga Blame! and Abara di Tsutomu Nihei (designed by authors).

Fig. 10. Images collage from various historical periods illustrated in Souvenir dell'Impero dell'Atomo, showing the different architectural and design styles (designed by authors).

tinguished by different chromatic choices and multiple graphic styles, mixing references to the world of graphics, architecture and the history of science fiction comics. To support the narrative, the drawing of the illustrations acquires the elements of stroke and color related to the historical period and the place where the action takes place. In the vignettes, the story of the future is rendered in gray scale, a metaphor for an imagined but not yet realized world, and contrasts with the present, the past or the story of heroic deeds, lived in reality or in fantasy, treated in color (fig. 10). This uninterrupted succession of style changes, referring to superhero albums, science fiction or to the identity of the places themselves, does not make the comic a mere sample of recognizable quotations, but a real homage to the world of science fiction comics. The authors, through the use and choice of specific architectures, succeed in communicating an idea of retro-future closely connected to the common image of the future shaped by the avant-garde and the Expos. The *Finnish Pavilion* designed by Aalto for the 1939 Expo in New York is thus transfigured into the seat of interrogation of the distant Empire of the Atom, whose cities take up the sets of *Metropolis* and the buildings designed by Sant'Elia. The terminal of the New York airport by Saarinen is transformed into the palace of the infamous Zelbub, from which one can admire the distant earth. The same venue of the 1958 Expo is the backdrop for a mad car race between past and present (fig. 11). Instead, the *American Case Study Houses* became the symbol of a future way of living, together with the use of plastic seats in the interiors, such as the *Panton Chairs*, the *Eames Plastic Chairs* or the *Tulips*. The characteristic of experimentation and innovation of these timeless icons allows the authors to draw a future world not far from the reader's memory and therefore plausible. Even if these objects are part of our present or past, they assume, thanks to their contextualization, the innovative value that originally characterized them. In all these examples, through the repetition of iconic styles and architectures coming from different places or historical periods, cartoonists create

an atmosphere able to communicate from a symbolic and semantic point of view the representative values of one or more styles and to create a new language, through which they originate the forms of the future imaginary.

Conclusions

Due to the universe of signs, forms and archetypes that they share, comic book settings manage to use both popular codes and those of the typical language of architecture. This contamination of genres allows comics to become a medium of particular interest, on a par with, if not more than, the cinema, in the creation of futuristic, dystopian and fantastic cities.
Through the association of styles or iconic elements (archetype history), comic book artists are able to create new imagery and new languages, aimed at the representation of future cities. However, a future imaginary can also be obtained by endowing architecture with its own life (machine archetype) and by making it able to shape itself and the surrounding world in relation to the natural element. In both cases however, the imagery is reinforced by the choice of perspectives that give more space to the architecture than to the human component, reinforcing for example monumentality, verticality and scale. The style of the drawing also contributes to enhancing the atmosphere by referring to the archetypes of classic and retro science fiction, to the futuristic avant-garde or by emphasizing, through chromatic contrasts, the dark and negative vision of the environment. Openly critical, veiled, or implied, the message communicated through the representation of the future city brings with it iconic and recognizable characters in the subconscious, which allow to relate the contents underlying the architecture, whether they are a positive or negative criticism of architectural theories and contemporary society. In addition, the future worlds that populate the comic strips are able, through the drawing, to reflect and give substance to the fears, anxieties and desires that characterize the cities and society today.

Fig. 11. Images collage showing some of the references mentioned in Souvenir dell'Impero dell'Atomo (designed by authors).

Notes

Although the authors drafted the article jointly, Sara Conte is the author of the paragraphs "Introduction" and "Comics as a critique of architecture and the city: the case of Batman. Death by design" and the related images; Valentina Marchetti is the author of the paragraphs "Magastructures and dystopias: from Katsuhiro Otomo's Neo Tokyo to Tsutomu Nihei's paper architectures", "Style and architecture combination: the image of the retro future of Souvenir dell'Impero dell'Atomo" and "Conclusions" and the related images.

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RUBRICS

Readings/Rereadings

Readings/Rereadings

Delirious New York by Rem Koolhaas

Alberto Sdegno

On January 23, 1931, a brief notice was published in the New York Times in which it was reported that the annual Beaux Arts Ball would be held in the evening at the Hotel Astoria [AAVV 1931a]. This is the twelfth time that this event is repeated –the first was dedicated to the theme of Venice through the centuries, held in 1912– and it promises to be full of surprises. The ball will be masked, with a specific request to wear costumes "of the modern era" and in which "fantasy should be the note for subscribers to follow" [AAVV 1931a, p. 29].
Such an event would probably have remained unknown, if it had not been described by Rem Koolhaas in a short essay on *Oppositions* [Koolhaas 1974], the in-depth theoretical journal edited by Peter Eisenman, Mario Galdesonas and Kenneth Frampton, recently reissued in a collected work edited by Michael Hays [Koolhaas 1998]. The text takes its cue from an extravagant photograph of the evening in which American architects wear costumes that call to mind works of which they are authors (fig. 1) [1]. The eccentricity stands out especially in their headgear, which exemplifies, in the outline of a scale model, the stereometric shape of the architectures, some immediately recognizable.

Fig. 1. Architects at the Beaux Arts Ball at the Hotel Astoria in New York, 1931. From left: A. Stewart Walker (Fuller Building), Leonard Schultze (Waldorf-Astoria), Ely Jacques Kahn (Squibb Building), William Van Alen (Chrysler Building), Ralph Walker (One Wall Street), D.E. Ward (Metropolitan Tower), Joseph H. Freedlander (Museum of the City of New York).

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In the margin of the essay, a note states that the text is part of a book being published by Oxford University Press, scheduled for release in 1976, whose title will be *Delirious New York* [Koolhaas 1974, p. 92] [2]. Although the book will be published only two years after the date indicated in the essay on *Oppositions* [Koolhaas 1978a] –accompanied by an exhibition at the Guggenheim Museum in New York– this text anticipates the basic idea of the volume. Before the publication of the book, at least six other essays [Koolhaas 1976a, 1976b, 1977a, 1978b, 1978c, 1978d] anticipated some of its contents –as Marco Biraghi [Biraghi 2001, pp. 298-299] pointed out in the afterword to the Italian edition– of which the one on *L'architecture d'aujourd d'hui* [Koolhaas 1976a], replicates the same title chosen for the volume.
The suspicion that the title of the volume was also suggested to him by this bizarre –and in some ways delirious– photograph may come to anyone who finds himself analyzing the history of the text in its entirety. It is actually one of the countless images –about 10,000, often in the form of postcards– that Koolhaas had found, as he declared in an interview, also thanks to his frequentation of a club of postcard collectors –the Metropolitan Postcard Collectors Club– where he went to consult information archives, which allowed him to feed his research on New York. In fact, as he will admit, "one third of *Delirious New York* is based, both in its iconography and even for its information, on postcards I discovered there." [Colomina, Koolhaas 2007a, p. 355]. On the other hand, a specific chapter deals with the theme of the skyscraper [Koolhaas 2001, pp. 102-121], within which it is possible to find the image present in the essay on *Oppositions* and the extended narration of the event at the Hotel Astoria, although in the notes there is no trace of the reference to the 1974 essay. The image would be published a few years later by Manfredo Tafuri in the volume *La sfera e il labirinto* [Tafuri 1980, fig. 211], who, however, would dedicate to the discussion of the dance only a brief aside in a note [Tafuri 1980, p. 231, n. 43] citing the 1974 essay, while Koolhaas' book –published two years earlier, in 1978– would not be considered by the historian.
The architectural guises of the well-known designers cannot but evoke the visionary character of the city to which the buildings belong. New York is, perhaps, among contemporary metropolises the one that best lends itself to accepting this adjective as an identifier of its own singularity. That anticipatory essay, with good reason, could therefore be considered the natural prologue of the dense book that we are going to reread.

Structure of the book

With regard to the title, in addition to what we have said, it is also necessary to reflect on the interest in the figure of Salvador Dalí –which will be recalled at length in the volume– and the association with the artist's way of understanding this adjective. It is no coincidence that he will be grateful when he has to deal with the term in a sort of personal dictionary, under the heading Delirious: "I felt that Dalí was an essential intelligence of the twentieth century, one that had been written out of the script. And I felt I needed to reintroduce the word 'Delirious'" [Colomina, Koolhaas 2007b, p. 379].
The subtitle of the book, however, is clear enough: it is "A Retroactive Manifesto for Manhattan", i.e. a program that has effect for the past, since, if "the fatal weakness of manifestos is their inherent lack of evidence" [p. 9], in this case we are in the presence of a quite evident fact: "Manhattan's problem is the opposite: it is a mountain range of evidence without manifesto" [p. 9]. The reference to the mountainous dimension, with its geometric peaks and angular summits, is immediately felt from whatever point one observes the peninsula: be it from below, where both the sensation of disorientation and of crossing a canyon are evident; but even more so from above, where the vertical prisms are almost unrecognizable in the morphological value given by the individual designer, but clearly identifiable as threadlike volumetric emergencies, devoid of that natural charm that every mountain massif reserves for the experienced mountaineer and the beginner on a via ferrata. It is no coincidence that Manfredo Tafuri, in an essay published a few years before the book in question –and not quoted by Koolhaas– reserved for the theme the epithet of *disenchanted mountain* [Tafuri 1973], with a subtle reference to the famous novel by Thomas Mann [Mann 2005].
For the author, this urban concentration is "the 20th century's Rosetta Stone" [p. 9], i.e. the conversion table that allows the understanding of different languages, of which he could be considered –as a modern Champollion [3]– as the one who offers a possible interpretation. It is not difficult to perceive –in his words– the same enthusiasm of the mentioned French archaeologist intent on deciphering the well-known stele at the beginning of the nineteenth century, which turns into astonishment when he recognizes the presence in this part

of the city of "an unformulated theory, *Manhattanism*" [p. 10] that the author defines, shortly afterwards, as "to exist in a world totally fabricated by man, i.e., to live *inside* fantasy". The explicit goal is, therefore, to identify such a theory in order to "yield a formula for an architecture that is at once ambitious *and* popular" and to propose that "*ecstasy about architecture*" [p. 10], which evidently became the design principle of his architectural production, since, only a few years earlier, he had founded the *OMA – Office for Metropolitan Architecture*, with Elia and Zoe Zenghelis, and his wife Madelon Vriesendorp –soon to be joined by a young Zaha Hadid– which was to become a studio characterized by the use of architectural morphologies of great compositional articulation.

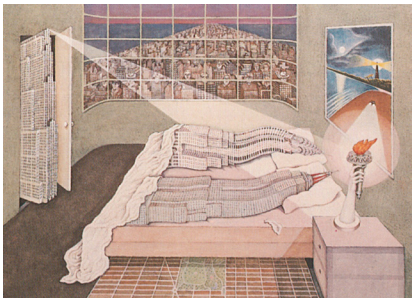
The structure of the book is stated from the outset: as he explicitly states, it is a book as a "simulacrum of the Manhattan's Grid: a collection of blocks whose proximity and juxtaposition reinforce their separate meanings" [p. 11], in which the first four chapters, after the introduction entitled *Prehistory*, are dedicated to describing urban evolution in the light of the different stimuli that arise from time to time, also through the precise analysis of single projects: *Coney Island: The Technology of the Fantastic*, *The Double Life of Utopia: The Skyscraper*, *How Perfect Perfection Can Be: The Creation of Rockefeller Center* and *Europeans: Biuer! Dalí and Le Corbusier Conquer New York*. These are followed by a final chapter, entitled *Postmortem*, with an obvious reference to a body no longer living –the "carcass of Manhattanism" [p. 290], as the author defines it in closing– and then the *Appendix: A Fictional Conclusion*, in which the critic is juxtaposed with the architect who –in collaboration with the other members of the aforementioned OMA– offers design proposals already formulated in the past and determined this time by a conscious understanding of the actual architectural needs of such an urban reality.

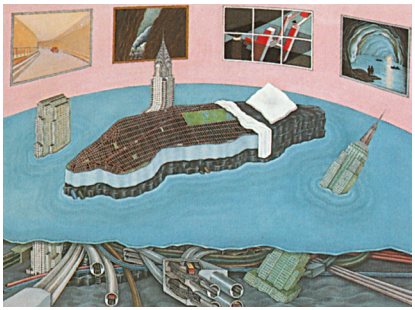
The role of the volume's most exclusive images cannot be overlooked, as they clarify the *intentio auctoris*, i.e. those sleeping skyscrapers –the Chrysler Building and the Empire State Building– signed by Vriesendorp [4] that appear on various editions of the book's covers: *Flagrant Délit*, (fig. 2) on the American, French and Japanese editions, and *Après L'Amour* (fig. 3), on the Italian edition, both made in 1975. Although these images have no reference to the psychoanalyst's couch –both subjects are lying on a normal double bed– they lend themselves well to evoke an explicit reference to the oneiric contents of these strange protagonists of the work and to their possible interpretation in the psychoanalytic field. Another figuration of the same one (fig. 4), produced in the year of the previous ones, recalls in the title *Freud Ulmimited* the reference to psychoanalysis, and exhibits a bed in the shape of the Manhattan peninsula –in which is recognizable the grid of the city– with a Chrysler Building next to it. All these single works, in fact, can be considered frames of a single animated sequence (fig. 5) of which the author herself writes the script, entitled *Flagrant Délit* (fig. 6) [5] that narrates –in evocative form– the visit of the Statue of Liberty to the city of New York, from which, among other things, it is clear that the two skyscrapers lying down had an intercourse, well underlined also by the presence of a deflated airship at the foot of the bed, evident symbol of a condom at the architectural scale.

Fig. 2. Madelon Vriesendorp, Flagrant Délit, 1975.

Fig. 3. Madelon Vriesendorp, Après L'Amour, 1975.

Fig. 4. Madelon Vriesendorp, Freud Ulmimited. 1976.





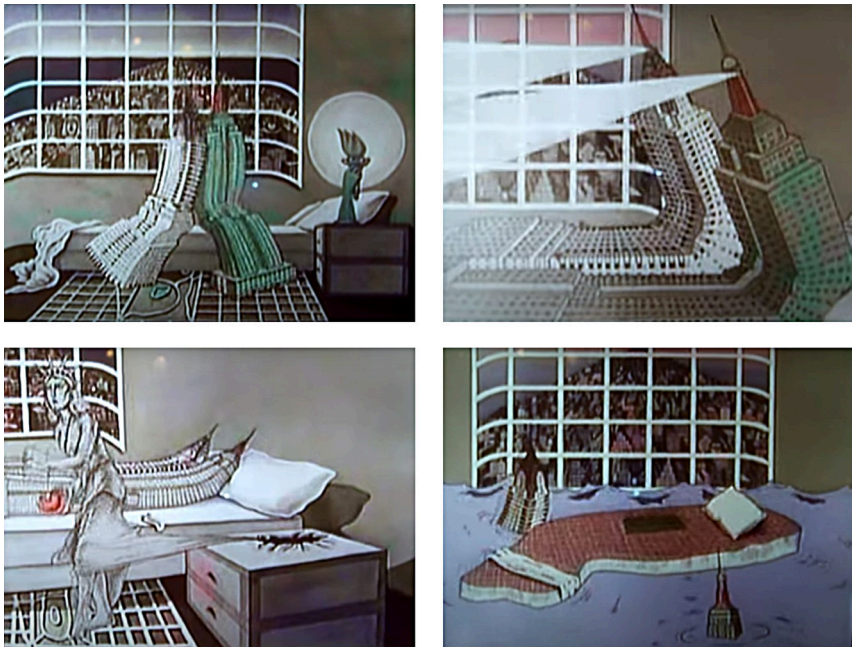


Fig. 5. Madelon Vriesendorp and Teri Wehn-Damisch, stills from the animation Flagrant Délit (Fragran de lit), <https://www.youtube.com/watch?v=87ZWWqf40J0> (accessed October 10, 2021).

It is unquestionable that, next to the photograph of the Beaux Arts ball we mentioned at the beginning, such figurations should also be included: in both cases, evidently, fundamental assumptions in the conception and writing of the whole volume.

New York Visions

We will not linger to comment on every single chapter, nor would we be tempted to reread the many subsequent design achievements in the light of what is present in this anticipatory text; instead, we will try to understand the elements of visionary spirit that are perceptible in the text, which constitute –in our opinion– the true innovative contribution that made this volume a point of reference for many architects of that and subsequent generations. Think, for example, of the description of the great physical model of New York, exhibited in the same city in 1845 [p. 20] and then moved with traveling exhibitions to other locations. Defined by an advertisement reported by the author as the "counterpart to the great Metropolis" [p. 21], it presents architecture –in the words of Koolhaas– as "Manhattan's new religion" [p. 21]. So even Central Park, the large central leisure area, becomes "a synthetic Arcadian Carpet" [p. 21], to which is added a precise description of the suburban area of Coney Island, the epiphany of mass entertainment of the New York population. It is perhaps no coincidence that Koolhaas pauses to detail all the possible stratagems of that universe of distraction present on the island: from the elephant "as big as a church" [p. 34], which could be visited by tourists; to Luna Park [pp. 36-42], the extraordinary and ingenious inven-

tion that led the two creators, Frederic Thompson –with previous studies in architecture– and Elmer Dundy, to give body to a large amusement park, such that the same name, even today, identifies any place of entertainment equipped with suspended and dynamic structures to provide strong sensations to users. But Thompson will declare – quoted by Koolhaas– that he "built Luna Park on a definite architectural plan. As it is a place of amusement, I have eliminated all classical conventional forms from its structure and taken a sort of free Renaissance and Oriental type for my model […] in order to get the restive, joyous effect to be derived always from the graceful lines given in this style of architecture" [p. 39]. An "architectural plantation" [p. 41] as Koolhaas will call it, which constantly modifies its appearance, and which will give shape to a "magical city" [p. 42]. The author recalls that Thompson, after the experience of Coney Island, will focus his attention on Manhattan, as will other investors on the suburban area: think of George C. Tilyou and his *Steeplechase Park*, anticipator of *Luna*, or even Wilson H. Reynolds and his *Dreamland*, which will host some singular attractions: Lilliputia, a city with three hundred dwarfs as part of a community on a reduced scale, with the architecture to measure the size of its inhabitants; the *Fall of Pompeii*, with the simulation of the eruption of Vesuvius; the spectacle of domesticated animals in the circus; and also *The Canals of Venice* –"a gigantic model of Venice inside a reduced version of the Ducal Palace" [p. 55] [6]–, the *Coasting Through Switzerland*, with a miniature reproduction of the country or *Fighting the Flames*, in which it is simulated the intervention of shrewd firefighters intent on putting out a fire.

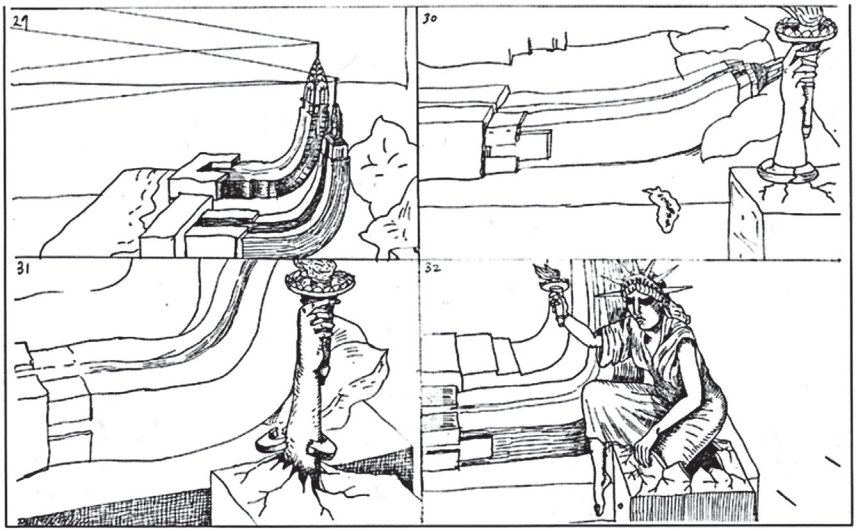


Fig. 6. Madelon Vriesendorp and Teri Wehn-Damisch, storyboards for the animation Flagrant Délit (Fragran de lit), <https://www.madelonvriesendorp.com/copy-of-postcards> (accessed October 10, 2021).

Skyscrapers

But the chapters that are undoubtedly the most interesting are those dedicated to the skyscraper, an architectural entity that will see its full development at the beginning of the 20th century, even if significant precursors can be identified during the previous century. The design and construction of some significant New York *exempla* are described and commented by the author in a timely manner, enhancing the morphological qualities and urban impact, including through quotations of the time. Thus, the Flatiron Building of 1902 becomes "the first icon of the *double life of utopia*" [p. 88], for replicating for twenty-two stories the shape of the lot; the Equitable Building of 1915 is called by the builders "a new continent" [p. 88] and advertised as a "City in itself" [p. 89]; the Metropolitan Life Building of 1893, will be joined in 1909 by a skyscraper with 39 levels, shaped like the Venetian bell tower of San Marco, having on the ridge of the roof a light projector: "a ruby red nipple that caps the structure is supposed, through prearranged signals, to communicate time weather conditions to imaginary mariners on the Atlantic" [pp. 93, 94].

Koolhaas also identifies an obvious feature that will increasingly be considered by design in that area, which he calls "lobotomy": it is the clear separation of interior and exterior, such that the façade conceals the interior destination. "In the deliberate discrepancy between container and contained" – comments the author– "New York's makers discover an area of unprecedented freedom. They exploit and formalize it in the architectural equivalent of a lobotomy – the surgical sever-

Fig. 7. Hugh Ferriss in his studio, c.a 1929.

ance of the connection between the frontal lobes and the rest of the brain to relieve some mental disorders by disconnecting thought processes from emotions" [p. 100]. Here is unhinged, then, the principle formulated by Louis H. Sullivan –so dear to his pupil Frank Lloyd Wright– which prescribes that the form must follow the function, an imperative respected by many architects of the twentieth century. An obvious example is the Waldorf-Astoria and the Empire State Building: for the latter, among others, a new formula is used: "The Empire State Building is a form of *automatic architecture*, a sensuous surrender by its collective makers –from the accountant to the plumber– to the *process* of building" [p. 139], in which is manifested "a surrender to the *process* of writing unhindered by the author's critical apparatus […] with no other program than to make a financial abstraction" [p. 139]. "Pure product of process," Koolhaas concludes, "Empire State can have no content. The building is sheer *envelope*" [p. 141] and, quoting a book of the time produced for promotional purposes [AAVV 1931b], he reports, "Empire State seemed almost to float, like an enchanted fairy tiwer, over New York. An edifice so lofty, so serene, so marveloously simple, so luminously beautiful, had never been before been imagined. One could look back on a dream well-planned" [pp. 141-143].

Speaking of skyscrapers, two important contents are not overlooked: the first is related to the dance we have been talking about, whose image (fig. 1), already commented on, evokes the authorial role that the architect is assuming in the context of sociality. The text on *Oppositions* is in this case dilated, to adapt to the occasion offered by the publication in volume

[pp. 125-131]. The second one considers the role of a significant figure for the definition of an urban imaginary that will be fundamental for the city of New York: Hugh Ferriss. An extraordinary draughtsman of architecture, Ferriss used the charcoal technique to depict any project proposed by even very different clients, so much so that his drawings "represent Manhattan's architecture, regardless of the individual architect who designed each project" [p. 113] (figs. 7, 8). Described as the "perfect *automatic pilot*" by Howard Robertson –future president of the RIBA in London– he "can pump perspective poetry into the most unpromising composition" [p. 113] as Koolhaas reports. A forerunner of synthetic computer images, he found in evocative rather than realistic figurations the key to transform simple parallelepipeds into artistic representations with a strong oneiric connotation, which would be collected in a book [Ferriss 1929].

Ferriss would later play a fundamental role in the prefiguration of many other projects, including those by Raymond M. Hood, creator of Rockefeller Center. Hood, who had previously won, with John M. Howells, the competition for the Chicago Tribune Tower, theorizes a turreted development for NY, making it explicit in an imperative: *a City of Towers*, which he will realize in a series of works such as the skyscraper of the American Radiator, that of the Daily News and that for McGraw-Hill, to which Koolhaas always gives an accurate description. Of the last mentioned, in fact, he observes that "its golden shades pulled-down to reflect the sun […] it looks like a fire raging inside an iceberg: the fire of Manhattanism inside the iceberg of Modernism" [p. 171].

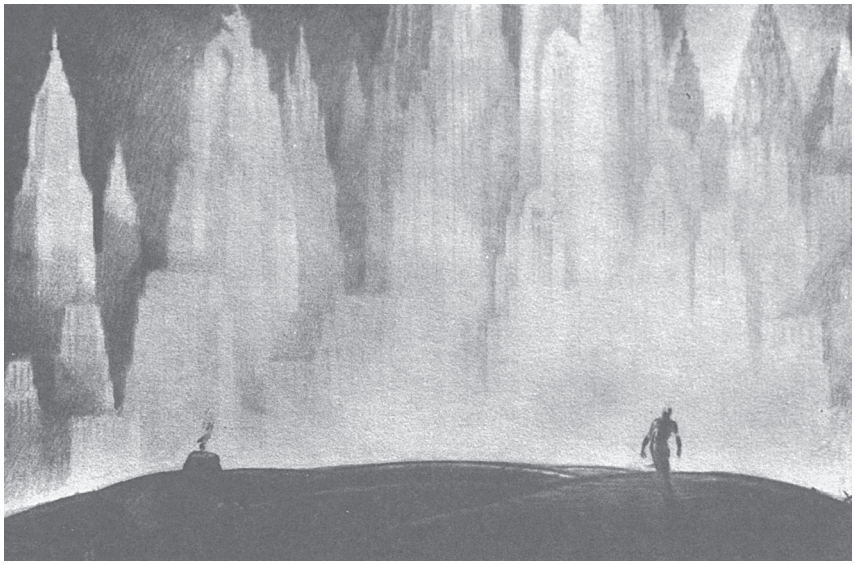
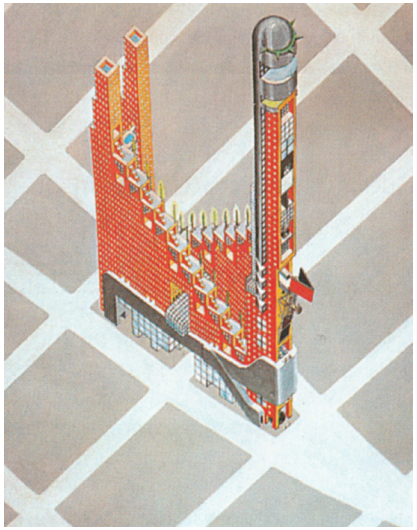


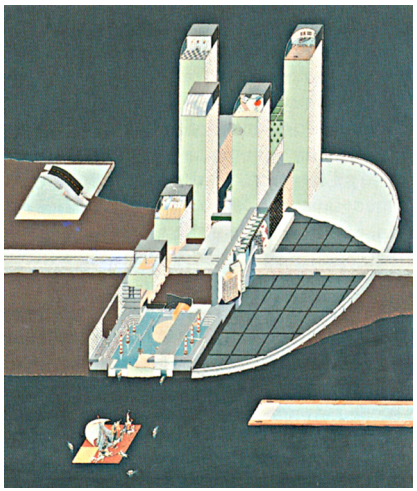
Fig. 8. Hugh Ferriss, The Lure of the City, 1929.

The complex story of Rockefeller Center is then carefully analyzed, even in the different design solutions provided by Associated Architects, among which those of Hood and Harvey Corbet are certainly the most representative and utopian. As Koolhaas recalls, in fact: "Ferriss' renderings bring only the Venetian elements of Corbett's scheme into sharp focus: a Bridge of Sighs spans 49th Street; San Marco-like colonnades […]. The other outlines of the scheme disappear in a mist of charcoal particles" [p. 185]. The various hypotheses are analyzed and commented on by the author, emphasizing the most evocative and visionary aspects. In Project No. 2, for example, he emphasizes "a fantastic ground floor entirely occupied by a more and more theaters: a three-block ocean of red velvet chairs, acres of stage and backstage, square miles of projection screens" [p. 199] commenting then on the "enormous suspended lobby" [p. 199] commenting later that "the antecedents of this theatrical carpet are Steeplechase, Luna Park, and Dreamland" [p. 199] already discussed at length earlier. We have to remember, although not mentioned in the book, that the construction of this important part of New York City was well documented by a series of photographs and films showing workers balancing on beams and slabs hundreds of feet above ground: the image of eleven of them intent on lunching on a suspended beam –entitled *Lunch atop a Skyscraper*– has remained in the collective imagination for the communicative effectiveness of the subject, immediately published in the Sunday supplement of the *New York Herald*

Fig. 9. OMA (Elia e Zoe Zenghelis), Hotel Spinx, 1975-1976.

Fig. 10. OMA (Rem Koolhaas and Derrick Snare, Richard Perlmutter), Welfare Palace Hotel, 1976 (painting by Madelon Vriesendorp).





Tribune of October 2, 1932, also for advertising purposes.

Dalí and Le Corbusier

At the conclusion of the New York events, Koolhaas pauses to reflect on the gaze of two authors, Salvador Dalí and Le Corbusier, after arriving in Manhattan. Although they are very different from each other "Dalí abhors modernism, Le Corbusier despises Surrealism" [p. 246], they have some elements in common, including their working methods. If the former based his research on the 'Paranoid-Critical Method', defined by the artist himself as "the spontaneous method of irrational knowledge based on the critical and systematic objectifications of delirious associations and interpretations" [p. 237] [Bosquet 1969, p. 115], i.e. an approach with strong dreamlike and provocative connotations, the latter often employs hyperbole to demolish established concepts and propose new ones. On the one hand, Dalí is so enchanted by the city that he considers it a sort of retroactive monument to his figure; on the other hand, Le Corbusier denigrates it, with the famous phrase "Its skyscrapers are too small" [p. 224] reported by the New York Herald Tribune on October 22, 1935, after the interview he gave to the newspaper upon his arrival in New York, a phrase that will be reproposed in a specific chapter in his book *Quand les Cathédrales étaient blanches* [Le Corbusier 1937]. "For Le Corbusier", Koolhaas recalls, quoting the architect, "New York's Skyscrapers are 'child's play,' 'an architectural accident… Imagine a man undergoing a mysterious disturbance of his organic life; the torso remains normal, but his legs become ten or twenty too long…"' [p. 251], adding that "skyscrapers are 'misshapen adolescents of the machine age' […] immature, *not yet* modern" [p. 251]. But after the theoretical demolition phase, Le Corbusier proposes his solution: "When he finally 'introduces' his anti-Skyscraper, he is like a prestidigitator who accidentally gives his trick away: he makes the American skyscraper disappear in the black velvet pouch of his speculative universe, adds jungle […], then shakes up the incompatible elements in his Paranoid-Critical top hat and –surprise!– pulls out the *Horizontal* Skyscraper, Le Corbusier's Cartesian rabbit" [p. 253].

It is perhaps no coincidence that downstream of Le Corbusier's reflection there is a short chapter, before the appendix, dedicated to *Postmortem*. Just as the French-Swiss architect wished for the end of the American metropolis in order to be able to completely renew the area with its Cartesian skyscrapers, so the last pages of the book reserve the analysis of new geometries, which emerged in the postwar period, and which are expressed in a different way with respect to what was described earlier. The parable of the X-City of Wallace K. Harrison, for example, seems to be the beginning of an epilogue of the parallelepiped form that has characterized New York for many years, where the curve –instead of the straight line– seems to be considered as a possible other morphological solution, in its different components, both planimetric and altimetric. Finally, the author recalls how at the center of the 1964 World Exposition was the Unisphere, an ideal model of the planet, with the emerged lands resting like opaque sheets on the transparent sphere, which cannot but raise in the same the concluding sentence: "Like charred pork chops, the

continents cling desperately to the carcass of Manhattanism" [p. 290].

Projects for New York

The appendix is "A Fictional Conclusion" [p. 292], as the title that the author reserves for us at the end of the work recites: it is all aimed at describing in evocative, but also explicit form, some of the projects realized by the OMA studio in the years in which he is writing the book. It is not a question of the revolutionary synthesis proposed by Le Corbusier, which subverts the centennial equilibrium of a context with a strong anthropological characterization, but a possible answer to the questions raised in the preceding pages: "these proposals –the author affirms– are the provisional product of Manhattanism as a conscious doctrine whose pertinence is no longer limited to the island of its invention" [p. 293], that is to say, "an interpretation of the same material, not through words, but in a series of architectural projects" [p. 293]. Included as fundamental characters are those that have emerged from the previous analyses: for example, the theme of the urban grid and the lobotomy –that is, the interior-exterior separation described above– along with other considerations. Among the projects we can point out The City of the Captive Globe, a configuration set on a rigorous geometric scheme, based on parallelepiped-shaped granite blocks on which it is possible to place dissimilar volumes that rise without limits towards the sky; the Hotel Spinx (fig. 9) [pp. 297-299], located in front of Times Square, a futuristic project that –even respecting the reticular grid– develops unusual forms and equally eccentric contents, such as a swimming pool at the top of the highest tower, covered by a mobile planetarium; but also the Welfare Palace Hotel (fig. 10) [pp. 282-284] located on Roosevelt Island, formerly called Welfare Island and renamed by Koolhaas with the old title to which he added the suffix 'New'. In this case he speaks of "Cities within Cities" [p. 296], characterized by a series of seven vertical and two horizontal buildings, which also relate directly to the surrounding environment. In some cases, in fact, the architectures continue their sedimentation in the water to become "water-scrapers" [p. 304], as they are defined, that is, volumes that continue in the East River.

At the end of what we have commented, we must remember Cinthia Davidson's interview with Rem Koolhaas published in *Any* journal, edited by her, and dedicated to the theme *Writing in Architecture*. On that occasion Koolhaas returned to the architectural structure of the book, already discussed in the introduction, and to the importance he attributes to the text, also in prefiguring an architectural project, confirming the very close link that binds a written content to a graphic one, which we can summarize in the following words, which unequivocally clarify –if there was still a need– the initial intention of the work: "I wanted to construct –as a writer– a terrain where I could eventually work as an architect" [Koolhaas 1993, p. 42].

Notes

[1] In addition to the above image, you can also find on *Youtube* a short video that shows the participants moving in their unusual clothes: <https://www.youtube.com/watch?v=9ezXbJ6DMwA> (accessed October 10, 2021).

[2] All quotations are taken from the American edition [Koolhaas 1994], to which reference is made by indicating only the number of pages.

[3] Jean-François Champollion (1790-1832), French archaeologist. Thanks to his knowledge of many ancient languages he was able to decipher in 1822 the hieroglyphics, with the comparison of three texts –in hieroglyphic, demotic and Greek– present on the Rosetta Stone.

[4] Madelon Vriesendorp's series of dormant skyscrapers can be found on the same author's website: <https://www.madelonvriesendorp.com/newyorkseries> (accessed October 10, 2021).

[5] The animation *Flagrant Delit* is conceived by Vriesendorp in 1976, in collaboration with Teri Wehn-Damisch, for French television, then developed by Cartoon Farm, directed by Jean-Pierre Jacquet. Some frames are recognizable in Vriesendorp's paintings, as it is clear from an analysis of the storyboard present at: <https://www.madelonvriesendorp.com/copy-of-postcards> (accessed October 10, 2021), while on *Youtube* it is possible to view the video recorded on the occasion of the 2008 traveling exhibition, held at the Architectural Association in London and then at the Aedes Gallery in Berlin, entitled World of Madelon Vriesendorp <https://www.youtube.com/watch?v=87ZWWqf40J0> (accessed October 10, 2021). A catalog edited by Shuman Basar and Stephan Trüby [Basar, Trüby 2008] was also published on the occasion of the exhibition. We point out that the title of the storyboard turns out to be *Fragran de lit*, with a subtle play on words and meanings with respect to the stated title.

[6] Venice has always been fascinated by American entrepreneurship: consider that in the same years as the aforementioned experience in Coney Island, Abbott Kinney gave life to *Venice*, an urbanized area west of Los Angeles, in which palaces and canals, similar to those in Venice, constitute the main urban structure, populated by gondolas and characters in typical costume; but also to *The Venetian*, the largest hotel in the United States, located on the Las Vegas Strip, created by Sheldon Gary Adelson in 1999, in which it is possible to find structures that replicate, among others, the Doge's Palace, the Rialto Bridge and the San Marco Bell Tower.

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Reviews

Reviews

Domenico Iovane

La rappresentazione del patrimonio archeologico attraverso procedure integrate di rilievo. Il sito dell'anfiteatro campano di Capua Antica. Applicazioni e metodi di analisi

Autopubblicato
Caserta 2020
200 pp.
ISBN 979-12-2007-358-5

Domenico Iovane's book reports the results of a research experience focusing the documentation of the amphitheater of the Roman Capua, whose site is today located inside the territory of the municipality of Santa Maria Capua Vetere, province of Caserta. The case study is particularly relevant for the history of Roman Empire architecture and culture; the amphitheater of Capua, built between the end of the 1st and the 2nd century AD, was famous both for its size and for the reputation of the gladiator school that was in that town. Its major and minor axes measured respectively 167 and 134 meters and the cavea could host up to 60,000 people; only the Colosseum in Rome had greater dimensions and capacity.
After the fall of the Roman Empire, the amphitheater became, as in many similar cases, a sort of huge quarry and its stone blocks were used for the construction of other buildings. Parts of the amphitheater were used for the construction of the Cathedral of the present city of Capua and a small part of the 240 protomes that decorated the arches were relocated on the facade of the Town Hall of the same town.
The few parts of the amphitheater still on site could survived thanks to an edict dated 1826, released by the bourbon king Francis I to forbid further removal of construction elements from the site. Subsequent excavation and restoration campaigns, developed at following stages along the last century, have brought to light and protected the parts of the building that remained on site.
Domenico Iovane's book has its roots in the research experience developed during the PhD course in Architecture and Environment Survey and Representation, XXV cycle, at the University Federico II of Naples, under the scientific coordination of prof. Riccardo Florio; tutor of the thesis and author of the preface to the volume is prof. Massimiliano Campi.
The book is, at the same time, a reduction and an extension of the contents of the PhD thesis; the author chooses to reduce the part dedicated to historical digression on amphitheaters and their morphological-structural functions and features, thus giving more evidence to the discussion on the surveying methods used during the research and on their integration.
This peculiar feature of Iovane's book is highlighted in the Preface by Massimiliano Campi, who states: «the value and relevance of the documentary and representative work is based on the consistent and accurate acquisition of metric, geometric and dimensional data, suitable not only for the definition of methodological workflows, but for the investigation of the existing building as well».
The first chapter opens with a brief description of the site and the monument: the author retraces the historical ***excursus*** of the amphitheater, to make the reader aware of the events that caused the present layout of the site and the

monument. The following paragraph sums up the surveying tools used by the Romans; this paragraph reveals the competence of the author on this subject, but, unfortunately, this part of the text suffers from excessive compression, certainly due to editing needs. The next section is dedicated to an accurate discussion on data georeferencing, on the mathematical models used for the discretization of earth's surface, on the standards used for the classification of geographic coordinates; the paragraph shows a well-articulated structure and a comprehensive discussion. The final part of the first chapter is dedicated to TIN, triangular mesh surface models, with a brief mention of the photogrammetric survey which will be discussed in the following chapter.
The second chapter starts with a detailed presentation of surveying methods, developed according to well-known classifications; the author then illustrates the first step of the complex surveying campaign, dedicated to GPS surveying. The coordinates of points measured with GPS were used, during the surveying campaign and the following processing steps, for three different purposes: 1) terrain survey; 2) determination of the coordinates of points to be used as polygonal vertices for topographic survey with a total station; 3) determination of the coordinates of particular points, identified by signals or clearly visible, to be used in the external orientation of the aerial photos taken by a drone.
The third chapter begins with a description of the software tools used to integrate GPS and topographic data into a single operating environment; this part is followed by the description of one of the two photogrammetric surveying methods used in the research: digital stereoscopic photogrammetry.
The fourth and last chapters are dedicated to laser scanning and *SfM* photogrammetric surveying.
The author uses both surveying methods to document the morphology of Capua's amphitheater: laser scans are referred to the topographic and GPS coordinate system thanks to the topographic measure of coded signals; *SfM* photogrammetric surveying is referred to the same coordinate system thanks to the dislocation on the ground of coded signals measured with GPS methods.
The reference to a common coordinate system allows the author to perform a comparison between the point clouds generated by the two surveying methods and discuss the results of such comparison: the uneven distribution of points in the clouds taken by a laser scanner is balanced by a lower 'noise' than that resulting in the more homogeneous photogrammetric point cloud.
In the concluding chapter of the volume, the author focuses on low-cost survey methods applied to decorative fragments of the amphitheater, now relocated to another place.
The last part of the experimentation addresses the issue of the dissemination and navigation of the numerical models (mesh) of the amphitheater and its decorative elements on dedicated digital platforms, which do not demand access privileges and therefore allow a simple and intuitive exploration of models.
The complex system of operations used for the documentation finally leads to the production of textured 3D models of the monument and its decorative elements, the so-called "digital twins". Information notes can be attached to these models, thus adding to the pleasure of three-dimensional exploration the possibility to increase the knowledge of the time and culture that produced these artworks.
Domenico Iovane's volume is a useful palimpsest of the digital surveying methods available today; the author illustrates with competence different tools and methodologies, specifying the application areas and the possibilities offered by each one.
The research experience, focused on the survey of Capua's Roman amphitheater, gives the author the opportunity to discuss the state of art of surveying methods.
The drawing that has been chosen to illustrate this brief review appears on page 90 of the book; in this graphic elaboration the author proposes an interesting comparison between the horizontal section of the mesh model and the CAD drawing of its plan, based on geometric traces. This drawing seems a promise to the reader: the promise of a new publication where the results of geometric analysis will be illustrated, thus adding to the relevance of surveying for the conservation and dissemination of cultural heritage, a further role that, in the words of Riccardo Migliari, aims at the "reconstruction of the architectural design".

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Reviews

Alessandro Luigini

Adnexūs. Una indagine interdisciplinare tra immagine disegno e arte

Libria editrice
Melfi (Potenza) 2020
146 pp.
ISBN 978-88-6764-234-2

Alessandro Luigini's book, in its 12x16.5 cm format, presents itself as a small precious text capable of bringing together the multitude of theories that feed the debates on visual culture, tracing useful connections for the framing of ontologies and epistemologies that orbit outside and inside the image, drawing and their becoming 'art'.
But what promises to be an interdisciplinary investigation, anticipated by the same monograph title, in fact articulates its own dialogical palimpsest in reflections expressed in terms of a transdisciplinary dissertation, as can also be deduce by reading the conclusions.
As for the introductions, the connective pretexts, the *adnexūs*, here originate in the affective ties brought to light by the oculocentric sensorium linked to a memory that cannot help immortalizing the semblance of an embodied memory, so as to make its probable abandonment acceptable; therefore, the urgent need to hold it back fixes the image and stores it starting from the story of the Corinthian potter Butade daughter–handed down by Herodotus and recounted by Pliny the Elder in the first century BC–, whose torment for the sudden departure of her beloved drives her to trace the outline of his face, from the shadow outline projected on a wall.
This legend, which became a very popular literary subject during the Enlightenment period, has been iconographical translated on several occasions into the drawing and painting origins, titling the works of famous artists such as Bartolomé Esteban Murillo, David Allan and Karl Friedrich Schinkel.
The book starts right here: «From an *image*, a woman traces a *drawing*, and the *art* of clay portraits comes to life» [p. 8]. Thus, from the mythological origins of practices interconnected with the seeing act, we set off on a diachronic journey to investigate the role that the graphic sciences have played and continue to play in training courses at various levels. However, the intention is certainly not to provide a didactic methodology, but rather to problematise constantly evolving disciplinary fields, which are confronted with research whose positioning is located into the hybrid territories of visual culture.
The first chapter focuses on the 'image' definition, monitoring its restless transition from the hegemonies of anthropic materiality to the fiction domains, to extrapolate its genealogies from institutional knowledges and understand its common traits and disparities.
It is the well-established philosophical debates that open the discourse, calling into question the Platonic deception of a *mimesis* inevitably imposed by the figuration of reproduced reality, where the act of translating it does not necessarily imply the choice

of imitating it, but rather the need to interpret it. Thus, the reference to the *cave* allegory, described in the *Republic* of 360 BC, becomes the pretext for a Socratic exclusion of the artistic operation, whose semblance of truth is only evoked by the spectres of a shadow that cannot be looked. Aristotelian opposition, on the other hand, interweaves intellectual thought with the images that translate it and make it so.
According to this perspective, thought does not exist without images, because this conviction «undermines to the foundations of the claim to be able to do without, whether in logical, mathematical or philosophical awareness, the lowering of lines, colours and volumes in order to rise, finally freed, to the rarefied sky of pure incorporeal concepts» [Pinotti, Somaini 2014, p. 12].
Within this game of rhetorical positionings, Alessandro Luigini establishes a dialectic of being, becoming and codify the image, in which the conscious decision to reduce the iconographic apparatus to a minimum is explained by the need to resort to representation only and exclusively when one wishes to emphasise the underlying assumptions that substantiate itself.
Thus, Leonardo da Vinci's painting of the *Lady with an Ermine* is tripartite, following the precepts of Husserl's phenomenology, in order to codify the perceptive qualities of the iconic thing, the object and the iconic subject. On the other hand, the pervasive production of images transmitted by digital devices is explored in its constructive processes, starting with the first manifestations and the work of artists exploring the concept of pixels, as for example we can find in the Chuck Close works.
The second chapter is dedicated to the origins and evolution of drawing, articulated in its double meaning of expressive language and design practice which, as a subjective act, opens to co-creation when the paradigm shift is supported by the information technology devices in use. Then the focus shifts to perceptual aspects and returns to individuality, demonstrating that drawing is not as the result of an invention as the result of a distant discovery.
According to the psychologist John Kennedy studies, the ability to recognise the graphic signs of silhouettes by indigenous peoples less accustomed to the production of visual artefacts is superior to the degree of reading of those who have already experienced and produced the same figural representations. Thus, the reference to the print and profile of the shadow, on which the book's preconditions are structured, echoes the meanings that accompany the first steps of the child's imaginative transposition through scribbling.
So much so that the author emphasises how «the level of drawing conceptualisation and abstraction requires greater intellectual stimulation as the level of iconicity decreases–that is, as it progressively moves away from mimetic similarity with reality–while in the development of the child's sign–realism–is a goal that is pursued with successive cultural refinements of a natural instinct» [pp. 79, 80].
The graphic and visual sciences pedagogical models are debated according to an inclusive approach that sees the two disciplines contributing for a taxonomic classification, completely open and non-hierarchical, within which to converge new terminologies of an expanded drawing grammar.
In keeping with the title, the last chapter seems to be devoted to artistic practices in general, but the term 'art' stigmatises the current pluralisms that draw a distinction between visual and performing arts, although the discussion should focus exclusively on the firsts.
Thus, the theoretical apparatus that sentences the ontological presuppositions immediately distances itself from Croce's Thinking linked to the imagination and autonomy of art, in order to emphasise the value of belonging to the cultures that practice and enjoy it.
The return to the origins of the term is intertwined with the declinations of the beauty concept, which assumes its founding role in the debates of aesthetics: a discipline that achieves its autonomy as a 'science of sensitive knowledge' according to Baumgarten theory. But the dense examination continues, arriving at our contemporary times, intercepting the work of Edgar Morin, according to whom it is precisely art that generates aesthetic emotion.
The paragraph that closes chapter three treats aesthetic education, in the primary educational trainings that focus on artistic practices, not so much as a mere imposition of beauty canons, but rather to stimulate sensitivity, imagination and the expressive act. For the author, these objectives can only «be achieved by involving the child in creative activities that provoke real participation and confront him with new problems that allow him to unblock one-way thinking and prefigure new solutions, ultimately generating real cognitive restructuring» [p. 115].
The conclusions of this significant contribution offered by Alessandro Luigini, as well as outlining the trajectories of an expandable taxonomy

for visual and graphic sciences, within which drawing assumes a central role, are also a stimulus to reflect on the fields of action and tools of the scientific disciplinary sector: ICAR/17. Hence, the need to trace the concepts and key words, that animate the three chapters, back to the tree diagram of visual sciences proposed by Bertoline in 1998.

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Reviews

Andrea Giordano, Michele Russo, Roberta Spallone (Eds.)

Representation Challenges. Augmented Reality and Artificial Intelligence in Cultural Heritage and Innovative Design Domain

FrancoAngeli
Milano 2021
432 pp.
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About 20 years ago, eidomatics has fully entered our professional sphere. Since then, we represent and measure with computer the reality that surrounds us, we model ideas of the past, present and future, we virtually travel in space and time. Therefore, we have been using the technologies that the market offers us for about 20 years, referring to them with the adjective 'new'.

Several times I wondered if it makes sense, after all this time, to talk about new technologies and REAACH-ID conference (acronym for *Representation for Enhancement and management through Augmented reality and Artificial intelligence: Cultural Heritage and Innovative Design*) gave me an answer, demonstrating that, today as in the past, it still makes sense to talk about new technologies.

Technologies are constantly changing, evolving, refining, enriching with new applications and possibilities, opening up new frontiers and innovative horizons. And since these changes occur quickly, the organizers of REAACH-ID, Roberta Spallone (Polytechnic of Turin), Andrea Giordano (University of Padua) and Michele Russo (Sapienza University of Rome), make great efforts to organize seminars dedicated to eidomatics, publishing the proceedings to record, almost with a taxonomic attitude, every variation that the world of technological representation is registering, thus leaving a tangible trace.

In this context, the collective volume, titled *Representation Challenges. Augmented Reality and Artificial Intelligence in Cultural Heritage and Innovative Design Domain*, curated by the organizers of REAACH-ID and published by Franco Angeli, gathers the papers written by 175 authors, a number that testifies how widespread and current is the use of innovative technologies in the world of eidomatics.

This book opens with a *Preface* by Francesca Fatta, president of the UID (Italian Union for Drawing), placing the emphasis on the need to fix eidomatic transformations over time and on the usefulness of being able to look at a register of *exempla* that clarify the possibilities offered by new technologies. The need to systematize the relationships between drawing, representation, artificial intelligence, augmented and virtual reality appears even more compelling if, as Professor Fatta recalls, we keep in mind the new discipline declaration, whose main aspects Italian teachers of drawing and representation have recently and democratically agreed, which says: "The scientific-disciplinary contents […] include the descriptive geometric foundations of drawing and computer modeling, their theories and methods, even their historical development; the survey as an instrument of knowledge of the architectural, environmental and urban reality, its direct and instrumental methodologies, its procedures and techniques, including digital ones, […]; drawing as a graphic, infographic and multimedia language, applied to the design

process from the formation of the idea to its executive definition".
Once the direct connection between the eidomatics and representation has been established, the President also emphasizes that, at the end, the intent of the conference organizers and curators of the proceedings is not at all to be 'fashion' but rather to respond to a concrete need, i.e., to identify multidisciplinary methodologies and skills establishing a fruitful dialogue between man, science and machine.
Following the *Preface*, the *Introduction* by the editors explains the reasons that led the 3 scholars to join their forces, organizing a series of conferences on eidomatics and publishing the proceedings. Basically, according to them, the technological domains, that relate to augmented reality and artificial intelligence, are closely linked to the concept of space so they have tangible repercussions on the narration of architecture and the city, including cultural heritage and innovative design. Given their personal research experiences, Roberta Spallone, Andrea Giordano and Michele Russo realized that the rapidly expanding applications of AR and AI raise multidisciplinary problems. Basically, their proposal is to transform representation into a privileged place where theories and application examples converge, to make available to colleagues an always updated state of the art relating to the themes of AR and AI applied to architecture, the city, the environment and cultural heritage.
To help the reader find his way between the 8 themes of the conference and the papers of 175 authors, the editors' *Introduction* ends with a brief review of the topics covered in the conference sessions, without neglecting a summary of the presented single experiences. The breadth and completeness of the volume embraces all fields of AR and AI application, in particular: *AR&AI theoretical concepts* deals with the theoretical, historical and cultural context, underlining the multidisciplinary challenges that representation is invited to face; *AR&AI virtual reconstruction* shows how digital development has favored the dissemination of the artistic/architectural heritage thanks to virtual reconstructions; *AR&AI heritage routes* presents experiences that link the real world to the virtual one, creating a *continuum* between them; *AR&AI classification and 3D analysis* deals with survey and, in particular, with the acquisition of three-dimensional data by means of hierarchically oriented information systems; *AR&AI urban enhancement* is dedicated to urban space and researches on a territorial scale; *AR&AI museum heritage* provides examples of digital applications at the service of museums for the dissemination of knowledge; *AR&AI building information modeling and monitoring* illustrates the important role that AR & AI play in the advancement of BIM technology; and, finally, *AR&AI education and shape representation* explains the repercussions that eidomatics can have in the field of education and support of people with disabilities.
Representation Challenges. Augmented Reality and Artificial Intelligence in Cultural Heritage and Innovative Design Domain is a book that demonstrates how new technologies overcome the crystallized limits of space and time, typical of traditional representation. The support provided by augmented reality and artificial intelligence allows the creation of 3D models that can be used for the analysis of the real or imaginary world, they can be used also for setting up simulations related to the transformations of urban space and architecture. The efforts of the editors of this book promote an advanced use of intelligent models by extending the field of application well beyond the three dimensions. A quick and easy way to understand the wide range of applications collected by Roberta Spallone, Andrea Giordano and Michele Russo is to consider a 3D model as a platform on which it is possible, beyond the formal data, to upload many other information, which in turn can be organized, stratified over time, as well as interrogated.
The book, presented here, is particularly precious for scholars of drawing and representation because these two disciplines match the history of art, architecture and the city in all their phases, from the registration of the reality, through its digital survey–laser scanner and photogrammetry–, to the interpretation of historical documents (cadasters, maps, urban views, engravings, paintings, plans, elevations and sections of buildings); from the reconstruction of documents in virtual space by means of 3D models to the dissemination of analytical interpretations at different levels of complexity. We could hope to overcome with our work the Leonardo's rigid dichotomy between painting (representation) and poetry (writing / history) only in a multidisciplinary and technological world, because the applications of augmented reality and artificial intelligence allow us to generate 'talking' images in a multidimensional and always evolving virtual world.

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Reviews

Daniele Rossi
Realtà virtuale: disegno e design
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136 pp.
ISBN 978-88-255-3370-5

Daniele Rossi's book, entitled *Realtà virtuale: disegno* e *design*, tackles a highly topical issue. The methodology of virtualization of reality perceived through an HMD (Head-Mounted Display) system, i.e. a device equipped with a stereoscopic optical system for the dynamic fruition of a digital scene, is reaching its full maturity. Let us not forget, in fact, that the first essay dealing with this subject was written by Ivan E. Sutherland in 1965 [Sutherland 1965] and the first working system was presented by him a few years later [Sutherland 1968], just after the invention of the first digital drawing instrument [Sutherland 1963]. But on closer inspection, the systems used until a few years ago showed many criticalities that prevented their complete and ideal use, well described in this volume. And it is no coincidence that the author used, as the cover image, a figure that well exemplifies one of the qualitative improvements that is guaranteeing the rapid diffusion of the system: a digital mannequin with a controller in its hand, which materializes in another position thanks to a teleporting process.
This is not a technical-didactic manual–as Rossi reminds us in the introduction–but "a text to accompany and introduce some problems concerning apparently peripheral issues" [p. 11]. That is to say, the intention is to offer a brief overview that touches on the subject of virtual reality in its various aspects relating to the definition, the syntax of dynamic visualization, the diachronic evolution of the total vision paradigm, the peculiarities of the immersive tool, and its "narrative potential"–as defined in the title of the last chapter by Rossi himself [p. 89]. Two appendices are added to these themes: one by Federico O. Oppedisano, on the theme of the relationship between cinema and VR, and one by the same author on some suggestions regarding the best practices to adopt in setting up a virtual scene. The afterword, by Franco Cervellini, underlines some of the book's points of interest, followed by the bibliography and the sources of the illustrations.
The first chapter [pp. 11-23] opens with the need to define terms that are still full of ambiguity today–such as 'image-based VR' and 'model-based VR'. The many neologisms with the prefix VR, in fact, with their relative more or less direct declinations–one thinks of 'Augmented Reality' and 'Mixed Reality'–have often produced disorientation in those who approach this subject for the first time, but also in those who have been dealing with it for some time. In the second chapter [pp. 25-35] Rossi tackles, in general terms, the syntax of VR, offering comparisons with other forms of narration, such as photography and cinema. The static nature of the frame, even in the dynamism of filmic contents, is clearly different from the actual dynamism of a user observing through a virtual helmet, in which the

movement of the head leads him to a totalizing perceptive experience. In the end, the author wonders whether this new mode of observation might not be a prelude to a new grammar, which would also lead to an innovation in cinema-going.
The third chapter [pp. 37-65] outlines a synthetic evolution of 360° vision since its origin at the end of the 18th century. Robert Barker's patent of 1787 opened the evolution of the "*nature à coup d'œil*" [Barker 1796] as the so-called panorama was defined (a term actually used only later) by Barker himself, proposing a completely new architectural typology that allowed to capture the totality of a figure painted on a circular surface. A number of significant examples of panoramic rotundas are exhibited, up to the point of describing the transition from the static image–painted on canvas–to cinematographic projection, using a system of synchronized projectors–such as the one used by Raoul Grimoin-Sanson at the *Universal Exhibition* in Paris in 1900, known as *Cineorama*. In this case the mechanism will have an evident sequel in the *Cinerama*–even nominally similar to the previous one–which will modify the cinemas to exhibit this new figurative modality: the techniques of shooting using several cameras at the same time, evidently corresponded to several cinema projectors to show the film sequence on a development of about 150° of angle. To this is added the description of more or less evolved visors: from *View-Master*, to Morton Heilig's *Sensorama*, to Ivan Sutherland's *Sword of Damocles*, which anticipate the VR systems *stricto sensu* that we are talking about today. In addition to the text, we would like to point out the two experiences, not mentioned in the book, of 'Imax cinemas', with wrap-around theatres whose double-curved screen can be observed with special stereoscopic viewers, and of '3D cinemas', which had their effective large-scale baptism in 2009 with the screening of the film *Avatar* directed by James Cameron. As an indication, we also suggest the coincidence between the anonymity of the nineteenth-century rotundas–which cannot be traced back to relevant designers–and the aforementioned three-dimensional fruition halls, which were also designed and built by technical experts who cannot be identified with well-known architects, therefore devoid of authorship; in the possible long list of machines for dilated vision, we point out only two particular cases with an author's signature: Le Corbusier's *Esprit Nouveau pavilion*–with its two static dioramas with an urban content–and Walter Gropius's *Total Theatre*, whose design included precisely a plurality of screens and projectors that would envelop seated spectators [Sdegno 2019, pp. 107, 108].
The fourth chapter [pp. 67-87] discusses the perceptual characteristics of a virtual reality user, starting from the concept of "dynamic interactive perspective" formulated by Riccardo Migliari [Migliari 2008]. Rossi deals with terms such as motion perception, wayfinding, teleport, immersion, until he proposes a taxonomic list of virtual navigation systems, in order to identify similarities and differences between them and, even better, their advantages and criticalities. In addition, the author has carried out experiments with the University of Camerino group for the exploratory 3D simulation of the Basilica of Loreto, which has allowed a direct comparison with the technologies described and the practical verification of the reliability of these systems.
The last chapter by the author [pp. 89-101] is dedicated to the theme of narration. Daniele Rossi, in this case, questions what kind of narrative can be developed in a virtual scene, recalling that "storytelling needs to be rethought, as immersive VR experiences have greatly expanded the narrative potential" [p. 91]. Direct associations can be made with the world of video-gaming or with cinematography, even if it is indisputable that–as far as the latter comparison is concerned–a substantial aspect of storytelling is missing: within a virtual reality system, in fact, what could be defined as a real 'tyranny of space over time' is exercised, since the synchronic aspect predominates over the diachronic one, which is in fact–at present–completely absent. Let us remember, in fact, that although we move within an environment, time is frozen and we find ourselves perpetually in an 'eternal present', in which the flow of temporality is denied. Promising significant changes between time intervals, therefore, is perhaps one of the main challenges posed to developers of immersive environments. Let us recall, however, that it is precisely the mutual correlation between space and time that has allowed cinema to establish itself widely and to keep alive the interest of the same content for entire generations, while the characteristic of video-gaming–but also of any game [Baricco 2018]–lies in its recursiveness, in achieving an immediate goal and not condensing in the individual's memory a story so significant as to constitute an experience based on memory.
In Oppedisano's appendix some concepts already expressed by the author are taken up and further developed, especially regarding the relationship between VR and cinematography and the topic addressed in the last chapter, that is the narrative aspect of the system.

The author proposes to consider "the production of cinema in virtual reality" as "a new type of filmic representation" [p. 112] adding that this "requires the elaboration of new grammars for filmmakers, capable of creating experiential vocabularies to define alternative narrative models to the traditional ones" [p. 112] even if, at present, there do not seem to be significant developments in this sense.

Finally, Cervellini's afterword–after the technical appendix on the optimization of virtual spaces [pp. 119-127]–because here some concepts of a certain interest are put forward, albeit in a synthetic form: the need to rethink the historical nature of virtual reality, the subjectivity of the VR experience, the hope for a strengthening of the attention on digital contents, warning that the peculiarity of this figurative device "must not aim so much and only at a futuristic prefiguration, but also maximize the reflection on the conditions of the present" [p. 130]. The latter suggestion undoubtedly brings the theme of virtuality back to the center of a more general debate on the cultural aspects of the issue.

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Events

Events

Drawing in the Archives of Architecture

Laura Farroni

The enhancement of the archival heritage of architecture in terms of accessibility, usability, preservation and creation of new content is a topic at the center of multiple and interdisciplinary interests.
The UID, Italian Union for Drawing, with the project *Drawing in the Archives of Architecture* has concretely taken an official position regarding this topic.
In fact, on 18 June 2021, the UID database entitled *Drawing in the Archives of Architecture* was presented [1]. On this occasion, a seminar was held to discuss the role of drawing in the complex world of the documentary and iconographic conservation of architectural projects, in museums and archives.
Through the creation of an online platform, it is possible to think about the research that the representation experts elaborate on the archival materials, on their complexity and possible declinations, to enhance the heritage made up of the memory of past building and urban processes.
In addition to collecting the research data uploaded by users, the open access database allows the detection of topics of interest to UID members throughout the national territory.
In the opening greetings of the event, the President of the UID prof. Francesca Fatta focused on the importance of drawing to document the memory, but also for the future projection of the memory itself and on the methods of interpreting project documents of architecture and the forms of their communication.
Then followed some interventions that returned the state of the art regarding the interests, skills and actors involved in the complex enhancing process of graphic and textual documents as the testimonies to the project phases of architectural and engineering works, from conception to construction.
Prof. Caterina Palestini, Scientific Director of the Archives of Architecture Commission, stressed the contribution that graphic analysis and representation, traditional and digital, can offer on the theme of the Archives of Architecture and Engineering; Margherita Guccione, Director of the MAXXI with her speech on *From the Archive to the Museum. Strategies of valorization of architectural projects* has found that there isn't a clear border between archives and museums: preserve and show at the same time, also interpreting the primary source; Cristina Casero, member of the Scientific Committee of the C.S.A.C., proposed a specific communication on *Visual culture as a project. The twentieth century of CSAC and its future*. Finally, Dr Gabriella Arena of the Department of Infrastructure and Sports Engineering presented the theme of the *Digitalization of sports facilities of the Parco del Foro Italico in Rome* showing the possible relationships between different institutions and related disciplines such as architecture and engineering faced with the willingness to read the past memory in view of future regenerative actions.
In the second part of the seminar, the focus was on the description of the UID database structure and on the presentation of some case studies uploaded to the Association's platform [2].
In particular, the project is the result of the work of the Architecture Archives Commission, started some time ago by the previous Commission chaired by prof. Piero Albisinni. He traced the path of enhancing the work of teachers in the representation of architecture based on graphic analysis, interpretation of signs and digital reconstructions of architectural projects, including unrealized ones, and their communication. An intent, therefore, to show the great contribution of the discipline of drawing to the culture of architectural project and engineering. Researchers have published online their studies with new graphic contributions, analysis and digital reconfigurations that starting from the original drawings of the project

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allow three-dimensional explorations. The latter provide a dynamic and interactive use of materials kept in archives of the entire national territory, an uncommon feature in the current funds. It emerges, therefore, that the renewed uploading of the material elaborated by the researchers will offer understanding of the actual contribution of new contents of which the archival sections, responsible for the conservation, could benefit in connection with the UID Project. The Archives Commission has proposed with this project to enter into a network with the conservations institutions. The database, structured considering the complexity of the contributions that representation experts can offer, is divided according to some categories of reading and organization of information, such as the typology of the archivist source, made up of three sections: historical archive, project archive, educational archive. You can also identity: the typology of the theme of research declined in the history of representation, graphic analysis and critical history, digital reconstructions and video; the archival source; the author considered; the theme of research and the work examined; the title of scientific research accompanied by a brief abstract; the bibliography and keywords. You can view the original material (when present), graphics analysis images, digital reconfigurations and videos that are stored on the Youtube channel of the UID association.

At the seminar, the professors who are members of the Archives Commission exemplified this information through some interventions: Chiara Vernizzi (University of Parma, Department of Engineering and Architecture) presented *The Project Archives. The CSAC and research on the drawings of Pierluigi Nervi*; Piero Albisinni (Sapienza Univer-

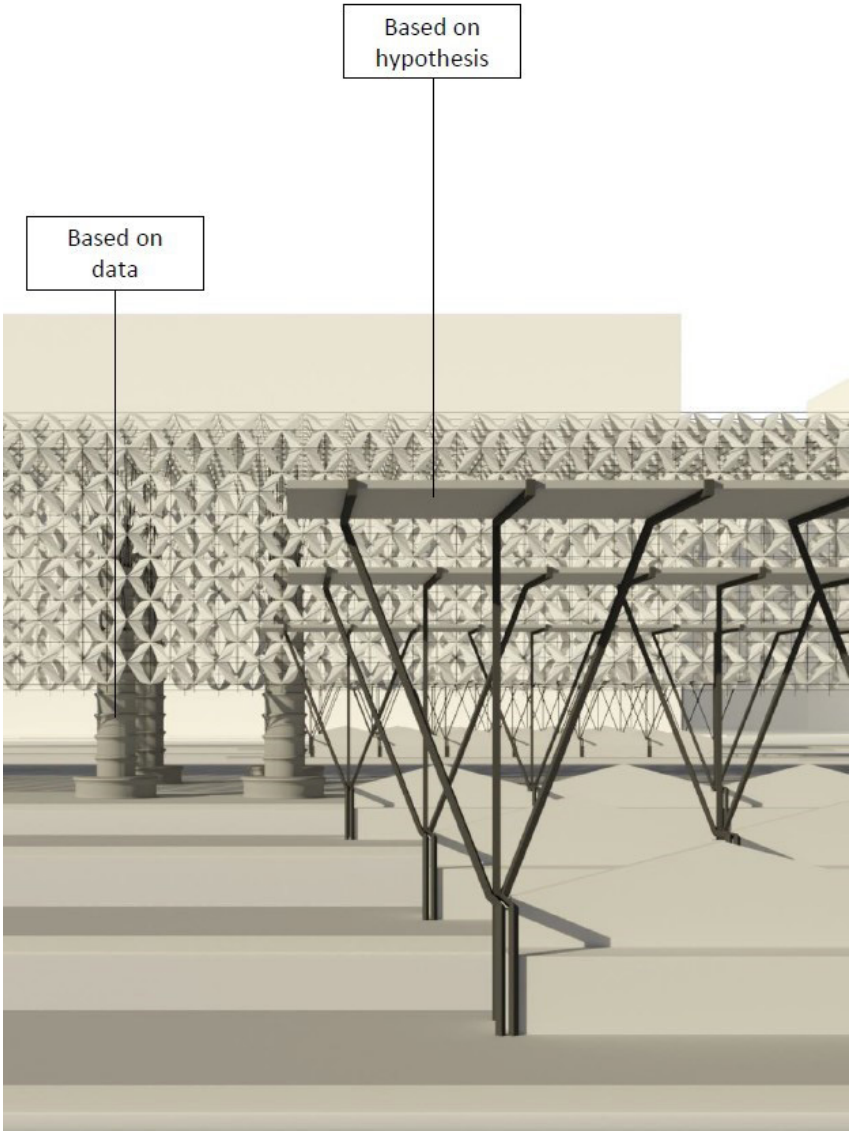

Fig. 1. Digital reconfiguration of the project for piazza dei Cinquecento in Rome by Francesco Cellini (1981-1982), L. Farroni and M.F. Mancini.

sity of Rome, Department of History, Representation and Restoration of Architecture) showed reflections on the digital model for the analysis and communication of architecture; Francesco Maggio (University of Palermo, Department of Architecture) has narrated some *Graphic readings of Palermitan drawings* and Emanuela Chiavoni (Sapienza University of Rome, Department of History, Representation and Restoration of Architecture) focused on the aspect of teaching related to the funds held by the same university with the report *Digital archives of Sapienza. Cultural itineraries for knowledge Archive of Educational Drawings of the Former Department of Survey, Analysis, Representation of the Environment and Architecture* (RADAAR).

The project is included in the UID website in online and open access mode. This makes possible a free usability to all surfers. UID members, on the other hand, can independently upload their work to the digital platform and possibly update it using an insertion link [3].

In conclusion, if the elaboration of the database represents an important point of arrival for the disciplinary field of drawing, it also constitutes the beginning of a research path that strengthens the network of archives and produces contents that depend on the sensitivity of researchers to reveal visible and intangible information detectable in drawings.

Notes

[1] UID database presentation, Web Seminar June 18, 2021. Event available at link: <https://www.youtube.com/channel/UC_B-zKIeJ9M7X-CLJvZfO--Q> (accessed December 31, 2021).

[2] Available at: <https://www.unioneitalianadisegno.it/test/Ricerca/> (accessed December 10, 2021).

[3] <https://www.unioneitalianadisegno.it/test/login.php> (accessed December 10, 2021).

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Events

I Libro: I Disegno

Elena Ippoliti

Among the basic rules for defining an experience as "scientific", there is the publication of its results to ensure registration, permanence and dissemination. In this way, the increase of knowledge resulting from scientific experience can be shared and therefore first validated by the scientific community and then unfold its social utility.
Communication is therefore a constituent of research itself, and more generally, it is indispensable to the transmission of knowledge and to its own production, because of its cumulative and cooperative nature.
With the centrality of communication to scientific activities, different studies have questioned the influence between *medium* and knowledge on each other. Among these, some have identified a causal relationship between the invention of moveable type and the formation of modern thought in the West, with the Reformation, the Renaissance, and the Scientific Revolution [Eisenstein 1979].
Others have rested on the digital transformation of publications, highlighting not only their capacity for diffusion, but also for the interactions that these establish with models of thought and the organization of knowledge [Ditella 2018].
I believe that the reflections on the reciprocal influence between *medium* and knowledge may and should be expanded according to a wider interpretation of the term *medium*, considering the means of communication in a sense that it also includes different possible types of publications. In general, "placing communication as focus of scientific activity, we can see its evolution and follow its paths through the tools used to collect and transmit information. The history of communication becomes the history of the *media*—that is, literally 'means of communication'—which have allowed the circulation of scientific knowledge and contributed to its concentration in increasingly rigorous and consistent paradigms" [Santoro 2001].
It is precisely in this perspective that recognition is deserved due to the indisputable value of the initiative *I Libro: I Disegno* (*I Book I Drawing*) designed by Massimiliano Ciammaichella, Enrico Cicalò, Laura Farroni, Francesca Fatta, and Ornella Zerlenga.
In recent years, for reasons entirely extraneous to scientific knowledge, an incorrect interpretation and consequent faulty application of some rules (which have nothing to do with evaluation but at most with misunderstood added value) has surely and undeniably discouraged many scholars of Drawing from facing the not unquestionable fatigue needed to produce a monograph. This interpretation, however, has evidently become easily rooted among us, either the young and not so young, as evidenced by threshold indicators for participating in procedures for national scientific qualification, whatever the role or range.
The *I Libro: I Disegno* initiative is therefore an opportunity to open an essential reflection that can no longer be delayed, at least posing, if not answering, some equally essential questions. Can our discipline really do without monographs—that is, broad, extended, weighty, consolidated treatises initially considered the undeniable form of transmitting knowledge and research advances? As well, can we truly be capable of building and controlling the body of knowledge by juxtaposing and interrelating the individual essays that are now growing in number? Precisely because they are more numerous, are we certain that we can understand the value of each individual essay within the context of reference?
It is obvious that all of us (whether readers or authors) realize the complexity of the question and that it is not easy to distinguish between the different editorial types (research

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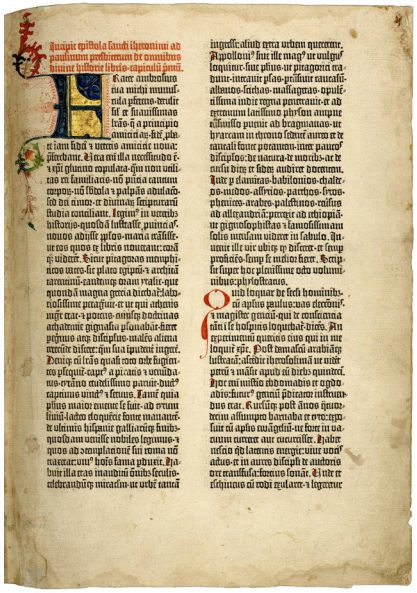

Fig. 1. The Bible printed by Johannes Gutenberg, 1454/55, from the digital collection of the Harry Ransom Center of the University of Texas at Austin (Biblia latina, Vol. 1, fol. 1r, Epistle of St. Jerome, https://hrc.contentdm.oclc.org/digital/collection/p15878coll100/id/2664/rec/1) (accessed December 10, 2021).

monograph, university textbooks, popular books). But we are certainly able to distinguish "an organic treatise from an improvised collection of previously edited essays, careful attention from the extemporaneous assembly of chapters, the translation of a text of capital importance for a given topic from the simple version of a book in another language" [Vademecum 2020, p. 5]. Moreover, I believe that we all aspire to write a scientific monograph one day that can be read like a popular book and which also shows formidable strength as a teaching supplement [Vademecum 2020, p. 5], although we have all learned by now that "what matters is not the finished product, but rather the method that generated it and the results obtained by its application" [Vademecum 2020, ibid.].

These considerations create the framework for the initiative *I Libro: I Disegno*, which, reinterpreting the condition of separation and turning it into an opportunity for coming together, led to a series of meetings last May to present and discuss books published by professors, researchers, and scholars in the scientific disciplinary sector ICAR/17-Disegno.

Starting with the list of scientific publications by associates (which the UID has collected following a call based on voluntary reporting since 2016), the creators organized for this first edition a series of 7 online encounters generally held in the late afternoon on the last Friday of each month. Three books were presented at each session (on one occasion there were four) which varied by field, subject, approach, etc., in order to gather the breadth of topics related to the discipline of Representation.

Aware of the difficulty of maintaining the interest in remote communication, communication that cannot draw on empathy due to the impossibility of appreciating all the presenters' styles, the organizers carefully studied the format of the encounters. After a brief opening and introduction by the organizers, each discussant had 30 minutes to present the volume, not in the usual way, but by interacting with the author, asking questions and suggesting points for reflection. A dense and lively dialogue therefore ensued for each book, necessarily starting—according to the format designed by the organizers—with a single image unknown to the author that the discussant has judged to best encompass the essence of the book. Each encounter then ended with "questions from the public" proposed in the chat platform, which are synthesized and asked by the moderator.

In the first series of 7 meetings (held on 28 May, 25 June, 16 July, 24 September, 29 October, 19 November, and 17 December), the discussants Fabrizio Agnello, Marinella Arena, Marcello Balzani, Laura Baratin, Cristiana Bartolomei, Stefano Bertocci, Marco Bevilacqua, Stefano Brusaporci, Emanuela Chiavoni, Stefano Chiarenza, Mara Capone, Agostino De Rosa, Edoardo Dotto, Marialinda Falcidieno, Giovanna Massari, Valeria Menchetelli, Anna Osello, Caterina Palestini, Rossella Salerno, Marta Salvatore, Alberto Sdegno, and Chiara Vernizzi presented 22 books by authors Giuseppe Antuono, Salvatore Barba, Alessandro Basso, Carlo Bianchini, Fabio Bianconi, Alessio Bortot, Jose Calvo-Lopez, Cristina Càndito, Alessandra Cirafici, Marco Filippucci, Andrea Giordano, Domenico Iovane, Elena Ippoliti, Marco Limongiello, Ana Lopez-Mozo, Alessandro Luigini, Francesco Maglioccola, Maria Martone, Cosimo Monteleone, Pablo Navarro-Camalonga, Ivana Passamani, Assunta Pelliccio, Manuela Piscitelli, Matteo Pontiglio Emilii, Luca Rossato, Daniele Rossi, Simona Scandurra, Roberta Spallone, Michele Valentino, Starlight Vattano, and Ornella Zerlenga.

As already mentioned, the initiative aims for a longer stride, so the organizers are already on the verge of preparing the second edition (the UID call to report volumes published in 2021 has already been issued), but not before reflecting on what

has been done. Therefore, a meeting has been planned in January to summarize the experience by sharing a report on the results and to begin planning the next edition.

Thus, while the monograph genre is clearly experiencing a crisis, the initiative *I Libro: I Disegno* holds the undeniable merit of having begun, really at the right moment, a fundamental reflection for the discipline and, in the long term, will know how to display its beneficial effects, but not without the active participation of all scholars of Drawing.

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Events

After the Damages The Training Project Becomes an International Risk Management Academy

Federica Maietti

Now in its second year, the *Summer School After the Damage*s not only confirms and strengthens the Higher Education project on the management of disaster or calamitous events and their impact on the built environment, but launches an International Academy aimed at promoting an interdisciplinary and integrated approach through a range of events. In addition to the annual intensive course, different events have been organised to address and disseminate the various topics of the Academy to a wide audience, both in a popular and scientific way: Winter Focus, Spring Focus, Talks, seminars and an international award are the communication formats and events periodically developed.
The set of scientific contents addressed remains holistic and interdisciplinary, and includes climate change, risk reduction solutions, participatory governance tools, strategies for environmental protection, social and economic resilience. Particular attention is given to the documentation of the existing assets, through integrated diagnostic survey, digitization and modelling of complex systems, monitoring and tools for an aware design applied to heritage conservation.
The project brings together Italian and international experts as lecturers and members of the Scientific and Technical-Scientific Committees, including some members of the Italian Union for Drawing, who have contributed to the heritage documentation issues.
The second edition of the Summer School, held between 5 and 20 July 2021, confirmed the success of the previous experience, demonstrating a growing interest in the topics proposed and an appreciation of the way the course was organized. The initiative was indeed carried out through digital platforms but in a synchronous and participatory way, creating a sharing experience between people with different research expertise from different geographical areas.
In this edition 67 participants were selected, and 57 lecturers were involved, from a total of 23 countries on 5 continents. Already this year as well, the course offered intensive training to different categories of users and actors involved in emergency management: public administration managers, government agency staff, international organizations, researchers, professionals and specialists had the opportunity to learn contents from different scientific fields, such as architecture, engineering, cultural heritage, economics, political and social sciences, computer science and earth sciences.
During the two weeks of the Summer School, an intense and active exchange of views was created, guided by experienced lecturers in the different areas of emergency management, documentation, reconstruction and innovation of the intervention project on heritage affected by catastrophic events, covering, among others, the topics of resilience, socio-economic impacts, inclusiveness and applied technologies, sharing international and multi-scalar approaches.
By refining the concept of the previous edition in a new balance between lectures, virtual visits and group work by the participants, the objectives of the Higher Education project focused on exploiting innovations in the field of post-disaster management to provide up-to-date skills to enable participants to play an active role in their different disciplinary or professional fields.
The training program dealt with different topics and alternated theoretical and practical-operational contents through case studies, national experiences and international approaches, natural and anthropic risks, research and professional activities.
The management of damage documentation and post-earthquake intervention projects was addressed in different ways, from technological evolution in the field of structural reinforcement to the analysis of seismic damage to fortified architecture; from urban and typo-

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Fig. 1. After the Damages event at the Italian Pavilion of the 17th International Architecture Exhibition of the Venice Biennale. Photocredit Claudia Pescosolido / After the Damages.

logical approaches in the management of damage caused by the earthquake in central Italy, to the analysis of the effects of reconstruction on historic centers.
In this framework, several in-depth studies were specifically focused on the survey, documentation and representation of heritage as an essential basis for knowledge, analysis and information management. From digital survey technologies to catalogue sheets optimization, from integrated survey to the use of sensors and image processing for structural analysis and monitoring, up to Building Information Modeling applied to heritage, the lectures dedicated to technologies focused attention on a critical and aware use of the tools available today. Identity surveying and intangible resilience in small historical inner cities was also a topic of great interest and up-to-date relevance.
Several international experiences of damage management and mitigation were also explored, in Armenia, China, Spain, Ecuador, Brazil, India and Greece. The experts involved addressed various risk management issues in these contexts, ranging from strategies for the preservation of traditional earthen architecture as a resilient approach to change, to the social impacts of damages in contexts such as the Amazon, or the damage suffered by many Brazilian contexts due to fires.
Urban and environmental analyses, hydro-geological risk, management of movable assets, participatory strategies and social inclusion in the community's response to damage, urban regeneration, international cooperation, Green Building protocols and economic-financial management completed the set of topics addressed, stimulating comments and considerations on such a complex and articulated frame.
This Summer School edition was also featured by an event of great relevance, the participation of *After the Damages* in the 17th International Architecture Exhibition of the Venice Biennale. At the Italian Pavilion the ***s**eminar Resilient Territories, Resilient Communities* was held, in which the International Academy, the Firespill Project, the Agency for the 2012 Earthquake Reconstruction, the Emilia-Romagna Region, the Ministry of Culture and Clust-ER Build had the opportunity to outline their activities. Speakers from Nepal and Mexico, members of ICCROM and ICOMOS completed the panorama of international experiences.
Even in this second edition four virtual visits were made to four restoration sites, one for each of the provinces of Ferrara, Modena, Bologna and Reggio Emilia affected by the 2012 Emilia earthquake. These sites were explained by the Regional Agency for Reconstruction–Sisma 2012, the Authority for Archaeology, Fine Arts and Landscape for the metropolitan city of Bologna and the provinces of Modena, Reggio Emilia and Ferrara, members of the Joint Commission, designers, contractors, restoration companies and local government representatives, who illustrated the integrated approach to the restoration process.
The Abbey of Nonantola and the Cathedral of Ferrara, Castello Lambertini in Poggio Renatico, Rocca Possente in Stellata di Bondeno and Palazzo dei Ronchi in Crevalcore provided valuable thematic insights, from the knowledge process to the methodological one that guided the restoration project.
At the end of the two-week course, the final workshop confirmed the significance of the project simulation aimed at exchanging experiences, sharing knowledge and structuring multidisciplinary work among the members of the different groups that the *After the Damages* scientific coordinators set by pursuing the maximum diversification of geographical provenance and skills. Guided by a reference lecturer, the groups proposed project approaches, visions and strategies.
The project *After the Damages* is organized by the Department of Architecture of the University of Ferrara, through the research center DIAPReM (Development of integrated automatic procedures for restoration of monuments), the research labs LaboRA (Architectural Restoration Laboratory) and LEM (Laboratory of Building Maintenance and Management and Environment) and the industrial research laboratory TekneHub (Technopole of the University of Ferrara). The training course, which is also sponsored by the Italian Union for Drawing, is organized with the University of Parma (Department of Engineering and Architecture) and the University of Modena and Reggio Emilia

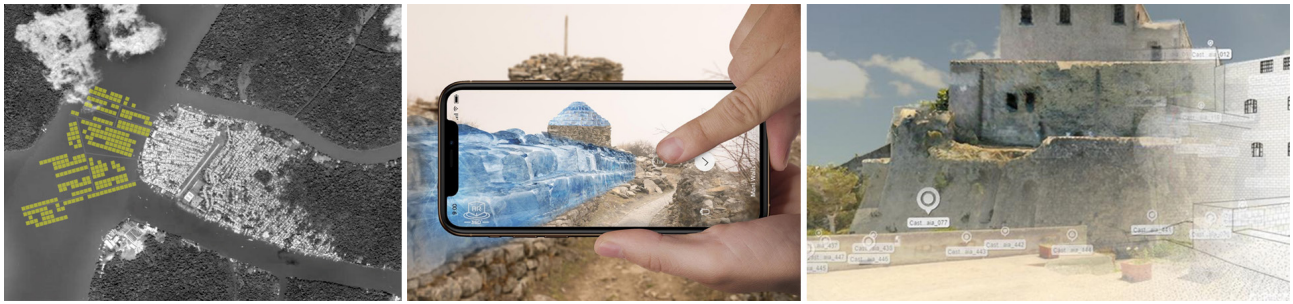

Fig. 2. Some images from the project simulations developed by the participants for the final Workshop of the Summer School second edition. Photocredit After the Damages.

(Department of Engineering "Enzo Ferrari"). The cooperation of the Regional Agency for Reconstruction–Sisma 2012, the Authority for Archaeology, Fine Arts and Landscape for the metropolitan city of Bologna and the provinces of Modena, Reggio Emilia and Ferrara, and the Cultural Heritage Service of the Emilia-Romagna Region was essential for the overall project development.
The project is funded by the Emilia-Romagna Region within the framework of the Call for proposals for three-year advanced training projects in the cultural, economic and technological field, and is integrated in the Emilia-Romagna Smart Specialisation Strategy, implemented in cooperation with the High Technology Network, Clust-ER BUILD, and the Technopoles of Ferrara, Parma and Modena.
The collaboration has been further extended through the synergy with the Firespill Project, financed by the cross-border program Interreg Italy-Croatia 2014-20, aimed at increasing the safety of the Adriatic basin area from natural and man-made disasters.
The international Scientific Committee, in addition to the already involved experts from Italy, Morocco, Brazil, France, Ecuador, China, Armenia, Spain, Greece, Belgium, Germany, Denmark, Turkey, India and Slovenia, now includes the participation of Mexico and the United States.

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Events

IMG2021 Image Learning 3rd International and Interdisciplinary Conference on Image and Imagination

Paola Raffa

The III Convegno Internazionale e Interdisciplinare su Immagini e Immaginazione/3rd International and Interdisciplinary Conference on Image and Imagination, *IMG2021 Image Learning*, was held in the presence, on 25 and 26 November at the Politecnico of Milan.
This edition of the traveling conference, coordinated by Daniele Villa and Franca Zuccoli, involved the Department of Architecture and Urban Studies (DAStU) of the Politecnico of Milan and the Department of Human Sciences for Education of the Bicocca University of Milan, confirming the main objective of the IMG network, that is promote transdisciplinary reflection on the macro-themes proposed.
The call included fifteen keywords that identify generic research topics with the aim of involving large and diversified disciplinary fields. During the two intense days of work, on the theme of the image as a means of teaching and learning, about seventy groups of scholars met. In the twenty-four sessions, three of which exclusively in English, coordinated by as many chairs, groups of scholars belonging, among others, to the disciplines of drawing, history of art, human sciences, social sciences, sciences exhibited their research. visual. *Image Learning* is the link that exists between imagination and forms of expression in the real world, a multiform and multidisciplinary territory, and the research presented has revealed that "paradigm of complexity" that Franca Zuccoli expresses in the opening speech and which reveals the gaze of different cultural worlds on common themes.
The international speakers presented research and experiments whose common synthesis leads to the projection of a future in which the visual perception of reality, transformed into images, is projected towards new digital creativity, both as a purely technical analysis, and as combinations of existing alternatives.
The conference is kicked off by Willian Kentridge, Bronwyn Lace and Phala Ookeditse extraordinary performance. A duet of harmonious and synchronized exchanges between the Rogers room, where Bronwyn Lace is present, and the Johannesburg studio in which Willian Kentridge and Phala Ookeditse

Fig. 1. Flyer of the conference.

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alternate in rhythmic cadences. It retraces the process of a creative project in which different people, coming from different cultural backgrounds, collaborate in the production of a common image.
The *Less Good Idea* is an experimental, collaborative and interdisciplinary project, a physical and immaterial space that manifests itself in the staging, in the representation of an idea that is transformed into a common image. The animation is made concrete by the energy of space, the power of music and the modulation of the human voice.
Physical performance becomes the created image, illusion and metaphor of the real world. *The Less Good Idea* is also a free thought of natural acts and moving images, of mixing of senses and actions for the creation of images. Immaterial experiences and self-production of coordinated images in sequences that emulate episodes of everyday life.
The afternoon session is introduced by Maria Nadotti who invites you to 'learn to unlearn'; unlearning from clichés, banalities. With erudite narratives, she 'transport' important figures of international literature towards the construction of unprecedented imaginations. On the screen scroll the author's portraits of the 'eight figures' (John Berger, Susan Sontag, Ryszard Kapuściński, Grace Paley, Svetlana, Aleksiecič, Toni Morrison, Bayo Akomolafe, Donna Haraway) that Maria Nadotti has chosen to connect words that they carry stories, which intertwine, overlap, mix and change into images that carry other stories, other images.
The second day is opened by Stefano Moriggi who introduces Lev Manovich, scholar of cognitive sciences and visual arts, Presidential Professor at the Graduate Center in New York (CUNY) and director of the Cultural Analytics Lab.
Lev Manovich, for some decades, has introduced the concept of 'new media object' within which human-computer interfaces fall and the multimedia language expresses the vision of the world of contemporary society.
Manovich illustrates his research based on a specific question: a single image can be a source of knowledge; but what can we learn from a billion images? When these are contained inside a 'machine' automatically and without supervision?
Manovich's research contemplates models of cultural analysis in which the set of millions of images in a combination of existing alternatives lead to new forms of knowledge capable of increasing human cognitive and visual culture.
Daniele Villa introduced the conference by quoting Gotard: "*C'e n'est pas une image juste, c'est juste una image*" and at the request of a brief final consideration he expressed the following: "This third edition of the conference was a great opportunity to push the scientific approach of our academic network towards further experimentation. We were born around the idea of overcoming disciplinary barriers to rethink the role of images in the contemporary construction of knowledge: what better opportunity than joint work with colleagues from the Bicocca University. With *Image Learning*, the issues of training and visual thinking have been investigated in a constant effort to de-compartmentalize knowledge and I believe that the quality and quantity of the interventions demonstrates how these ideas are increasingly arousing the interest of the academic world and research".
The purpose "of making disciplines dialogue" therefore has been accomplished.

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Events

Digital & Documentation 2021 Palermo New Frontiers of Digital

Veronica Riavis

The Engineering Department of the University of Palermo organized and hosted the fourth edition of the itinerant study day Documentation & Digital [1]. The event, promoted by the Italian Union for Drawing, held in mixed mode on 20 September 2021 in the Steri Monumental Complex.
The initiative aims at cultural exchange in the areas of representation and at highlighting the theoretical-practical research carried out by young scholars in the sector. In fact, the intention is to update the state of the art on recent scientific documentation experiments for the protection and enhancement of cultural heritage. Dedicated to the "New Digital Borders", this year's event was an opportunity to highlight the fundamental technological developments that took place despite the pandemic period. Three thematic sessions structured the day, ranging from the use of new BIM techniques for buildings, through the digitization of archival drawings and ending with parameterization and video mapping procedures. By invitation, 16 speakers from 12 Italian institutions presented their innovative research.
Laura Inzerillo and Francesco Acuto, organizers of this edition, opened the meeting with Giovanni Perrone and Antonina Pirrotta, Director and Deputy Director of the Engineering Department of the University of Palermo, Francesca Fatta, president of the UID, and Sandro Parrinello of the founding committee of D&D.
Documentation is a transversal component in the work of architects, engineers and humanists. In a historical phase in which a digital transition is taking place, the language of representation is also changing. The amount of information takes the place of the thing itself, and digitization–as pointed out by Francesca Fatta at the beginning–proves to be a resource that multiplies the possibilities in space and time, constituting a complementary and necessary alternative to reality. Sandro Parrinello added that the technological integration of new protocols makes it possible to refine conservation practices and enhance the artifacts of historical importance. This happens thanks to the collection of heterogeneous data (geometric, structural, material, ethical) which, if correctly superimposed and organized, increase the methods of communication.
Alessandro Luigini and Cecilia Bolognesi introduced the first part by reflecting on the potential and implications of the integrated use of advanced survey and communication technologies, to make traditional practices and new places known to different target users. Research aimed at creating effective knowledge experiences: transversal educational paths from virtual reality videogame devices, advanced acquisition technologies for document analysis and geometric rendering of historical architecture, the different visualization approach offered by holographic applications.
However, there is an antinomy between the accuracy of a point cloud and the possible geometric and interpretative simplification of a digital model. The speakers of the session dedicated to BIM for cultural heritage addressed this issue, considering the criticality and potential of the recent interoperable methodology for modeling, data collection and information structuring.
Daniela Oreni talked about the qualities and characteristics that are indispensable for an HBIM model for restoration, about the need to focus on the limits fundable in the management of construction sites, regulations, graphic contents and heterogeneous professional skills. The conservation project must go beyond mere figuration, interrogating documentary and cataloging data to simulate design perspectives or historical evolutions. The level of accuracy of an information model strictly depends on the purposes for which it is created (documentation, conservation, management, intervention), and

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therefore on the reasoned scale of representation and relative geometric level established a priori.
Significant developments in the BIM field emerged from the introduction of automatic identification processes to reconstruct and classify building complexes or elements, as highlighted in the speech by Pierpaolo D'Agostino and Giuseppe Antuono. Specifically, the recognition of structural elements and typologies takes place thanks to pattern recognition algorithms and geometric shapes, as well as from thermal indices.
Marika Griffo discussed the question of the semantic structuring of point clouds and parametric digital twins of historical architectures. The inverse processes of prioritization of geometries and information of morphometric models (deriving from integrated SfM, laser scanner and topographic surveys) were compared with solid information ones (created on BIM authoring software). While the singularity of the artefact is evident, on the other there is a tendency to typify the elements by assigning each a specific structural and / or decorative function.
Furthermore, Anna Dell'Amico noted that, despite the recent implementations of the BIM system, the adoption of integrated survey methodological protocols (terrestrial and mobile laser scanners, photogrammetry, and drone acquisitions) is still necessary. In addition, the use of multiple software for data processing is essential for the collection and processing of geometric and chromatic information aimed at shared parametric modeling.
Still on BIM, Giorgia Potestà clarified how the specificity that makes a historic architecture distinctive should not base on the mere serial reproducibility of the elements that can easily defined with parametric procedures. If on the one hand, in fact, the system and loadable families for structural and functional elements guarantee "digital efficiency" in terms of time and standardization of the modeling, on the other hand the reconstruction of artifacts requires the uniqueness offered by local families or even better from polygon mesh objects. Created externally for their complexity, the latter derive from the processing, hybridization and interpretation of data from advanced SfM surveys, laser scanning, infrared thermography and georadar.
The digitization of archival drawings was the theme of the second session. The process of converting analog quantities into digital information can take different forms and uses, such as teaching, research and communication. In this regard, Mariateresa Galizia and Cettina Santagati presented the history and resources of the Museum of Representation of the University of Catania, through scientific research, training and the third mission.
The progress achieved by new tools and the functionalities offered by digital and data sharing platforms are making it possible to collect, consult and rework the precious graphic and textual contents of the documentary material.
Digitization is a procedure that makes it possible to disseminate and protect historical territories and architectures. We generally employ sophisticated methods for the most famous documentary heritage, but we often leave out the lesser known. Especially in the latter case, compromised conservation states that affect readability make digitization necessary. Sandra Mikolajewska clearly indicated that this is possible by resorting to quick and inexpensive acquisition methods, such as the use of cameras and reticular meshes on acetate sheets to check and correct lens distortions with software tool for straightening.

Fig. 1. Flyer of the event.

Recently, the demand for high definition acquisitions and cataloging for libraries accessible online is increasing. This happens above all for historical architecture whose digital documentation, supported by a structured organization of data, images and restitutions (spherical panoramas or 3D models), reintegrates the topographic and stratigraphic structure of the analogue drawing, thus becoming a reading aid. From the speech by Matteo Flavio Mancini it emerged that the use of 2D and 3D digital drawing is often linked to the study and implementation of unrealized architectural projects which, otherwise, would be "incomplete witnesses" confined to the paper support of the sources. In this case, as well,

we understand that we must create the three-dimensional models according to specific purposes: of mathematical-geometric study (continuous NURBS, symbolic models) or of visualization of the appearance of the form (discrete mesh, iconic models), with relative degrees of reliability and reconstruction.
Francesco di Paola and Graziano Mario Valenti introduced the last session on parametric representation and video mapping. Even in these sectors, the various digital construction processes lead to certain purposes and areas, ranging from the theoretical aspect, to applications on the landscape, passing through design, architecture and archeology.
Marco Filippucci dealt with the use of parametric modeling, especially in terms of overcoming geometric limits to obtain unique shapes and solutions. This is thanks to modifiable parameters and data that create infinite possibilities. In explaining the logic of modeling and digital representation with progressive geometric difficulties, it emerges how artificial intelligence contaminates a drawing concept with consequent validation of Computational Design.
From the intervention of Domenico D'Uva it emerges that a landscape can be represented by integrating parametric modeling and NURBS, managing the nodes of soft mobility or defining the energy flows of inhabited centers located in fragile territories, but also quantifying the quality of slow paths with programming codes.
Giorgio Buratti reported the drafting of algorithms in the field of design and digital fabrication. It is thanks to computer-assisted design, in fact, that we can create complex objects and then physically manufacture them, using machines that reproduce the prototypes, reducing time and costs.
Finally, as Mirco Cannella explained, we must consider the great technological revolution, especially with the growing applications of augmented reality, as a great resource for enhancing architectural contexts or archaeological sites. This is also thanks to the use of versatile applications that provide sometimes-complex procedures for the construction of models, based on point clouds or photogrammetry, and for localization.
The field of documentation and digital, therefore, has many dimensions and as many practicable paths, increasingly indispensable for the protection, knowledge and enhancement of heritage. Experimentation in this sector is extensive, not without errors that confirm research that is always ready to improve and reduce the margins of tolerance.

Notes

[1] The first edition held at the University of Pavia in 2018, the second, in 2019, at the Polytechnic of Turin and the third at the "Sapienza" University of Rome in 2020..

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UID Awards 2021

UID Awards 2021

Golden award to Carlo Bianchini

The UID Gold award recognizes a brilliant professor of our disciplinary field who made multiple contributions in the field of surveying and in the history of the scientific foundations of representation. Among the many interventions performed, it is worth mentioning the survey and BIM modeling of the buildings of Geology (Michelucci), Botany (Capponi) and Mathematics (Ponti) in the campus of Sapienza University.
Carlo Bianchini carries out an intense research activity that transversally embraces different themes of Drawing and participated in important national and international scientific cooperation projects: of particular relevance is his collaboration and partly direction of some Euromed Heritage Projects. Among the most significant recent works is the monograph on the Roman theaters of the Mediterranean published as part of his research activity in the Athena project.
Full Professor, since 2016 he is head of one of the most important Departments of an Italian Faculty of Architecture and in 2020 he was appointed pro-rector of Sapienza for the Area 22 Architectural Heritage.

Golden award to Livio De Luca

The UID 2021 Golden award is assigned to a brilliant researcher who outside the borders of his region and of Italy itself has found the most coveted awards in the field of Digital Heritage.
Livio De Luca, 44 years old, moved to France after graduating in architecture at the *Mediterranean* University of Reggio Calabria, is now Director of Research at CNRS (French National Center for Scientific Research) and head of the mixed research unit Map (*Modèles et simulations pour l'Architecture et le Patrimoine*) in Marseille, where he still lives.
His research activity focuses on surveying, geometric modeling and semantic enrichment of digital representations of complex and stratified architectural subjects, as well as on the design and development of multidimensional information systems.
Editor of the Journal of Cultural Heritage (Elsevier) and associate editor of the Journal on Computing and Cultural Heritage (ACM).
He has received many international awards: his work was awarded in 2007 with the Pierre Bézier Prix of the Fondation Arts et Métiers, in 2016 he received the Médaille de la recherche et de la technique of the Académie d'Architecture, and in 2019 he was awarded with the Médaille de l'innovation of the CNRS.
Livio De Luca is currently coordinator of the digital data working group" of the scientific project of the CNRS and the Ministry of Culture for the restoration of Notre-Dame de Paris. A digital construction site, which has been called "the construction site of the century" by President Emmanuel Macron himself.

Silver award "Gaspare de Fiore"

Sandra Mikolajewska, Tecnologie digitali integrate per la conoscenza, la conservazione e la valorizzazione del patrimonio culturale storico. Il teatro Farnese di Parma; tutor: prof. Andrea Zerbi.
For having analyzed in an exhaustive way with the methods and tools of the discipline of drawing the Farnese Theatre of Parma within a precise process of valorization and conservation of the cultural heritage. In particular, the punctual architectural survey of the actual state of affairs has allowed the construction of the virtual model. Moreover, the use of advanced technologies of 3D scanning and sampling has allowed a rigorous activity of comparison between the project made in 1619, the subsequent surveys and those of the reconstruction of the theater occurred after the complete destruction of 1944. In fact, the accurate investigation of the iconographic sources prior to the destruction has made possible the identification of the original figurative apparatus, no longer present, which has been simulated using video mapping techniques to return the work in its entirety decorative. The originality of the research, therefore, lies in having used the methodologies offered by the discipline of Drawing in its different forms to create a versatile digital model of the Farnese Theatre of Parma, usable both as a tool for knowledge and as a means for management, protection and conservation.

The Commission also unanimously proposes to the President to award 2 honorable mentions UID 2021 to the following PhD Theses:

Lucas Fabian Olivero, Hybrid Immersive Models from Cubical Perspective Drawings - Modelli Ibridi Immersivi da Disegni in Prospettiva Cubica; tutor: prof.ssa Adriana Rossi; co-tutor internazionale: prof. António Bandeira Araújo.
For having addressed in strictly disciplinary terms the role of cubic geometric projection and on spherical surface in the different applications offered by new technologies of virtual and augmented reality. The autographical iconographic apparatus allowed to verify the investigation procedures applied to appropriate case studies, also through direct interactive consultation through links available online.

Giorgia Potestà, Architettura Monumentale ed HBIM. Il Bel San Giovanni come paradigma per la modellazione del patrimonio storico costruito; tutor: prof. Carlo Bianchini; Co-Tutor: dott. Dominique Rissolo.
For investigating in experimental way the use of precise H-BIM technologies applied to the historical built heritage, identifying advantages and criticalities in the investigation of a significant case study, such as the Baptistery of San Giovanni in Florence. The use of 3D survey, parametric modeling and semantic analysis has allowed the definition of a valid and coherent strategy in the context of elaborations of disciplinary field.