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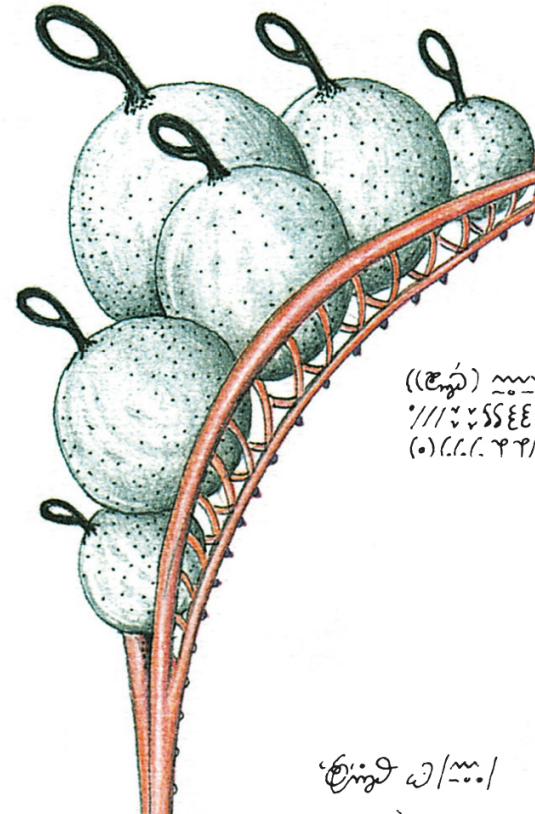
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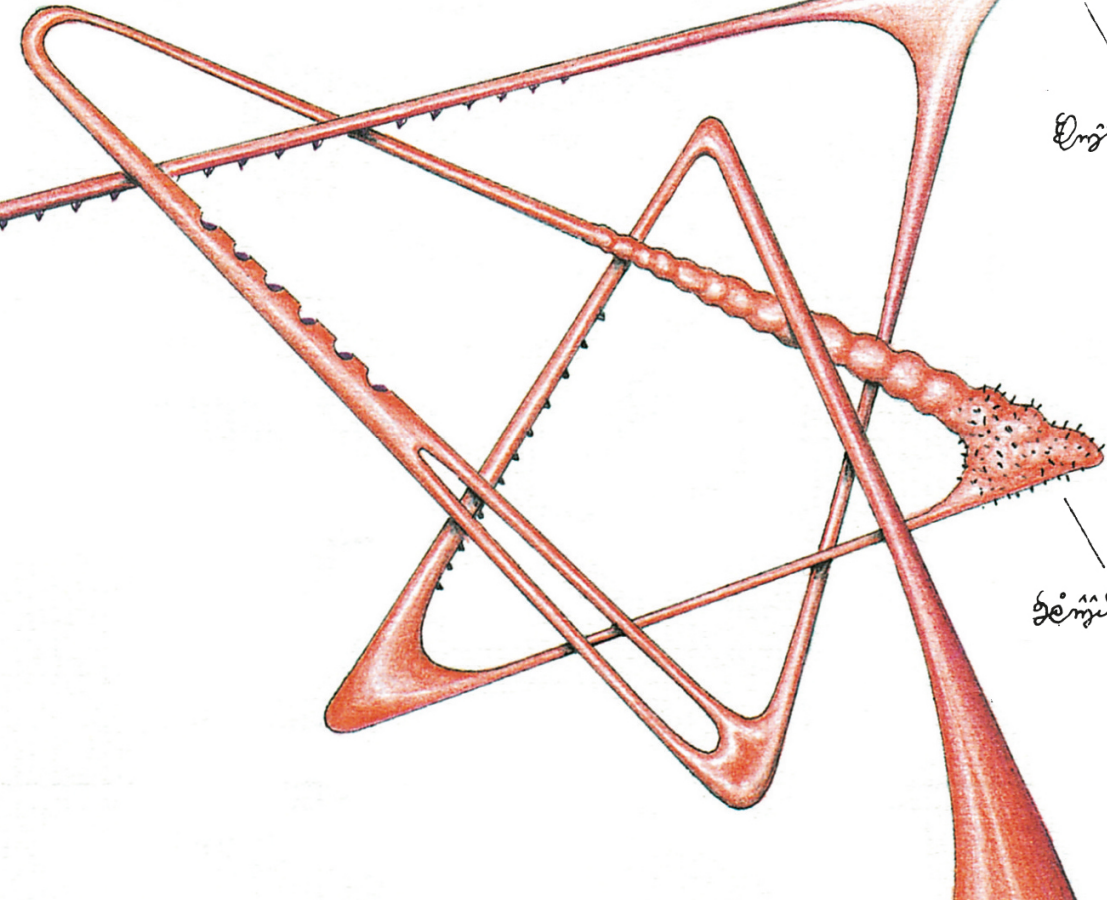
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18.2026

ΣΥΝΑΨΗ (SYNAPSE)
EXPRESSIVE AND RELATIONAL PATHS OF DRAWING

diségno

Biannual Journal of the UID Unione Italiana per il Disegno Scientific Society
founded by Vito Cardone



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Luigi Serafini, drawing from Codex Seraphinianus, 1981, detail [Serafini 1981, p. 149].

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Editorial

Ornella Zerlenga

Issue 18 (2026) of the biannual scientific journal *diségno* is intentionally being published on 12 July. This date was not chosen by chance, but was established in September 2025, when the Editorial board - coordination proposed to the UID General Assembly that the call for papers be devoted to the research themes explored by Massimiliano Ciammaichella, member of the Scientific Committee for the 2024-2027 term, who was born on 12 July 1973 and passed away prematurely in August 2025. Symbolically, this issue of *diségno* represents today the gift of the UID scientific community to his memory on what would have been his fifty-third birthday. The call for papers, entitled *Συναψή (Synapse). Expressive and Relational Paths of Drawing*, was written by Gabriella Liva and Graziano Mario Valenti, Massimiliano's friends and research colleagues, joined, in light of the specificity of his scholarly interests, by Tatiana Sentamans.

The launch of the call was preceded by the scientific series *I Libro: I Disegno*, a format conceived under the auspices of UID from an idea by Laura Farroni, of which Massimiliano

was an enthusiastic founder. The session held on 24 October 2025 was dedicated to Massimiliano's memory, his intellectual legacy, and his scientific culture. On that occasion, his principal research directions were presented in accordance with the format of *I Libro: I Disegno*, through three thematic sessions (*Staging; Modelling and its dedensions; Genres*). Introduced respectively by the discussants Graziano Mario Valenti, Fabrizio Ivan Apollonio, and Alessandra Pagliano, these sessions found a 'counterpoint' in the participation of several scholars with whom Massimiliano had shared his daily research activity, including Gabriella Liva, Francesco Bergamo, and Barbara Pasa. The call for Issue 18 of *diségno* was officially launched on 1 December 2025. In order to convey the cultural significance of Massimiliano Ciammaichella's research – a sensitive teacher, deeply attentive to the value of the individual, scientifically accomplished, and capable of interpreting the discipline of Drawing from multiple, consistently original perspectives while remaining open to dialogue with a wide range of theoretical and operational forms of knowledge – the scientific curators

adopted the term *Σύναψη* (synapse) in the sense of a synthesis generated between two or more pre-existing bodies of knowledge, the outcome of a connective process resembling a dynamic structure whose fertility increases as researchers move beyond the established boundaries of knowledge and venture into unexplored conceptual territories. As in Massimiliano's own work, described by Benno Albrecht, Rector of Luav Università di Venezia, in his farewell tribute as that of a "passionate and brilliant teacher; intellectually refined," such an endeavour requires –according to the scientific curators– "the ability to adopt a long-range perspective, unconstrained by the limits of traditional disciplines, and to pursue a genuinely transdisciplinary approach capable of traversing, connecting, and developing different forms of knowledge." Within the call, the scientific curators refer both to the most original and cross-disciplinary research themes cultivated by Massimiliano within the field of Drawing and to some of the most pressing contemporary issues, including equal rights and gender equality. Guided by this ethical commitment, Massimiliano had not only assumed the presidency of the Equal Opportunities Committee (Comitato Unico di Garanzia, CUG) of Luav Università di Venezia, but, as the nationally most-voted representative of associate professors within the 2024-2027 Scientific Committee, had also promoted the establishment of a Commission devoted to investigating the role of Drawing in relation to gender issues, serving as its coordinator. On these premises, the scientific curators articulated the three focal themes of the call by characterizing the synaptic generation of knowledge as 'performative' (knowledge as project), sensory (knowledge as embodied and expanded experience), and social (knowledge as a critical act).

With this issue, the Editorial board - coordination has also introduced several innovations. In response to increasingly accelerated academic production contexts that do not always correspond to higher quality, greater critical responsibility has been required of prospective contributors. Authors were therefore asked to submit the full paper directly, rather than a preliminary abstract, together with an accompanying form summarizing the context and significance of the proposed topic, its relationship to the state of the art, the originality of the contribution with respect to the existing literature, the methodologies adopted, the expected outcomes, and a brief biographical profile including institutional affiliation, academic or professional position, and principal research interests. Upon completion of the double-blind peer-review process, this submission procedure –requiring only the full paper, accompanied by the research statement and the author's biographical profile– resulted in a lower number of submissions (15, compared with 22 for Issue 17 in 2025), but also in fewer rejected manuscripts (2, compared with 5 for Issue

17). This outcome reflects a greater degree of awareness among contributors, particularly with respect to the thematic focus of the call. The distribution of accepted papers across the three topics proved remarkably balanced (five papers in topic 1, four in topic 2, and four in topic 3), as did the international participation of authors, which accounted for between 30% and 40% of contributions, both in single-authored papers and in collaborations with Italian scholars. International submissions originated predominantly from Spain, confirming the longstanding scholarly relationship between the two countries and their close disciplinary affinity.

In this issue, the proportion of single-authored submissions by early-career academics (doctoral candidates, PhD holders, and university researchers) was significantly higher than in the previous Issue 17, where these scholars had participated more frequently in collaboration with senior academics (associate and full professors). A plausible explanation may lie in the accessibility of the topics addressed. The theme proposed for Issue 17 –*The Revealed Structure. Drawing between Construction and Form*– was more firmly rooted in the theoretical tradition of the scientific and descriptive foundations of Drawing and therefore required expertise grounded in the geometric and configurational analysis of architectural space. By contrast, the call for the present Issue 18 –*Σύναψη (Synapse). Expressive and Relational Paths of Drawing*– appears more open to contemporary issues and to the expressive role of Drawing, consequently requiring a lower degree of disciplinary specialization.

The opening essay, authored by the scientific curators Graziano Mario Valenti, Gabriella Liva, and Tatiana Sentamans, bears witness to the extent to which Massimiliano Ciammaichella's passion for Drawing was grounded in solid disciplinary roots capable of continually renewing themselves in order to embrace –and indeed promote– innovation. Like the pieces of a puzzle, the essay's individual sections introduce the principal research themes and, gradually assembled, compose an image capable of giving meaning to actions and signs.

In *Synapses. Expressive and Relational Paths in Drawing*, Valenti outlines Massimiliano's scholarly profile as that of a meticulous and rigorous researcher who was nevertheless capable of looking courageously beyond the limits of what is conventionally 'drawn,' restoring Drawing as an immaterial resource, an extension of both body and reason, a synaptic space in which things happen and continuously evolve, generating innumerable new relationships, trajectories, stimuli, and drawings.

In *The Theatre of Life*, Liva adopts the metaphor of the theatre to recall the passion she shared with Massimiliano and to introduce one of the fields of study he most deeply explored and cherished: Baroque theatre. This scenographic architectural space, conceived by masters of geometry and

optics, becomes an inclusive, social, and democratic environment in which the theatrical act –like the act of drawing– is a form of ‘representation,’ simultaneously signified and signifier; a place where perceptual processes are once again presented to consciousness.

Seeing with the body, seeing from below constitutes the concluding section of the opening essay and offers Tatiana Sentamans’ powerful reflection on the performative force of drawing and its capacity to signify worlds that would otherwise remain invisible. Here, Massimiliano emerges as the integral sum of images reflected both in the memories of those who truly knew him and in the body of his scholarly work.

With *Drawn Writings*, Agostino De Rosa reflects upon the motivations underlying the choice of the cover image and the youthful experiences that led Luigi Serafini to ‘write’ the *Codex Seraphinianus* in an intentionally indecipherable, asemantic script. Regarded as one of the most extraordinary –if not the strangest– illustrated books ever created, the *Codex* narrates surreal universes that stimulate the reader’s imagination, where every certainty of human knowledge is challenged by images that allude to meanings without ever coinciding with what they appear to represent. These fluid, colorful graphic images embody an inexhaustible search for meaning and, like endless metamorphoses, continually challenge every rational interpretation and every codified boundary. Few cultural references could more effectively introduce the concept of synapse and the expressive and relational paths of Drawing, capable of leading inquiry towards unexplored territories so deeply sought by Massimiliano Ciammaichella’s research.

The three thematic focuses are each introduced by invited contributions. The essay *Drawing through Phantasmata. On the Synaptic-Performative Expression of Sign*, authored by the philosopher Romano Gasparotti, formerly Professor of Phenomenology of the Image at the Brera Academy of Fine Arts, opens the first focus, *Performative Synapses*. Following an unquestionably rich and erudite discussion, abundant in etymological analyses and textual references, in which Gasparotti generously reconstructs the various ways in which Western culture has historically sedimented the interpretation of the term *synaptein*, he concludes with a section entitled *Nothing is what it is*, affirming that: “Drawing is not signification –at least not in its ideal, symbolic or juridical sense. Rather, it is a performative, synaptic and improvised becoming of thought without subject and without object” [Gasparotti, p. 33].

Building upon this learned introduction, the contributions collected within the first focus explore reflections and case studies in which drawing embodies a performative synapse. These range from the scenographic backdrops of opera productions (Cicalò); to drawings understood as manifestations

of the creative process conceived as an event of connection between author, material, and context (Battelli, Pirari); to drawing as an interpretative device employed for the virtual reconstruction of the original location of the *Aphrodite Sosandra* within the Archaeological Park of the Baths of Baia (Campi, Camerino, Falcone, Lafuente Sánchez, López Bragado, Marcos González); to the operational thesis according to which the creative act of drawing cannot be reduced to a merely illustrative function but instead constitutes the outcome of a cognitive, visual, semantic, and dynamic process (Pettoruso); and finally to the critical interpretation of the diagrams produced by Bjarke Ingels Group (BIG) as hybrid devices through which drawing constructs relationships, makes design choices explicit, and organizes the architectural project (Bartolomei, Vignoli).

The second focus, *Sensorial Synapses*, is introduced by the thought-provoking essay *What is a Drawing*, authored by Daniele Zavagno. A faculty member at the University of Milano-Bicocca, Zavagno’s principal research interests concern the psychology of perception –particularly visual perception and the psychology of art. Bringing these fields into dialogue with cognitive neuroscience, he highlights the potential of Drawing as a two-dimensional representation capable of activating not only visual perception but also ‘cues,’ namely “units of visual information that must be learned through experience” [Zavagno, p. 104], which evoke spatial three-dimensionality and the relationships between objects and their context, body and place.

This relationship between the body and visual perception constitutes the *leitmotif* of the contributions selected for this focus, in which Drawing is presented as an expression of sensory synapse: from drawing as an autonomous device for understanding the work of art, as demonstrated in the case study of the sculptural work of Giuseppe Penone (Trevisan); to the synesthetic recontextualisation of drawing, whereby, as a synaptic process, it transfers the entire spectrum of the sensory experience of investigated places into atmospheric maps that are perceptually tangible while simultaneously charged with immaterial qualities (Cirafici, De Bona, Küht, Palmieri); to the synaptic landscapes of Joaquín Sorolla and contemporary site-specific experiences that, by retracing their natural settings, restore Drawing as a connection between temporal and sensory perceptions (Eixerés Ros); and finally to the case study concerning the generative design of ceramic surfaces and the role of two-dimensional drawing in identifying sensory characteristics subsequently materialised through 3D printing (Di Nardo, Spennato, Alfarano).

Social Synapses: Situated Knowledge and the Deconstruction of Privilege between Law, Drawing, and Practice-Based Inquiry is the title of the opening essay for the third focus,

Social Synapses. The contribution is authored by Barbara Pasa, Professor of Comparative Private Law at luav Università di Venezia, where she also teaches courses on Rights and Gender Policies within the Master's Degree Programme in Theatre and Performing Arts. Their shared interest in these fields brought Massimiliano and Barbara together, leading them to engage in transdisciplinary reflection on these issues for more than a decade and, during the final months of Massimiliano's life, to co-author several scholarly works, including *Image and Performance of Non-Conforming Bodies* (presented on 13 June 2025 at the International Study Day *Gendered Visualities. Architectures, Images, Languages*, coordinated by Starlight Vattano at the University of Trento and currently forthcoming in print) [1], and *Representations of Embodied Identities in the Design Universe of Lee Alexander McQueen* (presented in September 2025 by Gabriella Liva at the 46th UID International Conference held in Rome) [2].

Although written from the perspective of a legal scholar—as Pasa herself acknowledges at the beginning of the article—the objective of the contribution is unequivocal: “to map a number of study and research trajectories through which ‘social synapses’ may be activated as practices of resistance, with the aim of interrogating the conditions of possibility of a form of knowledge—specifically that related to the field of Drawing—that is capable not of reproducing discrimination and privilege, but of deconstructing them from within” [Pasa, p. 163].

In accordance with the aims of the call for papers, the articles selected for this focus examine the construction of latent social identities within contexts that are often exclusionary. They range from the design of the uniform worn by female railway workers (Ena); to the aesthetic and ideological representation of the Castilian rural landscape in opposition to dominant urban modernity (Santos-Aranaz); to the accessibility of parametric information within the complex relationships linking individuals, institutions, architecture, and data (Droghetti); and finally to the governance of data through diagrammatic drawings operating as synaptic interfaces (Gaetani).

The selection of volumes featured in the *Readings/Rereadings* and *Reviews* sections reflects the thematic orientation of the call. For *Readings/Rereadings*, Francesco Bergamo revisits, with evident emotion, one of Massimiliano Ciammaichella's last works devoted to theatre, the monograph *Scenography and Perspective in Sixteenth and Seventeenth Centuries in Venice: Preconditions and Developments of Baroque Theatre*, published in 2021. For the *Reviews* section, the Editorial Board selected the monographs authored by Alessandro Meloni (2025), Emanuela Chiavoni, Giulia Pettoello, Giorgia Potestà, Federico Rebecchini (2025), and Renato Angeloni (2024), reviewed respectively by Massimiliano Lo Turco, Alessandra Avella, and Flavia Camagni. In the *Events* section, Laura Farroni outlines the state of the art of the scientific series *Il Libro: Il Disegno* at the conclusion of the 2025 calendar year, employing diagrammatic drawings to illustrate both the thematic distribution and the editorial production flow of monographs and edited volumes published between 2020 and 2024. The increasingly numerous initiatives sponsored by UID are reviewed by Michele Valentino, *IMG2025*, Cettina Santagati, *TALES*, Giuseppe Antuono, *FortMED2026*, Adriano Magliocco, *The P(r)o(b)lem*, Maurizio Perticarini, *VL2026*, and Marco Giorgio Bevilacqua, *EGA2026*. Finally, the issue presents the renewed version of *The UID Library*, edited by Laura Farroni and Vincenzo Cirillo. In conclusion, I am confident that this issue of *disegno*, the result of a responsible and genuinely collaborative effort, will remain in the hearts of all those who knew Massimiliano Ciammaichella. At the same time, his authentic and empathetic charisma will undoubtedly reach those who never had the opportunity to know him personally but who, through the pages of this volume, will nevertheless perceive the profound sensitivity that characterized his exceptional ability to listen to others.

This issue is published on Massimiliano's birthday—a particularly meaningful day, as it is also the birthday of his life companion, Stefania Catinella. It is my sincere hope that, through the reading of this issue, she may receive the warmest embrace of the entire UID scientific community and the wish that Massimiliano's 'Drawing' may continue to live within all of us.

Notes

[1] The paper co-authored by Barbara Pasa and Massimiliano Ciammaichella and presented in Trento is currently forthcoming with La scuola di Pitagora in the series *Temi e Frontiere della Conoscenza e del Progetto* (Vol. 26/2026). In its final version, the contribution was revised by Barbara Pasa in memory of Massimiliano and published under the new title *Non-Conforming Bodies and the 'Right to Exist': Contemporary Visual Culture and Algorithmic Futures*.

[2] Ciammaichella, M., Pasa, B. (2025). *Representations of Embodied Identities in the Design Universe of Lee Alexander McQueen*. In L. Carlevaris et al. (Eds.), *ékphrasis. Descrizioni nello spazio della rappresentazione / ékphrasis. Descriptions in the Space of Representation*. Proceedings of the 46th International Conference of Representation Disciplines Teachers. Milano: FrancoAngeli, pp. 2585-2608. DOI: 10.3280/oa-1430-c889.

Synapses. Expressive and Relational Pathways in Drawing

Graziano Mario Valenti, Gabriella Liva, Tatiana Sentamans

In the vast majority of cases, the outcome of research may be understood not as the simple discovery of a datum that already exists, but as the generation of new meaning: an emergent result arising from the encounter, tension, and synthesis between two or more previous bodies of knowledge. New knowledge is therefore not an isolated element, but the outcome of a process of connection, resembling a dynamic structure in continuous evolution.

This intelligent network of knowledge, progressively constructed over time, may be metaphorically associated with an organically living synaptic structure and, as in the nervous system, the pathways, signals, and interactions among the components of the system activate unprecedented relationships between concepts, methods, disciplines, and perspectives, giving rise to new and unpredictable configurations of knowledge. This metaphor is not merely poetic but reflects

one of the dominant intuitions in contemporary philosophy, according to which knowledge is not a static repository, but an emergent architecture built through reciprocal influences, exchanges, revisions, and negotiations of meaning. In this sense, it can be affirmed without hesitation that this network is all the more fertile when the figures engaged in research are capable of moving beyond the established boundaries of knowledge and venturing into unexplored conceptual territories. This requires the ability to adopt a far-reaching vision, one not confined within the limits of traditional disciplines, and to practice an authentically transdisciplinary approach, capable of crossing, connecting, and developing different forms of knowledge.

Without a shadow of a doubt, those who had the opportunity to work alongside Massimiliano Ciammaichella will recognize these qualities in him, both in his human and scientific

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

nature: it is therefore to him that issue 18 of the journal *disegno* is dedicated. As editors, we sought to promote a critical reflection orbiting around the themes that best represent his originality and his commitment as an attentive observer, experimenter, and innovator: in a word, as a researcher.

Massimiliano's presence never went unnoticed: certainly not because of his physical stature—in no way diminished by his total black look—but because of his active participation in every debate, always sharp and always marked by a passionate desire to share his knowledge. He had a natural predisposition to be, with his whole self, what he communicated: through facial expressions, bodily gestures, and words. Hence the reflection on performative synapses, which, in this sense, represent one of the most evident manifestations of the active nature of Drawing. Performativity, in fact, implies moving beyond the idea of representation as a mere duplication of the world: drawing does not simply describe reality, but enacts it, modifies it, and makes it experienceable. Every graphic gesture, every spatial construction, every analog or digital device produces cognitive and perceptual effects that transform the relationship between subject and the environment. Drawing thus becomes a choreographic and relational act, capable of organizing the movement of bodies, the perception of space, and the construction of identities. In this scenario, architecture, the performing arts, fashion, and design share a common processual dimension: knowledge has a strongly dynamic character and emerges through action, through making, through the continuous dialogue between idea and material transformation. Knowledge then manifests itself as an event, as an experience that happens and evolves over time and takes place in space, involving body, technique, and imagination.

In describing Massimiliano's 'performative being', we wished to emphasize the consistently passionate way in which he manifested himself in the primary activities of his work: teaching, research, and the important task of dissemination. These were the expression of a knowledge born from a capacity—perhaps innate in him—to feel fully, to open himself to listening and communication, making use of the multisensory dimension.

In the performative experience, both the author and the recipient of representation play a primary role: the former designs, while the latter participates, with the full involvement of the sensory apparatus being anticipated.

While Western tradition initially privileged for a long time the domain of sight as the principal form of access to knowledge, today knowledge is increasingly interpreted as a multisensory and embodied phenomenon. Drawing does not belong exclusively to the sphere of the visible but is constructed

through a complex network of perceptual relationships involving touch, sound, balance, bodily memory, movement, and temporal duration. Representation takes shape through the specific qualities of an immersive and synesthetic experience, in which the body is not a simple passive recipient, but an integral part of the cognitive process. Alongside the reflection on performative synapses, there therefore develops a reflection dedicated to sensory synapses.

We might state that sensory synapses restore to drawing its biological and environmental dimension, bringing forth a form of knowledge that arises from concrete interaction with the world. In this context, designed space is no longer merely a geometric configuration, but an experiential environment, a field of emotional and perceptual resonances. Knowledge then becomes a sensitive appropriation of reality, a practice of listening and crossing through that overcomes the traditional separation between mind and body.

The possibility of using sensory pathways other than the visual one—considered primary in the case of representation—makes knowledge accessible also to those who do not possess the same abilities and receptivity of the human body. Representation thus also fulfills an indispensable social role. It is therefore not surprising, as an almost inevitable consequence, that Massimiliano was fully committed to this front. The social synapses honor his commitment to making every barrier, every boundary to the transmission and interpretation of knowledge, visible and surmountable. This commitment was recognized both in the private sphere of personal life and in the public dimension he shared with students, colleagues, and with/in the UID scientific society, where he served, in particular, as the promoter and first coordinator of the Gender Commission.

The social synapses are therefore intended to encourage reflection on the ethical and political dimension of Drawing. Every form of representation is always at the same time a cultural construction, the production of imaginaries, the definition of inclusions and exclusions. Drawing participates in the construction of social space and contributes to determining the way in which individuals and communities perceive themselves and the world they inhabit. From this perspective, representational practices become critical tools capable of questioning dominant paradigms, stereotypes, and cultural impositions. Social synapses make a shared knowledge possible, open to the plurality of identities and experiences, capable of transforming Drawing into a place of dialogue, resistance, and redefinition of collective meaning. Representation thus assumes an emancipatory function:

not only a means of communication, but a practice through which new forms of individual and communal freedom may be imagined and constructed.

Massimiliano was an example and will remain an inspiration for a form of knowledge production that does not correspond to a simple linear or mono-methodological model—one that we might say now belongs to a distant tradition—but rather to a plural, processual, and dialogical paradigm: a process in which languages, experiences, technologies, bodies, societies, and cultural contexts together contribute to defining what may be known, as the outcome of a relational event, the result of material, sensory, technical, and symbolic interactions: an open process and, therefore, always perfectible.

In this scenario, the synaptic network also becomes the structure that keeps memory alive, making it possible not only to preserve the past, but to reinterpret it, reorganize it, and re-adapt it into a fertile basis for further advances. From mere archiving, memory thus becomes the vital foundation of every new form of knowledge: a dynamic archive that sustains continuity and, at the same time, makes innovation possible.

Within this overall vision, the synapse becomes the very symbol of contemporary research on drawing: a model of knowledge founded on connection, cross-fertilization, and the continuous transformation of knowledge. Drawing then emerges as a living space of relation between body, technique, perception, and society; a territory in which knowledge and reality do not merely reflect one another but are continuously produced and redefined through experience.

“The Theatre of Life”

During the extended, nocturnal dialogues with Massimiliano Ciammaichella—a friend as well as a colleague—the subjects explored were diverse, drawing upon a vast foundation of experiences and knowledge, thus engendering a profound exchange of ideas. With energy, determination and enthusiasm, these discussions would often stretch on for some time, using language that was not exactly stilted or conventional, impersonal or neutral, but rather concise and passionate, direct and provocative.

The conclusion of a written or spoken dialogue did not always bring peace and put an end to the exchange of thoughts; rather, it fueled reflections and doubts that might find their way into the usual academic working environment, whether linked to teaching in close contact with students or to ongoing research activities.

“I am always here for the Theatre of life and for research on theatre” [1] is one of the many phrases that best outline and summarize the complex profile of a scholar who reflects on his own existential condition and seeks to explore the infinite facets that present themselves to him. Undoubtedly, his passion and his involvement in ‘theatre-making’ led him, a few years ago, to engage academically with the broad subject of the documentation, analysis, study, dissemination, and promotion of the artistic and cultural heritage of Italian Baroque theatre, a line of research that, in 2022, saw him serve as promoter of the research theme and head of the Research Unit of Università Iuav di Venezia within the PRIN SCAE-NAE - *Italian Baroque Theatre. Paradigms of Scene and Cultural Memory* project. He recognized that seventeenth-century Baroque theatre—based on the intertwining of reality and fiction, on the interplay between mask, deception, and truth, and on life’s oscillation between drama and comedy—was the result of interactions between aspects of performance and the environment linked to his—and our—human condition. The very fact that this form of theatrical spectacle belonged to a lost memory, of which only fragmentary traces remain amongst the Venetian streets and squares, had sparked in him a keen curiosity to reconstruct a vanished theatrical geography that brought together economic, religious, and social interests, and within which the roles of the theatre architect and the set designer had emerged.

Those lost buildings, characterized by oval or horse-shoe-shaped halls flanked by tiers of boxes, with stages repeatedly adapted to accommodate countless stage machinery set-ups, equipped accessible lofts and any additional service rooms, represented a spatial organization upon which the very concept of the ‘Italian-style theatre’ was founded or, rather, described the theatrical space as a set of functional elements which, over the centuries, have undergone modifications, evolutions and interpretations, resulting in a model recognizable throughout the world. Yet, if one looks beyond the ‘petrified’ machinery, one realizes that the theatre is, first and foremost, a shared social space which, beyond its concrete manifestation in an architectural setting, serves as a metaphor for the theatre of life. The words “I am always there for the theatre of life” precisely express this attempt to understand what surrounds us and, above all, to regard theatre as a democratic form par excellence, referring to the very act of being together.

The nature of theatre as a collective and communal ritual that brings together performers and audience in a square, a garden, on stage and in the orchestra—in a space conceived, designed

and set aside for performance— is one of the most powerful aspects of being together and of forging connections, interactions and relationships that give rise to new and unpredictable ways of understanding. The sharing of experiences amongst the actors—who take on various roles, whether as leading actors or extras—and amongst the audience, made up of a multitude of individuals, is a fundamental aspect of the work, one that Massimiliano admired and studied with passion.

Although the relationship between the stage and the audience space has undergone significant changes depending on the various architectural structures—ranging from open-air venues to enclosed buildings, from fixed to variable stage elements, from natural to artificial lighting, and from the boundary between actors and spectators—acting has always created, and still creates, a connection with the audience in an atmosphere of shared experience and participation that very often transcends everyday life. Massimiliano explored the performance as the starting point for a reflection on democracy, on the power of the image and of communication, as a place where something 'happens' and, for it to happen, people must come together; establish rules and assign themselves roles.

The expressive and relational dimensions of theatre offer rich insights into today's social situation, starting precisely from the golden age of ancient Greece—the cradle of shared spectacle—where theatre served as a means through which one could learn, reflect and experience emotions [Molinari 1997; Cruciani 1992]. Greek theatres, and later Roman ones, were organised according to orderly relationships between people (actors and audience), spaces and functions. The progressive organization of space in Greek theatre—which is regarded as the archetype in European culture—is closely linked to the concept of democracy, as it served as a privileged vantage point from which to observe cultural, legislative and economic transformations.

The French philosopher Alain Badiou himself, in his famous book *Rhapsody for the Theatre: Art, Politics, Event* [2015], analyses the history of theatre, highlighting its intrinsically relational nature as a space where an indissoluble relationship unfolds between actor, stage and spectator. It is a place where visual communication and interpersonal relationships intertwine, leading to the unfolding of the stage action and the formation of a mutual bond. Collective commitment and a shared creative process, in which individual efforts come together; generate a product that is at once tangible and intangible, concrete and symbolic. Theatre, as a form of collective and ritual expression, has spanned different eras, cultures and languages, adapting to social changes without

ever losing its fundamental role: to explore the human soul, tell stories and present visions, whilst seeking to escape its use as a means of oppression and control, particularly under dictatorial regimes. Theatre, therefore, serves as a fundamental tool for deciphering and reshaping reality, fully realizing its predictive potential.

The theatre, interpreted as a form of entertainment, education and engagement, has undergone a significant evolution, moving from performances linked to religious celebrations to platforms for ethical and philosophical debate. Over the centuries, the role of the spectator has undergone a transformation, evolving from a passive act of mere observation to active participation in a collective dialogue on the human condition. This transformation has passed through various historical phases, moving from Christian values and religious themes to autonomous forms of performance linked to psychological depth.

In his book *Il teatro delle passioni*, Giovanni Macchia reflects on theatre: "It is theatre that establishes an eternal confrontation with the world. The world itself is a theatre, and theatre is the world" [Macchia 1993, p. 138], drawing on the famous Shakespearean topos "All the world's a stage" found in the pastoral comedy *As You Like It* [Shakespeare 1623, act II, scene VII; cfr. Yates 1969].

This demonstrates how street theatre can be recognized as the quintessential space for social interaction, where the urban dimension takes precedence over the theatrical dimension associated with buildings, and which best embodies the concept of democratically sharing the performing arts: "the aim is to transform the space of everyday life through the foreignness of the performance space and the ways in which it is enacted [...] it is a social space, defined by the relationship between the performance and the local area, created by a manipulation of the surrounding reality and by the radicalisation of the stage space as a special area" [Cruciani 1992, p. 91]. It was precisely the ability of words, gestures and staging to merge into a language capable of speaking to every individual, regardless of social class, anywhere in the world, that had led Massimiliano to admire the theatre for its universal and communal spirit, as well as its capacity for criticism and social commentary. Today more than ever, theatre embraces new technologies, hybrid forms of expression and participatory approaches, blurring—or rather erasing—the boundaries between actor and audience, whilst preserving the stage—a meeting place between the physical and the virtual—as a geometric space of wonder, where things appear and elude perception.

The performing arts become a means of inclusion, intercultural dialogue and social transformation, in line with Massimiliano's tireless and unwavering commitment to policies of inclusion and to combating all forms of discrimination. As chair of the CUG (Unified Guarantee Committee), he worked tirelessly to foster a welcoming, respectful, and inclusive environment, where everyone can feel valued and realize their full potential. Individual and collective well-being, linked to social harmony, was based precisely on the celebration of differences and on cooperation and shared objectives – values that the theatre world has always pursued and to which the professor also referred in terms of their therapeutic nature.

Finally, Massimiliano saw theatre as a form of therapy – a way to put himself out there, to perform and to reveal himself through different characters and situations, all of which, however, relate to the human condition. Experimenting to understand. The ability to create a shared, vivid and unique experience – a voice on contemporary issues, human rights and social inequalities. The theatre is a place where diverse voices can be heard, helping to build communities that are more cohesive and open to dialogue. At the heart of these reflections lies what the director Peter Brook [Brook 2005] defines as 'the human element', linked to the exposure of the body – a physical presence that is both a limitation and a striving towards freedom, towards the other. Taking space to rediscover oneself and to represent the feelings of someone else. Theatre exists in the realization of an encounter between individuals, between those who act and those who witness this action.

From these considerations, theatre – as the 'comedy and tragedy of life', but also as a 'network of relationships' – becomes a metaphor for a space of performative, sensory and social connections capable of fostering symbolic, critical and scientific reflection.

Seeing with the body, seeing from below

I get an indirect sense of Massimiliano Ciammaichella through the memories of colleagues who, unlike me, had the chance to get to know him, but from what I read, it feels as though we've had several long conversations. We were interested in similar things: the total black look; academic research from a transdisciplinary and intersectional perspective. And the power of Drawing as a disruptive tool for the production of knowledge and the transformation of our environment. In this figurative conversation, which unfolds in the very act

of writing and drawing, I wish to sketch out two key points that I believe would have been dear to both of us. Two ways of understanding drawing not as a docile representation, not as a mere mirror of reality, but as a means of alternative vision – embodied and performative. Drawing can help us to see differently, from the body's gaze. Western tradition, however, has long trained us to do exactly the opposite. We have learnt to think of Drawing as a conventional system of representation, a tool faithful to the rules of perspective which, from the Humanist period onwards, have imposed a specific way of looking at the world: from above, from a single centre of projection from a sovereign eye that organizes and hierarchizes space in a supposedly neutral manner. That very same eye made possible the modern European colonial project, capable of measuring, labelling and violently appropriating territories, natural resources and the bodies of others. But what if we dismantle this apparatus, what if we overturn its perspective? What if Drawing ceases to be an instrument of control and instead becomes a radically different methodology?

In the performance *O.R.G.I.A. Ways of seeing (Coñovisión)*, performed in December 2025, with our reinterpretation of John Berger's *Ways of Seeing* [2025], we have attempted to do precisely this: no longer to see with our eyes (those that train the gaze to replicate the hierarchies of the visible), but to see with our bodies. To see from below, from that marginal, excluded position from which we have always inhabited otherness. And to transform this into a political force. Drawing then becomes the gesture that allows us to shift our vantage point. No longer a divine eye, nor even a hyper-technological one that embraces everything, to use Donna J. Haraway's terms, but a hand that savors, a tongue that touches, an ear that pricks up, a skin that listens. It is a movement that produces a perception that is distorted, decentralized and deliberately at odds with the conventions of perspective. And in this deviation, the drawing does not merely reproduce the world: it affects it at the very core of its disciplinary status. Concretely, what does this 'affection' mean? It means that the graphic act becomes capable of making perceptible not merely what is hidden, but what the dominant regime of the visible and disciplines such as art historiography have actively removed, obscured or declared unrepresentable. Genealogies that have been emptied, left unnamed, erased. The memories of women, of racialized people, of sexual dissidents. Our desires. Our culture. The carnality that modern history has transformed into mere objects of gaze and analysis, denying them the possibility of

being subjects who shape their own narratives, subjects of an alternative vision. Perhaps this could be the 'without models or certainties' that Irit Rogoff and Peggy Phelan refer to when they describe the 'without' as a productive space: that which might emerge from the unsaid and the unseen, simply by speaking and showing in one's own way, moving forward without looking back.

Here, Drawing would serve as a practice for filling in the gaps, and thus also as a form of genealogical repair; by bringing to light what has only been fantasized about, forbidden, never depicted, or blacked out. It is not a question of illustrating an alternative official history. Rather, it is a matter of activating as a method what Saidiya Hartman calls "critical fabulation". In *Venus in Two Acts* (2005), she questions how to recount the life of a young slave of whom only anonymous fragments remain in the archival records of the Atlantic slave trade. She cannot restore its authentic voice because that voice has been violently erased. But she can, through the imaginative act of writing (or drawing, or sketching), bring to light the possibility of its existence. She can restore dignity to that which the archive has silenced. It is neither a lie nor a falsification, but rather the evocation of that which has been rendered impossible to recover –and the creation of an 'elsewhere' that challenges the questions themselves. In this sense, performative drawing can conjure up unspoken impulses, symbolic imaginaries never dreamt of, and missed genealogies.

And it is here that this approach finds a precise philosophical foundation, rooted in the theory of language and branching out into the politics of the body and identity. John Austin [1962] argues that saying something is not always and merely a matter of describing a state of affairs. It is also, and sometimes above all, an act. When one says 'the session is adjourned', one is not merely stating a fact; one is performing an action through words. This utterance does not describe reality: it produces it. Judith Butler [1990] took this concept and radically reoriented it towards the fields of gender and subjectivity. For her, gender is not an essence that one possesses, but an effect produced through performative acts repeated over time. 'I am a woman' does not describe a biological or spiritual substance: it is an action that takes place every time one puts on a dress, adopts a certain posture, responds to a name, or is addressed as 'madam', which defines a role and a social expectation. Performativity is the power of language and gestures to constitute what they merely appear to describe. Indeed, performative drawing works exactly like this. It does not describe a world that already exists: it produces a world that would otherwise

remain unseen. When I trace the outline of a body that history has rendered invisible, I am not illustrating an absence: I am making it happen on the paper, through the mark. It is a performative act in every sense: the graphic mark is the action that convokes, that names, that generates. Just as, for Butler, the repetition of gendered acts produces subjectivity, so too, in performative drawing, the repetition of lines –deviant, obstinate, affectionate– can produce alternative genealogies, desires that would otherwise be unrepresentable, and memories that the official narrative has expelled.

There is a second point, which follows on from what has been said. If drawing is a vision through the body, then it cannot be merely an optical phenomenon. Drawing means moving a hand, exercising pressure, following a curve, speeding up or slowing down a stroke. It means that the whole body (not just the eyes) is involved in a practice of embodied knowledge. Here, alternative epistemologies take centre stage once more –those that decolonial, feminist and queer philosophies and practices have learnt to value in opposition to the Western primacy of abstract and detached vision. Knowledge conveyed through touch, movement, breathing and muscular exertion. Ciammaichella, in his studies on dance notation, had come to understand this: the sign that records a movement is not an inert residue, but a performative device that can reactivate that movement, bringing it back to life in a different physicality, in a different time. The choreographic score does not describe: it triggers.

What if we were to apply this principle to historical and political memory? What if drawing were to become a way of embodying a performative memory? Not the cold, archival kind, the one that preserves documents in cardboard boxes. But one that becomes a gesture, that is reactivated every time a hand retraces a mark learnt from other fingers, from another generation. Drawing to remember. Not in the trivial sense of creating a shape that depicts a scene to be remembered. But in the deepest sense: the act of drawing that becomes an act of remembrance. As in the practices of certain indigenous cultures, where tracing lines on the ground or on the torso is not about depicting a myth, but about bringing it to life. As in feminist practices, where embroidery or sewing are ways of passing on women's memories through their hands and fabrics.

This is the integration of memory: do not think of a memory as information to be extracted outside, but as a form to be inhabited from within. Ensure that memory resides not only in documents, but in the muscles, the articulations, and the coordination of hand, heart and breath. Repeat the

stroke until it becomes a habit, a posture, a reflex. In this way, the drawing becomes a tool for activating the archive from within –not to consult it, but to perform it. And with this approach, those emptied genealogies, those erased bodies, those unexpressed desires can finally find a place. It does not recount them: they pass through the physicality of the person drawing. It restores them to the materiality of the gesture, of the pressure, of the duration. We draw to embody a story; we draw knowing that we could never truly restore certain things, but that we can conjure up their spectral presence, hold it with us, and give it a space on the paper, in the world.

Perhaps stepping back as an all-seeing author allows the drawing's action, its evocations, and its effects to come to the fore, without ever fixing anything in a definitive form, but always keeping open the possibility of the next move, of the stroke that veers off course, of the line that breaks off and restarts elsewhere. And within this openness, perhaps, there is also a small shared gesture: writing this text as if it were a drawing. Sketching out words that attempt to see from the body, from the memory of someone who

is no longer here. And allowing something invisible, for a moment, to become visible.

Massimiliano was, without a shadow of a doubt, a creative and multifaceted researcher; qualities that inspired this issue of *diségno* and the preparation of the present contribution itself. Within a collective project and collaborative undertaking, the scientific curators wished to offer the reader three converging images of Massimiliano: three personal perspectives originating from three distinct points of view. In the first part of the text, Graziano Mario Valenti highlighted Massimiliano's ability to traverse and connect different fields of knowledge; Gabriella Liva, in *The Theatre of Life*, emphasized his performative identity and his extraordinary and perceptive interest in the architecture and art of theatre; finally, Tatiana Sentamans, in *Seeing with the body, seeing from below*, recalled his revelatory and social dimension. These are three images of Massimiliano's multifaceted figure among the many held by those who had the pleasure of knowing him: "But then, who was Massimiliano? You are right, Master Pirandello: you taught us this yourself! Massimiliano is the one each of us will remember: 'Thus it is (if you think so).'" [2].

Notes

[1] Conversation between Massimiliano Ciammaichella and Gabriella Liva at 9.37 p.m. on 27 May 2025.

[2] Excerpt from Graziano Mario Valenti's address dedicated to the memory of Massimiliano Ciammaichella on the occasion of the 46th International Conference of Teachers of Representation Disciplines, held in Rome from 11 to 13 September 2025.

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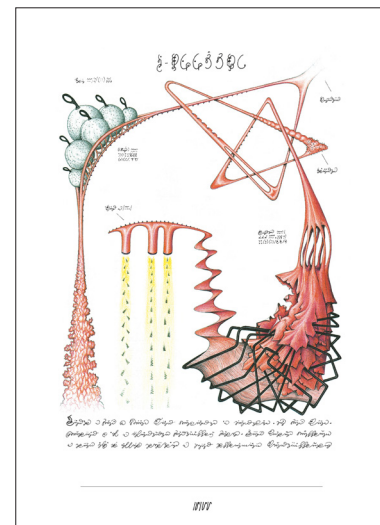
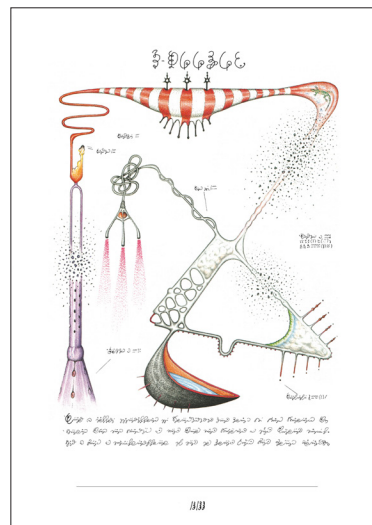
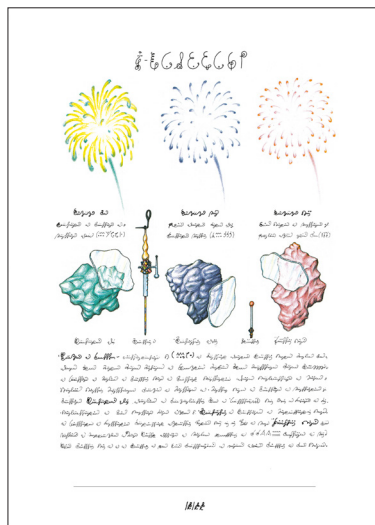
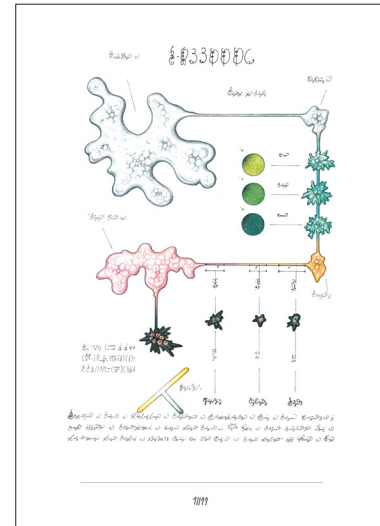
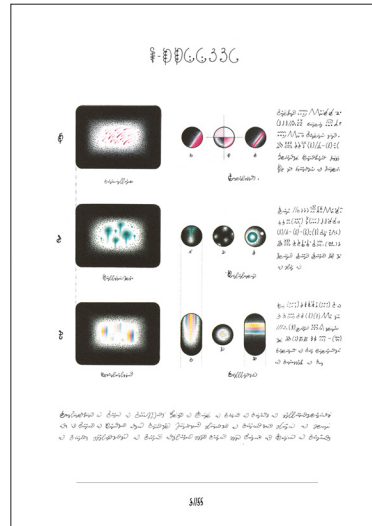
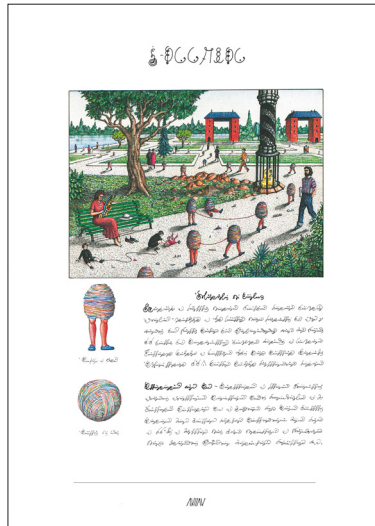
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Drawings from *Codex Seraphinianus*

Luigi Serafini



Drawn Writings

Agostino De Rosa

Luigi Serafini's (1949) passion for nature has its roots in his childhood, when, in Pedaso, in the Marche region, he spent seemingly endless summer days in the enchanted park surrounding his relatives' house, reached from Rome by car along the Via Salaria with his family. It was within this botanical and zoological enclave, situated not far from the river Aso, descending from the mythical Sibillini Mountains (though perhaps, as Serafini himself maintains, possessing a karstic source near Mount Aso in Japan), that the young Luigi began to draw plants and barnyard animals, perhaps sketching the first iconograms of that fantastic bestiary and herbarium which would later become the *Codex Seraphinianus* [Serafini 1981]. Symmetrically aligned with the longitudinal axis of the Apennines, as though within the mirror-world of Alice, the passion of Serafini for the classical world –nurtured by his father's love of antiquities– had the opportunity to develop in the Eternal City, where he was allowed to freely wander among the Fori Imperiali, in a world equally resonant with mythological echoes, composed of arches, columns, brick walls, and precious marble claddings.

These two passions of Luigi's found convergence, driven by his extraordinary aptitude for drawing, in a concrete academic interest when he enrolled in the Faculty of Architecture at La Sapienza, University of Rome, where Serafini attended courses taught by distinguished professors who helped to sharpen his tastes and those expressive tendencies

already *in nuce* within him. Although his university years coincided with the season of student protest and the clashes of Valle Giulia [cf. Merlino 2008], for the young Serafini this was nonetheless a period rich in fertile encounters, among which he particularly recalls the one with Bruno Zevi, who returned from the United States in 1944 after the Liberation and was at the time a lecturer in Architectural History, as well as a passionate defender of the 'organicist' line [cf. Zevi 1945] (in opposition to the 'rationalist' one) in modern and contemporary architecture, under the protective aegis of the master Frank Lloyd Wright –a figure who never ceased to exert influence upon the language of the young student and future architect. The permeability and continuity between interior and exterior spaces, the idea of hybrid forms inspired by nature, with their sinuous and phytomorphic development (here emerges the theme of metamorphosis as a constant within his *modus operandi*), and characterized by patterns resonant with the biomorphic world, are all themes that Serafini draws from the experiments of the American architect, before reworking them in his own way. That same university also became the setting for two further fateful encounters: respectively with Maurizio Sacripanti (1916-1996) and Luigi Pellegrin (1925-2001), with whose professional studios he would later collaborate on important projects, among which we may mention here, for brevity's sake, only the middle school in Sant'Arcangelo di Romagna

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

(Forlì), designed by Sacripanti. The empathetic resonance between Serafini and these two architects was probably grounded in the high degree of visionary intensity characterizing their expressive languages, centered upon a continuous dialogue between architecture and the arts, but also upon the use of 'drawing' as an autonomous expressive vehicle, free from the intrusions of conformist patronage [see De Rosa 2016; Mezzetti 2003], and thus a true avant-garde expression. Yet these were also the years of another Serafinian love: England, initially mediated by a romantic relationship that prompted him to cross the English Channel frequently, drawn above all by the linguistic and anthropological renewal with which architecture – thanks to the experiments of Peter Cook (1936) [Cook 1970] and the Archigram group [Wolfler Calvo 2007], founded by Cook himself in 1960–1961 – and English society were engaging. In the 'swinging London' so vividly portrayed by Michelangelo Antonioni in *Blow Up* (1966), the futuristic, neo-technological, and utopian projects of the members of this collective, though for the most part remaining on paper, outlined an aesthetic-creative process once again founded upon the hybridization of the natural and the artificial, so dear to Serafini. Le Corbusier's *machine à habiter* thus became, in the hands of Archigram, a synthesis between the carapace of an insect and the shell of a machine, prefiguring the sublime and pataphysical alchemical and configurative transmutations of the more mature Serafini. Yet even in this nation, the echo of antiquity and its outsider representatives called him back like enchanting sirens: thus he undertook a Scottish tour in order to deepen his knowledge of the works of Charles Rennie Mackintosh (1868–1928). In the sinuous lines and formal abstraction typical of the Glasgow architect, Serafini discovered an expressive language which was, on the one hand, entirely alien and original, and on the other indebted to the Tudor style: in his projects, the past was rescued from the sclerosis of history. After Gothic England, it was the *flamboyant* French cathedrals that attracted his attention during one of the long and fateful journeys – which also led him to Babylon, along the Euphrates, in 1972, and to the then République Populaire du Congo in 1973 – armed only with a Rolleiflex camera and a sleeping bag. It was, however, the four-month journey to the United States in 1971 that represented a *limen* in Serafini's biography: a *terminus a quo* as well as a *terminus post quem*, from and after which everything changed in his life, including his artistic trajectory. Attracted by the fluid mobility of the youth of that era, almost constituting a sort of human internet network *ante litteram*, and by the vague promise of employment in New

York, Serafini discovered the difficulties of integrating into the American professional world, eventually finding temporary work in Chicago as a painter-decorator for the dioramas of the Field Museum of Natural History. It was the city in which Wright had designed his celebrated Prairie Houses, but where Louis Henry Sullivan and Ludwig Mies van der Rohe had also worked: and this compensated him for the sacrifices he had thus far endured. From Illinois he then travelled toward the West Coast, crossing that borderland of manifest geology which is Arizona. Here occurred two decisive encounters with two equally emblematic communities, specular in their intentions yet entirely antithetical in their formal and anthropological results: that of Taliesin West [cf. Smith 1997], Wright's academic residence during the cold winter months when he abandoned his Taliesin East in Wisconsin, whose buildings had been shaped to integrate organically with the rocky landscape surrounding Scottsdale; and that of Arcosanti [cf. Wilson, Sarda 1999], the 'arcological' [1] and utopian city conceived by Paolo Soleri in 1970, 110 km from Phoenix, in the heart of the desert, where people from all over the world had gathered in order to realize the project of an eco-sustainable and self-sufficient city. It was above all there that communal life left an indelible imprint upon Serafini's imagination: the long nights spent with young men and women from across the globe, seated in circles beside the vapors produced by heated volcanic stones subsequently drenched with water, exchanging new existential perspectives while listening to Soleri's pantheistic orations – inspired by the thought of the Jesuit philosopher Teilhard de Chardin and hybridized with shamanic techniques derived from the Native American Hopi – would later find their counterpart, *mutatis mutandis*, precisely in Rome, during his apprenticeship in Pellegrin's studio, Pellegrin himself likewise having returned from the United States, during equally sleepless nights spent drawing and designing upon old technigraphs, nights that inevitably also became moments of intense intergenerational dialogue. It was within this atmosphere that, in 1982, Serafini – by then increasingly present in Milan for editorial reasons – met Ettore Sottsass through the mediation of Alessandro Mendini. Enthusiastic about the plates of the *Codex*, Sottsass invited him to participate in the birth of the Memphis group [Fitoussi 1998], the collective of architects, designers, and graphic artists that attempted to renew the creative language of the era by blending styles of the past, industrial materials (for example through the intensive use of laminate), and contemporary suggestions, through a refined and at times uninhibited use of kitsch. For the group's first exhibition, held in Milan in

September 1981, Serafini designed a freestanding mirror in tubular metal and laminate which enjoyed considerable press success, though not commercial success. Nonetheless, the liaison with Memphis ran its course very rapidly, perhaps because it was tied to a repetitive mannerism that proved constraining for the young artist-architect, who began to explore the realm of design in solitude and with ever greater intensity: from this period date works such as the *Santa* chair (steel and velvet/leather, 1986, designed for Sawaya & Moroni); the *Strappo* coffee table (tempered glass, 1989, Tonelli) and the *Luigi* chairs (black and chrome-plated steel frame, seat and backrest in tempered glass, 1990, Tonelli); the stands of the *Circo Massimo* series (925 silver, 1990, Cleto Munari) and the *Totem* centerpiece (925 silver, 1990, Cleto Munari); several lamps (ceiling and floor lamps in Murano glass, Artemide) and several toy ceramics (*Nessy* and *Hyppoteapot*, 1985).

His interest in craftsmanship inspired by classical traditions found further focus during those years in the exhibition *Abitare il tempo* (Verona Fair, beginning in 1986), which, thanks to the intuition of Carlo Amadori and the sophisticated cultural direction of Ugo La Pietra, succeeded until 1997 in highlighting the manufacturing excellences throughout Italy, connecting it with architects, artists, and designers. Serafini participated in at least ten of these events, engaging on multiple fronts. At the invitation of Adolfo Natalini, for the 1988 edition, he designed the Choir-Wardrobe Room, in which he placed his *Curvadio* cabinet [2] (painted wood and walnut burl veneer, 1988); while for the 1990 edition, as curator of the Umbria pavilion, and while visiting the productive realities of that territory so dear to him, he decided to ask the exhibiting companies to manufacture his 'functonoids' [3], objects resembling familiar and reassuring utilitarian forms but performing surreal and unsettling functions. The tutelary spirit of Ovid and his fascination with metamorphoses hovers over all these creations, characterized by a playful and refined use of formal combinations between the organic and the inorganic, between the botanical and zoological worlds, between functionality and gratuity –the gratuity of the gift that so often characterizes the work of Luigi Serafini.

It was precisely during this phase of his professional life, and more specifically in 1987, that Serafini arrived at his present studio-home [4]: near the Pantheon in Rome, he rented a large apartment situated on the third floor of a historic building belonging to the Order of the Knights of Malta. Gradually, as the seasons passed and artistic experiences accumulated, Serafini transformed the bare rooms of this apartment into veritable *Wunderkammer*, relying upon a cohort of master

craftsmen whom he had met during previous years and who alone were capable of translating the artist's complex spatial and decorative visions into concrete three-dimensional objects. The first domestic space to assume its present form was the kitchen where, beside a large circular table (with rotating central tray), the heavy prototypes of the *Susprial* chairs in solid metal rod found their place. That space gradually became crowded with salvaged objects such as the genetically modified sideboard that had belonged to Serafini's grandmother, who had also owned the chair suspended above the refrigerator column, as well as his first oil painting (dating from 1960, when the author was eleven years old: a floral still life set in the mythical summer house of Pedaso). It filled itself with mythopoietic multiples and allegorical images (such as the painted reproduction of one of the *Miracles of Saint Francis of Paola* by Giuseppe Bartolomeo Chiari, 1654-1727, executed for the Roman church dedicated to the saint, or the panel with the metaphysical interpretation of the osmotic bond between the obelisk of Minerva [5] and the adjacent basilica of Santa Maria sopra Minerva). Yet within the same kitchen one also finds a series of highly functional steel furnishings equipped with state-of-the-art appliances and cooking facilities. It is the most intimate place within this house-museum, a term that then as now could intimidate the unwary visitor: it would therefore be more accurate to define it as a house-laboratory, almost an alchemical crucible where common sense ceases to dictate aesthetic and functional choices, and where the enchanted gaze of the creator of the *Codex* prevails.

And perhaps it is indeed a kind of three-dimensional codex: this impression arises immediately upon crossing the austere door that, from the landing of the fifteenth-century staircase of the Roman palazzo, leads into the rectangular vestibule of the house. Here one is greeted by an explosion of colors, dominated by white and Pompeian red (colors associated by Serafini with the mnemonic persistence of the chromatic systems of road and naval signage, whose synthetic and polysemic graphics inspired a large part of his work). After ringing a bell/dulcimer, among a *Carrot Woman* inspired by Polykleitos, Persian carpets, red runners, display cases containing pagan nativity scenes and science-fiction dioramas, several of his most bizarre and enchanting works are displayed: such as *Sul filo della lana*, a sculpture from 2003 conceived for an exhibition organized by Philippe Daverio in Biella; or *Ora Oceanica*, an enormous vertical wooden disc painted with liquid forms and lysergic colors, connected to a digital clock, alluding to Jean-Luc Godard's film *Alphaville: une étrange aventure de Lemmy Caution*. Watched over by the archetypal icon of King

Botto, the visitor's never-exhausted gaze rebounds from one wall to another; where the arcane graphisms of his asemic writing pursue one another in the guise of epitaphs, plaques, or Platonic mementoes: we do not grasp the meaning of that alphabet, just as occurs in the 'reading' of the *Codex*, yet we emotionally intuit its empathetic resonance, like preschool children contemplating images. The curves and knots of the 'Serafinian' script, which seem to evoke Kufic or Polynesian

alphabets, follow the logic of the *coup de fouet*, unfolding as well within the furnishings and decorations of the house. Within this and the other o(a)ntological houses of Luigi Serafini there lies concealed a neural –or rather aural– network linking the images and asemic text of the *Codex*, creating, through a simultaneously poetic and magical reaction, "words and things" through the gaze alone, thereby mocking even Michel Foucault [6].

Notes

[1] The term 'arcology,' according to Soleri, refers to the capacity of a large building to guarantee and sustain an internal ecology together with a very high residential density: ultimately, it "proposes a highly integrated and compact three-dimensional urban form": cf. Soleri 1970, p. 22.

[2] The object was designed by Serafini to be placed within the Studiolo, the theme of *Abitare il tempo* in 1988: cf. *Casa Vogue*, 198, July-August 1988, p. 82, figs. 2, 3.

[3] Namely: *Salto-di-pesce*, *Biscriteriaire*, *Mobiluovo*, *Elefireplace*, *Lampanda*, *Contaore*, *Astra & Azione*, *Dentro-la-Foglia*, *Ruota Ubaldesca Universale*, *Infusi Umbri*, *Armascura*, *Trono Bizzarro*.

[4] Cf. Villani, Taylor, Saint Pierre 2023; Villani 2010. Prior to this, the artist

resided in an attic apartment at Via Sant'Andrea delle Fratte 30.

[5] Following his stay in Rome, Salvador Dalí drew inspiration from this very obelisk for a series of paintings, among which may be recalled *The Temptation of Saint Anthony*, *Dream Caused by the Flight of a Bee Around a Pomegranate a Second Before Awakening*, and *The Elephants*.

[6] For further studies on the architectural work of Luigi Serafini, see De Rosa, Calandriello 2025. Since 2024, the research group *Imago rerum* (Università Iuav di Venezia), under the direction of Agostino De Rosa, has undertaken the scientific survey of all the architectures and design/furnishing objects created by Luigi Serafini; these will be documented in a forthcoming volume and will constitute the core of an exhibition at the MACRO in Rome: cf. De Rosa (forthcoming).

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ΣΥΝΑΨΗ (SYNAPSE)
EXPRESSIVE AND RELATIONAL PATHS OF DRAWING

Performative Synapses

Drawing through *Phantasmata*. On the Synaptic-Performative Expression of Sign

Romano Gasparotti

I. Premise: the terms of the question

I./

Issue no. 18 of the journal *diségno* is devoted to the theme of the synapse as a metaphor for a dynamic relational manifestation within/of complexity, whose signs foreground, above all, the expressive dimension of the act of drawing beyond mere description. Focus I, in particular, addresses the performative valence of *synaptein*. Let us begin with the word: *synaphé* or *synápsis* –the nominal counterpart of the Greek verb *synápto* ('I connect', 'I bind together')–, in general terms, denotes the various modes of the spatializing operation of touching, joining, knotting, intertwining, articulating. The prefix 'syn', equivalent to the Latin 'cum', emphasizes the inescapable relationality of these actions, whose enactment

therefore exceeds mere connecting. While our common mentality tends to assimilate connections to relations-as-correlations, strictly speaking the connection '*inter*' does not at all coincide with relation concretely understood as '*infra*'. The simple connection is the extrinsic link between substantial entities, that is, entities existing as such in their determined identity prior to their connecting. Relating, by contrast, is an ongoing holistic process that precedes and institutes the tension of the relata, enacting their never substantially fixed delimitation as such, moment by moment and in ways that vary and transform incessantly. Real relations, in short, are not things but processes of processes, and they do not link things.

As intuited in the second half of the twentieth century by René Magritte through the practice of painting, mere

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connection on the one hand and concrete relations on the other ultimately correspond to two incomparable modes of exercising the productive power of thought. The linking connections are cardinal elements of the logical-analytical mind, which reasons through 'similarities', whereas concrete relating belongs to *cogitare* [1] that instead lives through 'resemblances', whereby thought becomes world "by becoming what the world offers it and by returning what is offered to it to the mystery without which there would be no possibility of world or thought" [2].

The rhythm of relational resemblance is analogous to that of a kind of breathing, which inhales the world and exhales that same world differently, in circularly open ways.

1.2

Our culture has stratified several possible ways of interpreting *synaptein*. The prevailing paradigm –underpinning and organizing informatics, linguistics, structuralism and the scientific mindset– is the dichotomously binary one proper to diaretic logic, whose foundations were laid by Plato in the *Sophist* [218b-221c] as an instrumental technique aimed at univocally defining the determined identity of any object whatsoever. Its linear tree-like structure is that of the inverted 'Y' as the schema of the binary and exclusionary alternative 'is/ is not', in whose replication the constraint of the One asserts itself without contradiction, becoming two and then progressively two again.

According to the studies of Carlo Sini, this linear and visuo-centric bifurcation originally stems from the epochal project of a "chrono-graphic transcription of the voice" [Sini 1992, p. 96] into an ideal/abstract dimension, with the aim of "making the invisible of the voice visible" [Sini 1992, p. 97]. The price paid is "the desomatization of the word" [Sini 1992, p. 96] and, therefore, abstraction from every concrete mode of embodiment. The methodological path of discursive sequencing (*diexodos*) in a tree structure is in fact fixed, in transcription, on the plane of points that symbolically represent the inscription of the here/now according to the geometric coordinates of position and succession, entirely irrespective of the performative, gestural and mimic-expressive components of the embodied voice erupting within actual communicative practices. On the basis of the universality of meaning as abstract concept, "the 'signifier' is not at all the 'natural body of the voice', but

a representation of the 'pure' voice: a voice emended of its oral-gestural practice and reconstructed within the abstractly chrono-graphic schema of the line [...] and of definitional topology" [Sini 1992, pp. 96, 97].

To this paradigm –one of the most formidable achievements of the logical-philosophical interpretation of the decisive advent of alphabetic writing– a second dominant model of connection is added, which triumphs in modernity. In order to free differentiation from the restraining yoke of the One, it focuses on the proliferation of multiplicity according to circular and/or cyclical structures. Within this movement, whose metaphor is that of the "book as image of the world" [Deleuze, Guattari 2017, p. 41], unity is no longer evidently and repeatedly transcribed in chrono-spatial terms, but withdraws and recedes, while nonetheless continuing to exert –as *hypokeimenon*, that is, as an invisible underlying unity– its irresistible unifying power.

As emphasised by Gilles Deleuze and Félix Guattari, multiplicity in this case too is not 'made' –that is, not performatively brought into operation– but once again symbolically represented, albeit in a different mode from the rigorously binary one of logical *diairesis*. The difference lies in the fact that unity no longer manifests itself objectively: "a new type of unity triumphs in the subject. [...] The subject can no longer make dichotomies, but accedes to a higher unity" [Deleuze, Guattari 2017, p. 41].

These two models dominate the scenarios of the Capitalocene, having removed what, according to the two French thinkers, constitutes a third 'natural' possibility, one that does not respond to the "physiocide" [cfr. Grant 2008] characterizing our civilization (*Weltzivilisation*): the rhizome. According to this non-paradigm derived from vegetal life, "any point can be connected to any other [...]. Every trait does not necessarily refer to a linguistic trait [...]. Like a tuber, it agglomerates very different acts: linguistic, but also perceptual, mimetic, gestural, cogitative: there is no language in itself, nor a universality of language, but a concurrence of dialects, vernaculars, jargons, special languages. There is no ideal speaker-hearer. [...]" [Deleuze, Guattari 2017, pp. 41, 42]. The act of drawing, consequently, is transfigured and transformed: "The line no longer forms a contour and passes between things, between points. [...] It traces a plane that no longer has dimensions other than those of what traverses it, and the multiplicity it constitutes is no longer subordinated

to the One [...]. They are multiplicities of masses [...]: anomalous and nomadic multiplicities, no longer normal or legal" [Deleuze, Guattari 2017, p. 688].

1.3

As the etymology further suggests, the word 'synapse' is also bound up with the intimacy of a touching (from the Greek verb *synapto*: 'I touch', but also –this should not be forgotten– 'I taste by eating and drinking'). Here too, the dominant cultural canon tends to interpret touching primarily in the sense of adherent contact, reducing –indeed abolishing– any distancing.

Yet even in this case another, more originary sense of touching remains possible: not merely and organically tactile, but properly haptic, beyond the division and demarcation of the different sensory spheres. This mode, beyond any will to appropriation and while respecting immanent distance, fosters synaesthetically a responsive disposition of receptive and savouring listening, in which the inseparability of sensing and sensed is not a given but an indefinitely ongoing process.

1.4

As for the adjective 'performative', it evokes an act of a non-descriptive and non-representational nature, by virtue of which actions are realized and brought into effects that structurally establish and transform the order and configurations of the existing world. Beyond the generic lexical meaning of the English verb 'to perform', from which it directly derives, the emphasis on the non-constative and non-representational sense of this adjective emerged in late twentieth-century culture through the international debate within the philosophy of language, when the lectures delivered in Oxford and Harvard by John L. Austin in the 1950s advanced and argued the thesis –supported by the theories of the 'later' Ludwig Wittgenstein– according to which the totality of linguistic acts has an eminently performative character, insofar as: "A – they do not 'describe' or 'report' or state anything whatsoever, they are not 'true or false'; B – the act of uttering the sentence constitutes the performance, or is part of the performance, of an action which would not *normally* be described [...] as 'merely saying something'" [Austin 1987, p. 9].

Extended beyond the specialized field of Speech Acts theory and the philosophy of language, the emphasis on performative power displaces and calls into question

both the metaphysical primacy of representation in all its principal implications and the classical-modern conceptions of knowledge and knowing. It thereby opens onto a perspective according to which every cognitive and epistemic act is itself a performative activity that operates pragmatically and cannot be reduced within the limits of various forms of epistemological cognitivism.

Addressing the question of performative synapses at work in the embodying gesture of drawing thus makes it possible to test the tension between the symbolic-representational character of the video-logo-centric conceptions that still dominate contemporary culture, politics and aesthetics, and what might be defined as a sapiential and symbolically ultra-melancholic element which, from a certain strand of twentieth-century art onwards, is reinforced in significant developments of contemporary artistic research [3].

2. Knowing as recollection through signs

2.1

Thinking is '*Andenken*', as Martin Heidegger derived from the poetry of Friedrich Hölderlin, and all knowledge is inseparable from memory [Heidegger 2022]. But in what sense? As taught –and ultimately sealed in his final book/autobiography– by Carlo Sini, memory is by no means the opposite of forgetting: "memory is one with forgetting. [...] Public and private knowledge is made of memories, and therefore of forgettings; that is, of recollections that interpret signs; signs that heal, in the present, the catastrophe of the past" [Sini 2025, pp. 340, 353]. For "memories heal forgetting, but also promote it, in the substitutive figures of recollection" [Sini 2025, p. 365].

Remembering –if we wish to take up the precious Leopardian verb (perhaps also in its suggestive pseudo-etymology of re-incorporation)– is a process that entrusts itself to the imaginative movement of imagining. It therefore cannot settle and fix itself in memorizing as possession and retention of memories understood as data [4]; rather, it lets itself go and lets go, insofar as its dynamic movement follows the force of forgetting in order to keep the imaginative processes themselves alive and operative.

Here too, it is a matter of synapses. In its derived meanings, the verb *synápto*, at the logical-philosophical level,

came to designate the *synemmenon axioma*, that is, the hypothetical syllogism [5], which, according to Aristotle, also includes that peculiar form of syllogising at work in reminiscence (*anamnesis*), insofar as it is distinguished from memory (*mnéme*). While the latter indicates a static acquisition of the soul, bound to time, the former consists in an activity always in progress, in whose reactive unfolding “we are moved according to one of the preceding movements [...], seeking the next movement” [Aristotle. *De memoria et reminiscencia*, 451b, 16-19], proceeding from inference to inference “in search of an image (*phantasma*)” [Aristotle. *De memoria et reminiscencia*, 453b, 15]. There are movements at work, therefore –only movements, never things, never data– in the processes of *anamnesis*. The mode of inquiry proper to this in-progress syllogising, moreover, inevitably “moves something bodily” [Aristotle. *De memoria et reminiscencia*, 453b, 15]; its performativity cannot but unfold as embodiment. A terminological clarification: following, above all, the studies of Deleuze and Guattari, and Jean-Luc Nancy [cfr. Nancy 1995] on the ineffability of the body as *arché* of any revealing of the world, the substantial use of the word tends to attribute to it an organic substantial subjectivity and/or objectivity, whereas the preferable verbal form to embody shifts attention to ongoing processes akin to what Antonin Artaud called the “body without organs” [cfr. Artaud 2003]: an unformed cluster of excitable multipolar mass, continually dismembering, emptying itself and absurdly re-stitching itself in its delirious schizo-metamorphoses.

2.2

Shortly after the revolutionary advent of the civilization of writing, with reference to bodily affections and affects and in order to explain why memory and reminiscence are by no means synonymous, Aristotle employed an argument that directly invokes the activity of drawing: “The affection produced by sensation in the soul and in the part of the body that houses sensation is like a sort of painted drawing (*zographéma*), in the possession of which we say memory consists” [Aristotle. *De memoria et reminiscencia*, 450a, 30]. If the register of memory thus preserves possession of the trace of representations of perceived objects, reminiscence, for its part, concerns the act in operation of a searching synaptic drawing, which mobilizes the body both retrospectively and, at once and simultaneously, protensively. Ingemar Düring [cfr. Düring

1976], one of the most authoritative twentieth-century interpreters of Aristotle’s work, argues that the processes of anamimnetic inquiry, in their bodily repercussions, develop dynamics and qualities of movement analogous to those of imaginative activity in the sleeping condition –that is, when *phantasia* withdraws from its constraining subordination to rational intellect.

From imagining, indeed, there flows the power of synapses orchestrated by the trace-forms [cfr. Laban 1999] of a drawing which, only in the *Gestalt* of its traces deposited in the archive of memory, declines into representation; whereas, in its restless recollective movement in search of images –the crucial problem, addressed later (in §4), concerns how to reinterpret accordingly the labour of the imaginative image itself– it instead develops its performative re-activity in the metamorphic processes of a *Bildung* always in the making. Let us recall, in this regard, the fundamental distinction between *Gestalt* and *Bildung* articulated by Johann Wolfgang von Goethe: “To designate the complex of the existence of a real being, the German language employs the word *Gestalt* (form), a term in which abstraction is made from what is in motion [...]. Now, if we consider existing forms, and especially organic ones, we notice that in them there is nothing immobile, fixed, or concluded, but everything oscillates in a continuous movement. For this reason, German appropriately employs the word *Bildung* (formation) to designate both what is produced and what is in the process of being produced” [Goethe 2014, p. 12] [6].

2.3

If the word ‘disegno’ (drawing) etymologically derives from ‘*signum*’, the gesture it names may be considered –starting from the same root, though not indifferently so– both on the symbolic-representational plane and on what we may call, by way of distinction, the ‘symbolic’ plane. The first philosophical elaboration of the *symbolon* is due to Plato, who held that it can only be treated through a “bastard” (*nothos*) [7] reasoning, since the erotic movement of *symbollesthai* alludes, on this side and beyond any dialectic logic, to the never fully predictable rebounding reactions of a one-that-is-two: neither one-one nor two-of-two.

Platonic reflections on this matter took their cue from the theatre of everyday life among the ancient Greeks, for whom *symbolon* named a shard of pottery that was

marked rather than divided –incised, scratched on the surface. It imitated the forms of erotic bonding in all its manifestations, and the non-divisive incision that marked it emphasized a self-rebounding bond that did not hold together through *reductio ad unum*. It could result in a clean break –one + one, two of two– only with the complete destruction of the *symbolon* itself, when lovers separated definitively and irrevocably. The verb *symbollesthai*, therefore, in the middle voice (neither active nor passive), expresses the undulating rebound of processes in a continuous, divergent yet concordant experimentation with distance, in the curving of the sideral orbits of that “stellar friendship” of which Friedrich Nietzsche [8] speaks in *The Gay Science* [Nietzsche 1965]. Logic operates on the parts of the shard no longer marked but definitively broken, replacing the erotics of an irreducibly dual and plural one with the symbolic analytics centered on deferrals of the presence of an index that stands for something else (that is, for its external object). Between the late nineteenth and early twentieth centuries, the work of Charles Sanders Peirce returned to the Platonic gesture, rethinking the infinite symbollic dynamics of the Sign as a process of processes that is triggered and bursts forth in the event of any signalling –within the resonances of its harmonic overtones of a pathic, emotional, nervous and, in any case, embodying character– ‘for’ an interpretant [9], which is itself a rebound-effect generated, in the moment, by the signifying field of which it is the interpretation in act. Infinite semiosis admits neither pre-constituted subjects nor autonomous and stable objects –the Sign self-interprets in the act of its own signaling– but only self-rebounding and undulating energetic explosions of the world within the world, at the rhythm of transitory triangulations in which the decisive element is the response-reaction which, as Peirce emphasizes, tends to become habit. In this perspective, therefore, *cogitare* [10] is by no means the activity of a self-centered thinking subject, but the rebounding response to the ubiquitous occurrence of events, insofar as their signaling is received and manifests itself for an interpretant in transit, incapable of installing itself and persisting in a substantial identity as interpreting subject. It follows that the attribution of meaning to a given event depends on: a. the fact that its signaling has elicited an interpretant; b. the way in which the latter has interpreted it contingently through reactions tending to become habit.

2.4

Carlo Rovelli has repeatedly emphasised how the moment of bouncing “is the true realm of quantum gravity” [Rovelli 2014, pp. 54, 55], in the annulment of both spatial and temporal categories. The rhythmic oscillations of rebounding and swaying likewise constitute the primary impulse of all dancing, whose fundamental disposition has recently been defined by Virgilio Sienias ‘haptic’, that is, rebounding from a touching without contact. The Florentine choreographer explicitly refers to the embodying possibilities of the performatively synaptic drawing of a touching/being-touched that does not at all aim at settling into adherent contact. For: “The space of adjacency is a place of resistance: one literally resists touch, one touches without touching. [...] One could say that dance originates from the capacity to resist touch, channelling focalisations on the body of the other into sequences of movement” [Sieni 2022, p. 25]. Even in this case, deeply dancing *cogitare* [Gasparotti 2024] develops its spatializing embodiment, putting its synapses to work according to the unpredictable possibilities of encounter, engaged with the irreducible resistance of the changing apparitional figures of an Other that is never available.

According to the ‘psychedelic biologist’ Merlin Sheldrake, the rhizomatically operating synapses in the kingdom of lichens, mushrooms and truffles are as if they orchestrated and composed, radiating from the mycelium, a kind of “jazz concert in which the musicians listen to one another, interact and respond in real time” [Sheldrake 2020, p. 53] [6]. What astonishes in the musical *synapteia* of this improvised concert is the fact that: “at a fork in the path, hyphae are not forced to choose one direction rather than another: they branch and proceed in both directions. [...] If they encounter an obstacle, they branch and, once it has been bypassed, the hyphal tip returns to its previous direction of growth. [...] Fungi are capable of following all possible directions at once. [...] By growing in one direction and withdrawing from others, mycelial networks can even migrate within a landscape” [Sheldrake 2020, pp. 61, 65, 66].

Palaeobiological studies attest that mycelial organisms were the first to develop such complex, flexible networks of invisible synaptic filaments which, prior to any rooting, touch, intertwine, break off and migrate –without head or tail– in order to solve the problems of life

within the surrounding environment in trans-specifically symbiotic contexts.

Some contemporary researchers have drawn from this the conclusion that: "Individuals have never existed. We are all lichens" [Gilbert, Sapp, Tauber 2012, p. 326], involved in interminable musical reactions and negotiations at work in a symborg–cyborg condition, which knows neither the distinction between organic and inorganic nor that between living organisms and technological or 'artificial' elements.

3. *Instabilitas loci et importunitas mentis*

3.1

From Aristotle's authority it follows that if the searching that constitutes reminiscence did not stimulate the movements of anamimnetic synapses, no memory would ever become manifest, and amnesia would be the normal condition of a soul incapable of thinking and acting, insofar as "thinking (*noein*) is a kind of imagining (*phantasia tis*) or is not possible without imagination" [Aristotle. *De Anima*, I, 403a, 8, 9]. For the anthropocentric assumption of the Greek philosopher, anamnesis is an exclusively human activity, insofar as its syllogising is governed by the nous of rational *psychē* and thus belongs "only to those to whom the capacity for deliberation (to *bouleutikón*) belongs by nature" [Aristotle. *De memoria et reminiscencia*, 453a, 12, 13]. In human beings themselves, however, the searching movements of reminiscence may be excited, interrupted, diverted or distorted by bodily-affective conditions that generate states of hyperkinetic "confusion" [Aristotle. *De memoria et reminiscencia*, 453 a, 23], according to an uncontrollable and uncontainable kinetics. For this reason, the Church Fathers described this condition in terms of '*evagatio mentis*', '*curiositas*', '*instabilitas loci vel propositi*' and '*importunitas mentis*'. Nevertheless, the pseudo-Aristotelian *Problem XXX*, I –attributed to Theophrastus– states that "all those who have become outstanding either in philosophy, or in politics, or in poetry, or in the arts appear to have been melancholic" ([Aristotle]. *Problem XXX*, I, 953 a, 10-12), insofar as "all melancholics are outstanding not by illness, but by nature" ([Aristotle]. *Problem XXX*, I, 955 a, 39, 40).

What unites these exceptional individuals is the fact that "the melancholic temperament produces anomalies",

being itself "anomalous" ([Aristotle]. *Problem XXX*, I, 953 b, 9, 10), albeit in a fully natural manner. The Greek terms '*anomalía*' and '*anomalos*' originally indicated what does not correspond to what is *omalós*, that is, regular, level, symmetrical, uniform and thus apt to generate connections and similarities. In the melancholic disposition, every form of oppositional binarity is suspended. The unstable and wave-like character of the affective vortex unfolds a meteorology that escapes prediction, schematization, regularity, causality and logic, oscillating within uncertainty in thinking, speaking, signifying and judging, beyond the opposition between darkness and clarity.

It is as if such a disposition disarticulates –without negating it– every logical structuring, and then loops these anomalous manifestations, concentrating attention on the extravagant effects of such excess.

The symbolical field of spatializing drawing of melancholically performative synapses is heightened on an aesthetic, multi-layered plane in the most sapiently experiential sense of the term. As Nicola Perullo has recently argued, the haptic disposition precisely characterizes the aesthetic field in its most authentic nature, insofar as "the haptic says nothing other than a processual and relational conscious perceiving. It is an immersive participation in the flow as a moving totality, an experience that does not dwell on (s)objects nor cling to them, but rather hovers over them in order to attend to processes. The aesthetic manifests itself as haptic perceptual correspondence; in haptic perception the aesthetic appears" [Perullo 2022, p. 143].

Sapient listening (from the neglected etymology of *sapio*: to taste, to savour) of such haptic aesthetic listening, however, is suppressed and obstructed by the video-centricity that characterises our logocentric or "agrilogistic" civilisation (in the recent interpretation of Timothy Morton) [cfr. Morton 2021], which is grounded in the isolation and primacy of the eminently symbolic class of signs. Thus, rather than in the discursively representational condition of *diexodos*, it is in the symbolically and synaptically performative disposition –whose prototype is the mycelium and its hyphae– that meaning is to be sought.

3.2

Only in what Walter Benjamin called the exclusive "language of man" [cfr. Benjamin 1962] do signs function insofar as they indicate their objects independently

of any resemblance or shared quality with what they denote, within a pervasive and all-consuming legal-abstract generalization.

As Charles Sanders Peirce specifies: “A Symbol is a sign which refers to the Object that it denotes by virtue of a law, usually an association of general ideas, which operates in such a way that the Symbol is interpreted as referring to that Object. It is in short itself a general type of law, that is, a Legisign. [...] Not only is the symbol itself general, but also the object to which it refers is of a general nature” [Peirce 2021, p. 153].

Although arising from the processes of infinite semiosis, the symbolic –as the completion/trafficking of semiotic processes in transit– ends up isolating itself in an anthropocentric protrusion, in which the denotative character of the sign assumes an abstractly logical-juridical and stable value. This necessarily inhibits the symbolical potentialities of synapses at work, enclosing the human animal in a “private world” [Heraclitus, fr. 89 DK] centred entirely on the logical dimension of ‘meaning’.

Meaning, whose pragmatic-performative nature –distorted and crystallised by the hypostatisation of the “logical interpretant” turned subject of interpretation– appears alienated in the forms of the Idea (in the Platonistic sense) and the Concept. And yet, as Peirce clarifies: “Not all signs have logical interpretants, but only intellectual concepts and the like [...], which are all either general concepts or closely connected with general concepts” [Peirce 2021, p. 153].

For: “No thought in itself (which is a mere feeling) has any meaning, nor any intellectual value; for meaning does not lie in what is thought in the act in which it is thought, but in what that thought can be connected with by subsequent thoughts in a representation; so that the meaning of a thought is something virtual” [Peirce 2021, p. 95].

The consequence of the all-too-human self-confinement within the symbolic dimension lies in reducing the evental dynamics of the living to discursive linearity, whereby the loci of meaning are reduced to mere places –where one simply ‘is’ [11]– resistant to any spatial opening. Thus the cosmic jazz concert orchestrated by synaptic networks is overpowered and suffocated, and dance itself is interrupted, or rather reduced to the superficial shell of the attitudes of a great Dance separated from the small Dance that should animate its spatial embodiment [12].

4. Dancing through *phantasmata*

4.1

The Renaissance treatise by Domenico da Piacenza, *De arte saltandi et choreas ducendi*, explicitly draws attention to the fact that every form of dancing can only ignite and extinguish itself as a “dancing [...] through *phantasmata*” [Procopio 2014]. But what kind of imagining is at stake here, and in what way does it induce dancing “breathing the body through *phantasmata*” [Domenico da Piacenza. *De arte saltandi et choreas ducendi*, I, 14, 15]?

From this perspective, the power of the phantasma cannot be reduced to the Platonic notion of *eidolon kai eikon* as a copy of that of which it is an image, nor to its Aristotelian retention within the soul as guaranteeing recollection –though such recollection, without the searching enacted by anamimnetic syllogising, would never be consciously available as such. What is instead at stake is *phantasia* in the unfolding of its magical power, through which –as argued in the 1920s, before definitively closing his ‘philosophical period’, by the controversial painter, alpinist and thinker Julius Evola– “all reality must be transmuted into a dream after having negated it in sleep [...] into a ‘perfect act’, which will be experienced as absolute reality” [Evola 2006, p. 95]. This is a condition of reactive somnambulism [13] that unmasks the illusionistic myth of a reason permanently awake.

4.2

From the 1970s onwards, Steve Paxton would often urge his dancers and students: “Imagine. Don’t do it!” [Paxton 2018, p. 38]. To move by executively applying an ideal *Gestalt* [14] of what must be done –already thought and calculated by a separated mind– may indeed ensure functional and efficient actions according to instrumental rationality, yet it does not necessarily give rise to dancing in a strong sense (having instead suffocated, repressed or obstructed the silences and vacuity of the small Dance). Through his research into relational movement, Paxton came to the conclusion that, beneath and beyond the embodied ‘attitudes’ of dancers, their more or less precise athletic performances, and independently of choreographic prescriptions, it is the power of imagining that originally ‘breathes’ every embodiment, shaping, emptying and modulating energies in process through the contagious

influence of its phantoms and in accordance with the jazz-like concert of chaosmic forces. Yet anthropo-
logo-centric efficiency –the hallmark of the dominant epistemological and cultural canon– appears to have forgotten the very premise of the Aristotelian doctrine of human action as *proairesis* (literally 'pre-seizure') [15], a premise both affirmed and implicitly undermined by Aristotle himself. Reason alone does not move anything. In its autonomy it is analytical and generalising, legally calculative, judgemental, and therefore fully capable of assessing the feasibility of action, evaluating ends, and selecting means. Yet the force that initiates and sustains any movement does not belong to rationality, but arises from an *alogen* element, which Plato had already called '*orexis*': desire, inclination, *conatus*. As Emanuele Severino has noted [Severino 1980, p. 380], Aristotle's attempt to connect rational deliberation and non-rational motivational force ultimately collapses into an *aporia*: on the one hand, calculation of means that cannot produce ends; on the other, a force that knows nothing of the ends it is meant to serve. Melancholics, however, seem to embody –almost shamanically– a different path. As Aristotle observes, they often fail to remain within their rational deliberations, or fail to deliberate altogether, due to their incontinence, and yet they act, and often with remarkable results: «they do not adhere firmly to reasoning, because they are guided by imagination» [Aristotle. *Nicomachean Ethics*, VII, 1150 b, 27, 28]. Thus, rather than lucid rational calculation, it is *phantasia* that governs their action, producing effects that inspire wonder across all fields, including politics.

4.3

In the suspension of binary mentality grounded in dichotomous logic, which underpins linear conceptions of the Sign, being guided by imagination does not exclude reason, but rather repositions it as a regulating and limiting instrument operating in-process within relational dynamics. Reason may thus be used to calibrate impulses of synaptic movement, to overcome obstacles, and to expand the field of possible actions. Not pre-emptively or pre-formatively, however, but performatively –through what may be called *autoschediastic* calculation [16], that is, 'improvisational'. As the Jesuit sociologist Michel de Certeau observed,

improvisation already characterizes everyday walking, where the pedestrian selectively actualizes spatial possibilities, thereby producing deviations, shortcuts, and new configurations of the urban order. It also operates in reading, understood as a drifting through the page, a metamorphosis of the text through wandering attention –“an improvisation and an expectation of meanings drawn from certain words, an overflowing of written spaces, an ephemeral dance” [de Certeau 2010, p. 152].

Paxton himself once foregrounded the question: “How do you know you aren't improvising?” [Paxton 2018, p. 26].

4.4

We have thus reached a crucial point. The imagination that “breathes the body through phantasmata” [Domenico da Piacenza, *De arte saltandi et choreas ducendi*, I, 14, 15] is both less and more than the faculty traditionally attributed to the Western philosophical subject. The image is not a determinate presence, nor a copy of anything, nor a stabilizable entity in any sense. Andrea Emo [see Emo 1989; 1992; 1998; 2006] conceived *phantasia* as a self-negating magical power and therefore necessarily iconoclastic: “The image is the royal road to the abolition of the image, to supreme iconoclasm” [Emo 2019, p. 162]. The image “redeems from identity” [Emo 2019, p. 155], acting as “absolute difference” [Emo 2019, p. 154]: not a determinate otherness with respect to something else, but rather that which is never any determinate entity whatsoever, including itself as image. It operates as a flickering manifestation of the catastrophe of every image, in which every product is consumed in order to allow the process itself to re-emerge. The artist Anselm Kiefer was deeply impressed by this aspect [17]. The result of these iconoclastic processes is rhythm: the very rhythm of the world's breathing.

5. Nothing is what it is

If, as recent biological studies show, fungi are capable of following multiple directions simultaneously, migrating their synaptic networks across space, and if hyphae at every bifurcation branch without choosing one path over another, then canonical paradigms

of connection are fundamentally overturned, beyond any form of 'agrilism' [18].

In the final chapter of *Entangled Life*, Merlin Sheldrake asks: "If we say that a plant 'learns', 'decides', 'communicates', or 'remembers', do we anthropomorphise the plant, or vegetalise a set of human concepts?" [Sheldrake 2020, pp. 266, 267]. It is a well-posed question, and like all genuine questions, it admits no determinate answer.

In any case, foregrounding the performative character of synaptic drawing trace-forms, within a non-representational perspective, entails a melancholic deconstruction of the canons underpinning Western rationalism and scientism. Contemporary art has already opened this path, particularly in certain late twentieth- and twenty-first-century practices that abandon anthropocentric intellectualism [cfr. Gasparotti 2019; 2024].

For instance, the installation *Liminal* by Pierre Huyghe [19] (Venice 2024, later shown in Seoul and Berlin) stages the idea that every threshold of a processual world in perpetual transformation radiates a specific techno-natural agency, capable of communicating beyond symbolic linguistic codes [Gasparotti 2025a]. As Huyghe states:

"Once an environment is established, I let it develop its own 'agency' and 'sentience'. [...] I produce uncertainty rather than illustration. [...] I think of a language that can be invented [...] a non-human, non-animal language. [...] In my relationship to reality I play [20].

Artistic expression, in this perspective, does not represent reality, nor does it produce it ex nihilo, but rather postproduces it [cfr. Bourriaud 2004]. The theatre of "dancing for phantasmata" thus plays by reinventing and reconnecting synaptic, reversible, rhizomatically mycelial and iconoclastic images, in which the tragicomic vicissitudes of appearing-disappearing worlds are enacted. As Tristan Garcia puts it: "There is no meaning, no immediate cohesion of things, nothing in common [...]; in fact, nothing is what it is" [Garcia 2024, p. 11].

Drawing is not signification—at least not in its ideal, symbolic or juridical sense. Rather, it is a performative, synaptic and improvised becoming of thought without subject and without object. It is a practice that remembers and dismembers—through the voids and re-stitchings of the body with/without organs—the forgetting that, as Friedrich Nietzsche argued, is necessary for action, and therefore for life itself.

Notes

[1] In such cases, rather than the verb 'to think', we prefer to use the form 'cogitare', following its etymology from *agitare/agitarsi*, to move, to be in motion, in relation with others and with the Other. It is highly significant—and at the same time eloquent—that the *Treccani Online Dictionary*, in reporting this etymology, renders "*co-agitare*" as "to agitate within oneself, in one's own mind" [<https://www.treccani.it/vocabolario/cogitare/>], thereby completely removing the infra-relational dimension of *cum*, and thus reinforcing, in the most exemplary way, the entrenched anthropo-logocentric conviction according to which thinking is the manifestation of a spiritually 'mental' and autonomous interiority. We have attempted to deconstruct and move beyond this assumption in Gasparotti 2024.

[2] Magritte 2005, p. 158. We addressed this issue in Gasparotti 2010.

[3] We are referring, in particular, to two parallel strands of contemporary artistic research and experimentation: on the one hand, the practices and projects of a group of artists who often collaborate on joint works, such as Dominique Gonzalez-Foerster; Liam Gillick, Carsten Höller, Rirkrit Tiravanija, Philippe Parreno and Pierre Huyghe; on the other hand, the countercurrent performances of Emilyn Claid, Anne Bean, Joseph Morgan Schofield, and Ash McNaughton. The investigation into the presuppositions and implications of these "adventures of the unrecordable", as they are defined in Huyghe 2024, lies at the centre of Gasparotti 2025b.

[4] Even in the interpretation of the movement of remembrance, a logocentric and videocentric mentality tends to prevail, the effects of which were most clearly denounced by Henri Bergson. According to this mentality, the human logical-analytical representation of movement ends up negating it outright, reducing it to a concatenation of static positions. In one of his university lectures from 190, 1903, devoted precisely to the sign in its relation to the idea of time, the French philosopher, revisiting Zeno's paradox of the arrow, argues: "If I analyse Zeno's arrow crossing space, it is always in different positions and the movement of the arrow appears to me as a series of positions. If I analyse, not from within but from without, the movement of my arm being raised, if [...] instead of feeling myself performing it I observe it being performed from outside, I see that it passes through one point and then another, and so on [...] and this movement is for me nothing other than the succession of the positions of the moving body along its trajectory": Bergson 2011, pp. 77, 78.

[5] Aristotle specifies that the act of recalling memory—which "is neither re-acquisition nor acquisition of memory" [*De memoria et reminiscencia*, 451 a, 20]— "is like a syllogism: for the one who recalls infers that previously he saw, heard or experienced something of this kind, in a condition of inquiry" [*De memoria et reminiscencia*, 453 a, 10-12].

[6] Processes of formation understood as *Bildung* oscillate and continually rebound in the very course of their unfolding, dynamically immanent and yet at the same time constantly projected beyond themselves,

within the intrinsically formative life of matter itself. The model of *Gestalt*, by contrast, can be traced back to the classical Aristotelian conception and denotes form as a predetermined immaterial principle imposed upon material reality from without, insofar as it is ideally prefigured in the intellect of the agent. It fixes, circumscribes, and identifies the substantial object, isolating and separating it from every other object and abstracting it from movement and transformation.

[7] As Plato clarifies in the *Timaeus*, such “bastard reasoning [...] scarcely credible” [*Timaeus*, 52b, 1] is not based on what is sensibly perceived or perceptible but unfolds “as if we were dreaming” [*Timaeus*, 3], thereby abolishing any distinction between oneiric phantasms and empirical reality.

[8] “We are two ships, each of which has its own destination and its own course; we may well cross paths and celebrate a festival together; as we have done [...]. But precisely then the all-powerful force of our task drove us apart again, into different seas and zones of sun [...]; the different seas and suns have changed us! That we should become strangers to each other is the law that weighs upon us [...]. There is probably an immense invisible curve and sidereal orbit within which our different lives and aims might be encompassed [...] –let us rise to this thought!”: Nietzsche 1965, §279, p. 155.

[9] The interpretant, for Charles Sanders Peirce, is not an interpreting subject already existing somewhere, ready to grasp signs from the world externally and to relate them, coldly and according to fixed criteria, to their given object. The interpretant itself emerges, in its vanishing apparition, from the sudden activation of a semiotic field which, for Peirce, operates through dynamic triangulations of the same within the same. It is the logocentric overestimation of the logical interpretant of signs as “legisigns” that produces and imposes the illusion of a metaphysical Interpreter, subjectively pre-existing and external to the momentary play of signification.

[10] See Note 1.

[11] Jean-Luc Nancy rightly specifies that place, in relation to corporeal becoming, is not “position”: Position is where one stands, a determinate and secure domain of in-sistence. Bodies, instead, “have no place, neither in discourse nor in matter: [...] They take place at the limit, as limit: edge, fracture and intersection of the foreign within the continuum of sense”: Nancy 1995, p. 17.

[12] According to Steve Paxton, co-founder of Contact Improvisation, every dance that unfolds visibly in its spectacle as *great Dance* must originate from –and ultimately be reabsorbed into– the rarefied movement that appears not to move: a barely perceptible yet intensely living, necessary and involving motion in its fluid and aerial elementary nature. Within this invisible *small Dance* lies the secret and condition of possibility of all dancing. Paxton developed this insight through John Cage’s influence, according to whom all musical process is constituted by silence, insofar as silence is the non-subjective, non-intentional and non-perceptible element of sound, just as sound is the subjective, intentional and perceptible manifestation of silence itself: see cfr. Cage 2010.

[13] It should be noted that nineteenth-century ballet frequently explores the theme of somnambulism, on which Marius Petipa himself worked. The tendency intensifies in the twentieth century (see George

Balanchine’s *La sonnambula*, 1946, revived in 1960 by the New York City Ballet). In the new millennium, the trend continues in works by Enzo Cosimi (*Hello Kitty!*), Trajal Harrell (*Tickle the Sleeping Giant*, 2001-2012), Boris Charmatz (*Somnole*, 2021, 2022), and Cristina Rizzo (*Ultras. The Sleeping Dances*, 2019; *Sonno*, 2021; *Monumentum – The Second Sleep*, 2022, 2923). See Tomassini 2023.

[14] See Note 6.

[15] With the term ‘*proairesis*’, Aristotle designates “deliberation prior to action [...] always accompanied by reason and reflection. [...] The object of *proairesis* is what has already been judged through deliberation. [...] One ceases to search how one should act when one has brought the principle of action back to oneself and to that part of oneself which commands”: Aristotle. *Nicomachean Ethics*, III, 1112a, 15-1113a, 6. This doctrine has profoundly influenced Western conceptions of action up to modernity and beyond.

[16] Already the Greek philosophers (including Aristotle, who refers to it in the *Poetics*), in order to describe a particular mode of action and procedure that would much later come to be termed ‘improvisation’, employed, with reference to the ritual celebrations associated with tragic theatre, the adjective ‘*autoschediastikós*’, which literally means “that which gives itself (*autós*) its own dynamic form (*schéma*)”. The term therefore denotes the spontaneous initiation of a compositional process whose dynamic configurations are not preformed within *proairesis*, but rather take shape in the course of their unfolding, so long as the mobilised energies remain in operation.

[17] This is evidenced by the 2023 exhibition –held as a collateral event of the 59th International Art Exhibition of La Biennale di Venezia– by Anselm Kiefer, entitled *Anselm Kiefer. Questi scritti, quando verranno bruciati, daranno finalmente un po’ di luce* (*Andrea Emo*), curated by Gabriella Belli and Janne Sirén, Venice, Doge’s Palace, 26 March 2022 - 6 January 2023.

[18] Developing an anti-Marxian insight derived from Derrida, according to which agriculture both anticipates and presupposes industry, the British philosopher Timothy Morton interprets the emergence of agriculture in Mesopotamia some twelve thousand years ago as the advent of an inexorable and totalizing machinery of thought and practice that is at once intoxicating, persuasive, and seemingly rewarding in its capacity to satisfy human needs optimally. Through this agrilogistical program, the spaces of dwelling are planned, organized, and mobilized according to the imperative of maximizing the rational exploitation of available natural resources, relying on the indefinitely perfectible progress of the *technai* understood in a Promethean sense. The ontological structure of agrilogistics is grounded in three fundamental assumptions: (1) the inviolable validity of the principles of identity, non-contradiction, and the excluded middle; (2) the equation of existence with presence; and (3) the unquestioned conviction that rigid, clear-cut, and insurmountable boundaries separate the human from the nonhuman, together with the corollary that human existence constitutes the best possible mode of being. [cfr. Morton 2021]

[19] We addressed this topic directly in Gasparotti 2025a.

[20] The quotation is taken from Stéphanie Renault’s interview with the artist entitled *L’essenziale è perdersi*. In *Il Giornale dell’Arte*, 3 August 2022.

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Drawing at the Opera. Settings, Evocations and Visual Imagery in the Stage Backdrops of Operas

Enrico Cicalò

Abstract

Opera can be regarded as a total work of art, one of the most multidisciplinary and multimedia forms of performance. In opera, the stage production takes the form of a true artistic synaesthesia, where the languages of music, drama, dance, poetry and the visual arts converge. The latter define the aesthetics of the performance through set design, staging, lighting, make-up and costumes. In the staging of opera librettos, a crucial role is played by images: whether painted or projected, they evoke settings, suggest emotions and stimulate associations, facilitating an understanding of the plot and immersing the audience in the narrative.

Despite the evolution of stagecraft –which has seen the rise of sculptural elements and three-dimensional architecture– drawing and two-dimensional images retain an absolute centrality. Today, however, the tradition is evolving towards digital projections, which offer greater creative flexibility and a reduction in production costs.

This article discusses the contribution of drawing to the success of operas, beginning with a presentation of the long-standing tradition of painted backdrops and extending to an exploration of the most advanced forms of digital projection and rear projection of images onto both opaque and semi-transparent materials, to highlight the relevance of drawing and graphic arts within the performing arts and their ability to adapt to new technologies.

Keywords: opera, images, drawings, stage backdrops, stage projections.

Introduction

“All the world’s a stage,
And all the men and women merely players.
They have their exits and their entrances,
And one man in his time plays many parts”
[Shakespeare 1623, 146-149]

Opera is a form of composite art that integrates music, text, dance, acting, fashion, visual arts, and performance into a single unit. All theatrical performances, operas included, share the fact that they belong primarily to the collective imagination through their narrative plots, character development, and above all through the visual component, which enables the staging of very different worlds

and original settings, transporting the audience beyond theatres and distant places. Opera is therefore also a visual art, in addition to an auditory one. In this regard, the idea of music as a total work of art, known as the *Gesamtkunstwerk*, theorized in the 19th century by Richard Wagner, represents the unification of the arts, where the stage setting or architecture contributes significantly to the construction of the atmosphere (fig. 1). With Wagner, the design of the stage space extends beyond the mere drawing of the theatre and the control of visual dimension, also using painting, which is placed at the service of the dramatic setting [Wagner 1895] for the creation of an immersive experience *ante litteram*.

Throughout its history, opera has been influenced by various artistic trends and, at the same time, has in turn influenced the visual arts. Numerous artists have engaged with this theme [Perrelli 2024]: by way of example, one can cite Giorgio De Chirico's metaphysical backdrops for Mascagni's *Cavalleria rusticana* at the Teatro alla Scala in 1942, Mario Sironi's set designs for Wagner's *Tristan und Isolde* in 1948, also for the Teatro alla Scala, David Hockney's 1978 *The Magic Flute* by Mozart (fig. 2), or Gae Aulenti's 1994 *Elektra* by Strauss. The iconographic documentation of opera – from costume and set design sketches to performance posters – is a fundamental repertoire for understanding how drawing and imagery have contributed to defining the collective imagination of opera. This includes various forms of project drawings, visual testimonies intended for dissemination, and promotional images in posters, each with its own narrative and communicative function in constructing opera as a visual event [Piscitelli 2022].

However, it is in the drawn backdrops that drawing assumes a leading role in the operatic performance, capable of participating in the meaning of the event just as much as music and words. The expression 'scenographic backdrop' (or 'painted backdrop') refers to the surface that serves as a background to the action and gives character to the dramatic space. Historically, this surface was painted with perspective scenes of landscapes, architecture, or narrative settings, allowing the audience to perceive an illusory scenic space represented through perspective techniques [Pagliano 2002]. The backdrop, therefore, must not be understood as a mere decorative apparatus, but as a complex element that actively participates in the production of meaning within the operatic performance [Cruciani 2005]. The iconography of opera is not merely a translation of the libretto; rather, the two components – verbal and visual – are in constant dialogue [Viale Ferrero 2002]. The stage is governed by the principle of semiotization [Zich 2024], whereby every scenic object is not limited to representing itself but becomes a semiotic unit that refers to designated meanings within a network of heterogeneous codes. The scenic image in opera acts as a system of signs that can contrast or work in synergy with the verbal and musical text, creating new levels of meaning [De Martinis 1982]. The scenographic backdrop operates through a function of denotation and connotation. While denotation allows the spectator to identify the location of the action, connotation activates secondary meanings and symbolisms linked to the emotional atmosphere, social condition,

or historical memory of the drama. For the melodrama, scenographic design follows often pre-established visual codes that must make the settings of myth or history immediately recognizable through a precise graphic vocabulary. One need only think of the environmental characterizations of Puccini's *Madama Butterfly* or Bizet's *Carmen*, which must necessarily evoke Japanese or Hispanic stylistic elements respectively, or the celestial atmospheres of the prologue and epilogue of Boito's *Mefistofele* (fig. 1) or Mozart's *The Magic Flute* (figs. 2, 3) contrasted with the infernal ones of the witches' Sabbath in the second act of the same opera. These are ephemeral architectures that have deeply marked the history of performance and drawn architecture, but which have been lost, with the exception of a few episodic drawings that – as hoped by Massimiliano Ciammaichella in his most recent research – deserve forms of protection and systematized archiving within an 'Archive of the Ephemeral' [Ciammaichella 2022; 2024a; 2024b].

From decorative backdrops to perspective backdrops

The first traces of scenographic backdrops can be found in the *pinakes* of Greek theatre – painted panels placed behind the stage dating back to the 5th century BC. Agatharchus of Samos writes about these artifacts; around 460 BC, he created the first treatise on perspective painting for a backdrop by Aeschylus, as reported by Vitruvius in *De Architectura*. This fixed *skene*, decorated with intercolumniations and doors, utilized pseudo-perspective paintings to open the stage space, prefiguring Renaissance illusionism. In Roman theatre, backdrops then evolved with the *trigoni versatiles* – corresponding to the Greek *periaktōi*: rotating prisms with painted faces that allowed for rapid scene changes by integrating botanical or architectural elements. It was later during the Italian Renaissance that painted scenery assumed a more structured form. The earliest evidence reportedly dates to 1508, the year of the performance of Ludovico Ariosto's *Cassaria* in Ferrara [Nicoll 1971, Titomanlio 2019]: on that occasion, there appeared "*una contracta et prospettiva di una terra cum case, hiese, campanili et zardini*" [Campori 1896, p. 49], painted by Pellegrino da Udine. A few years later, in 1513 in Urbino, painted scenery appeared as a background to three-dimensional structures depicting city views for the staging of Bibbiena's *Calandria*. The latter was presented again the following year in Rome with set designs by



Fig. 1. Projections onto transparent backdrops for the prologue to Arrigo Boito's *Mefistofele*, Teatro Lirico di Cagliari, 2023.

Baldassarre Peruzzi, who continued to integrate painted backdrops and scenic architecture [Mancini 1966, Nicoll 1971]. Thanks to the studies on perspective by Filippo Brunelleschi, Leon Battista Alberti, and Piero della Francesca, scenographic technique was subsequently codified, and drawing ceased to be mere ornament to become a 'world-builder'. Perspective thus became the essential tool for producing realistically spatialized set designs [Zammerini 2012]. The transition from a fixed stage to a perspective and illusionistic one is documented by the treatises of the 16th and 17th centuries, particularly that of Sebastiano Serlio. In his *Secondo libro di prospettiva* [Serlio 1545], he systematized the use of perspective as a graphic tool to construct stage designs based on vanishing points, inclined planes, and wings, inaugurating the tradition of scenic design as applied architecture (fig. 4).

From perspective background to atmospheric background

Scenography, which originated in the Renaissance thanks to figures such as Baldassarre Peruzzi, Sebastiano Serlio, Guidobaldo del Monte e Vincenzo Scamozzi, experienced an acceleration during Mannerism. Starting from this phase, the extreme refinement of expressive means would lead to unprecedented complexity: the use of perspectives with multiple vanishing points and bold framings would lead to the disruption of classical rigidity. This process of sophistication anticipated the spatial conception typical of the Baroque, dominated by visual deception and the wonder of illusionism [Pagliano 2011]. With the advent of the Baroque, the focal point of staging shifted toward wonder and dynamism. The drawings of the Galli Bibiena



Fig. 2. David Hockney, *The Queen of the Night*. Set design for Wolfgang Amadeus Mozart's *The Magic Flute* for Glyndebourne Opera, 1977.

family introduced the *veduta per angolo* (scenographic perspective from an angle) [Biggi 2015], breaking away from Renaissance perspective centrality (fig. 5), expanding the narrative possibilities of space, and bringing about a transformation of the theatrical venue into an 'infinite' space [Viale Ferrero 1970]. In parallel, the evolution from Baroque opera to the French *tragédie en musique* marks the transition of scenography from pure architectural illusion to a true dramaturgical instrument. In this context, the drawn scenes constitute an autonomous visual language, where the concept of the 'marvelous' and the use of technology become active poetic elements. Furthermore, documentary sources (scores, librettos, iconographic apparatuses) demonstrate how the transformable stage was a constituent part of the narrative effect; an example is *Thésée* from 1675, where the visual structure anticipates and comments on the musical action [Stevens 2015]. As highlighted by Mercedes Viale Ferrero [1970] in her analysis of Filippo Juvarra, scenic design becomes more ethereal, less bound to structural rigidity, and more inclined toward atmospheric suggestion. It is in this phase that the backdrop ceases to be a 'painted wall' to become, to all intents and purposes, 'atmosphere'.

The Renaissance is also the moment in which the precursors of opera can be traced [Abbate, Parker 2023], and

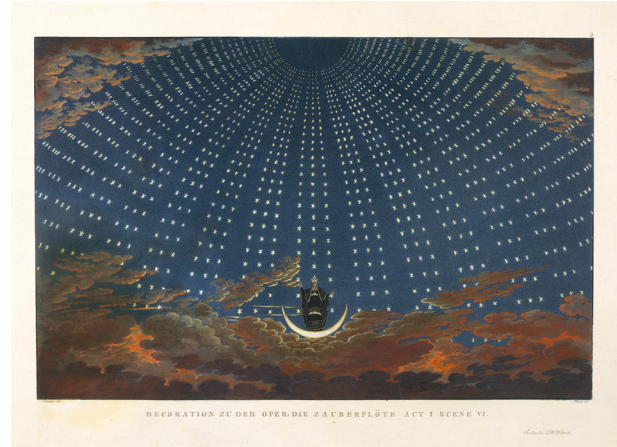


Fig. 3. Karl Friedrich Schinkel, *The Queen of the Night*. Set design for Wolfgang Amadeus Mozart's *The Magic Flute* for the Royal Opera House in Berlin, 1816.

consequently also its link with imagery, when set designers like Bernardo Buontalenti began to design theatrical machinery for the Medici courts, integrating perspective drawings with dramatic music. The Florentine *intermedi* of the sixteenth century, described by Angelo Solerti in *Gli albori del melodramma* [Solerti 1904], combined illusionistic paintings with lyric arias, prefiguring opera as a *Gesamtkunstwerk* as later theorized by Wagner [Bolpagni 2011]. A century later, Nicola Sabbatini's *Pratica di fabricar scene e machine ne' teatri* [1638] constituted the first systematic repertoire of stagecraft, featuring plates that illustrated scene changes, 'natural' effects, and early lighting solutions, demonstrating how the painted backdrop was already conceived to function in interaction with light and machinery. The relationship between drawing and opera becomes particularly evident when scenography emerges as an autonomous discipline. The space of scenic representation becomes a three-dimensional canvas that the set designer creates with the compositional freedom of a painter; while being able to employ a language of images that combine with volumes, plastic masses, and lights, which in turn become dramatic and theatricalizing elements of the performance. Set designers like Pierre-Luc-Charles Cicéri and Philippe Chaperon, active in the 19th century, were not merely technical artisans but creators of theatrical images,

whose scenographic drawings for operatic productions formed an integral part of the construction of opera's identity and its public reception. This is the moment when, with the advent of Romanticism, drawn backdrops oriented themselves toward naturalistic landscapes of great ethereal intromotional impact [Mancini 1966]. Chaperon himself created panoramic backdrops for Wagnerian operas at the Paris Opéra, emphasizing atmospheric suggestions (fig. 6). Thus began that metamorphosis that would take theatrical design from illustrating places to evoking atmospheres and psychological elements. Drawing no longer describes the setting of the action but interprets it. The graphic mark no longer serves to imitate, but to suggest states of mind and the inner torments of the characters.

From atmospheric backdrops to performance backdrops

At the beginning of the 20th century, the drawn backdrop underwent a theoretical assault that would lead to the replacement of pictorial realism with more abstract geometric lines and interplays of light and shadow [Mancini, 1975; Perrelli 2024]. Adolphe Appia, in his *La mise en scène du drame wagnérien* [Appia 1895], criticized static pictorial backdrops, proposing instead dynamically illuminated three-dimensional spaces. In *Die Musik und die Inszenierung* [Appia 1899], Appia himself theorized a scenic image born out of musical rhythm. Influenced by Wagnerian operas in Dresden and his apprenticeship under Hugo Bähr—considered the father of German lighting—Appia proposed a choreography of light and space [Palmer 2021]. In his writings, he rejected pictorial backdrops in favor of experimenting with 'active light' (the directional beam created by shadows) opposed to 'passive light' (fixed and diffused). Appia envisioned projections modulated like music, integrated with scenographic elements into an immersive experience, and proposed replacing static drawing with 'rhythmic spaces' where light draws the atmosphere in real time, conceptually anticipating modern projection. His designs for Wagner's operas replace descriptive detail with the interaction between geometric masses and chiaroscuro [Appia 1899; Palmer 2015] (fig. 7). Against the 'dead canvas' (*tela morta*) of painted backdrops, Appia calls for architectural planes, stairs, and masses [Nicoll 1971] upon which light—whether diffused or concentrated—shapes the action in unity with the actor's body and the music. However, Appia's legacy



Fig. 4. Sebastiano Serlio. A comic scene from *The First Book of Architecture*, 1545. p. 157.

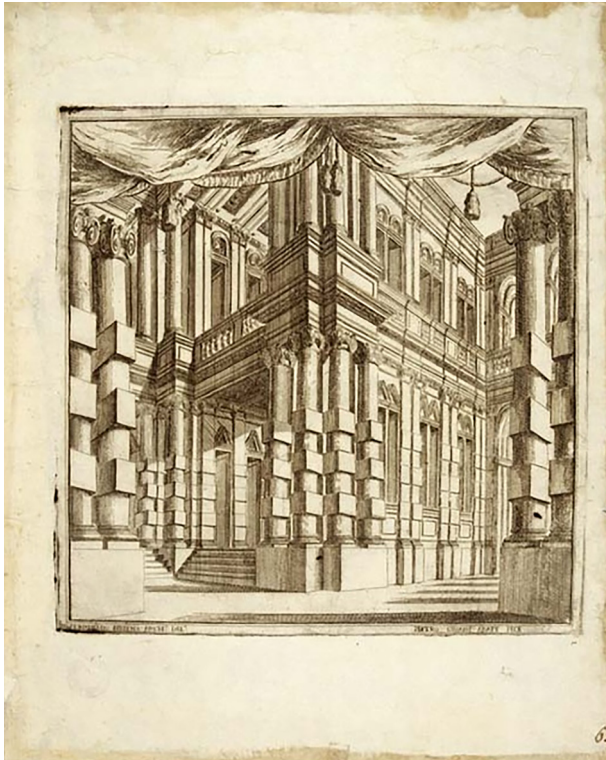


Fig. 5. Ferdinando Galli, known as Bibiena. Stage design for a play, 1718.

does not entirely abolish the painted backdrop [Crabtree, Beudert 2012], but rather relativizes its function, paving the way for luminous and projective backdrops where the image is abstract, variable, and temporal rather than figurative and permanent. Subsequently, Edward Gordon Craig, in his essay *The Art of the Theatre* [Craig 1905], proposed a use of design that leans toward abstraction rather than copying reality, introducing screens –monochromatic or faintly textured mobile surfaces that receive light–, transforming the backdrop into a sculptural presence. A fierce opponent of painted scenery, Craig characterized his stagings with the forceful inclusion of three-dimensional elements and massive symbolic presences composed of elementary solid shapes, within which the movement of the actors was plastically harmonized [Perrelli 2024].

From performative backdrop to projected backdrop

With the advent of 21st-century technological innovations, drawn backdrops lost their centrality in favor of three-dimensional set designs and projected backdrops. Just as architectural scenography has its roots in the Renaissance, as previously seen, the history of projection techniques has far older origins. As early as 1638, Sabbatini, in *Pratica di fabricar scene e machine ne' teatri*, described magic lanterns as a primitive form of projection. Between the 18th and 19th centuries, alongside the painted backdrop, this form of projected backdrop established itself even further. The magic lantern spread as a projection device that –through painted glass plates, sliding mechanisms, and overlays– created animations and luminous transformations on the backdrops. Lighting effects obtained through projection were also present in the diorama introduced by Louis Daguerre; the enormous double-sided painted canvases on translucent supports were illuminated with colored lights that varied over time, anticipating the principle of the backdrop made 'alive' solely through light modulation [Perrelli 2024]. With European shadow theatre, and above all with phantasmagoria, projection became an even more immersive spectacle. Phantasmagoria, developed in the late 18th century, used modified versions of the magic lantern to project spectral and dynamic images onto scrims or stage cloths, creating illusions of movement and the transformation of figures within the scenic space. In the second half of the 19th century, the *Pepper's Ghost* illusion applied



Fig. 6. Philippe Chaperon. Backdrop for Charles Gounod's *Faust* at the Paris Opera, 1865.

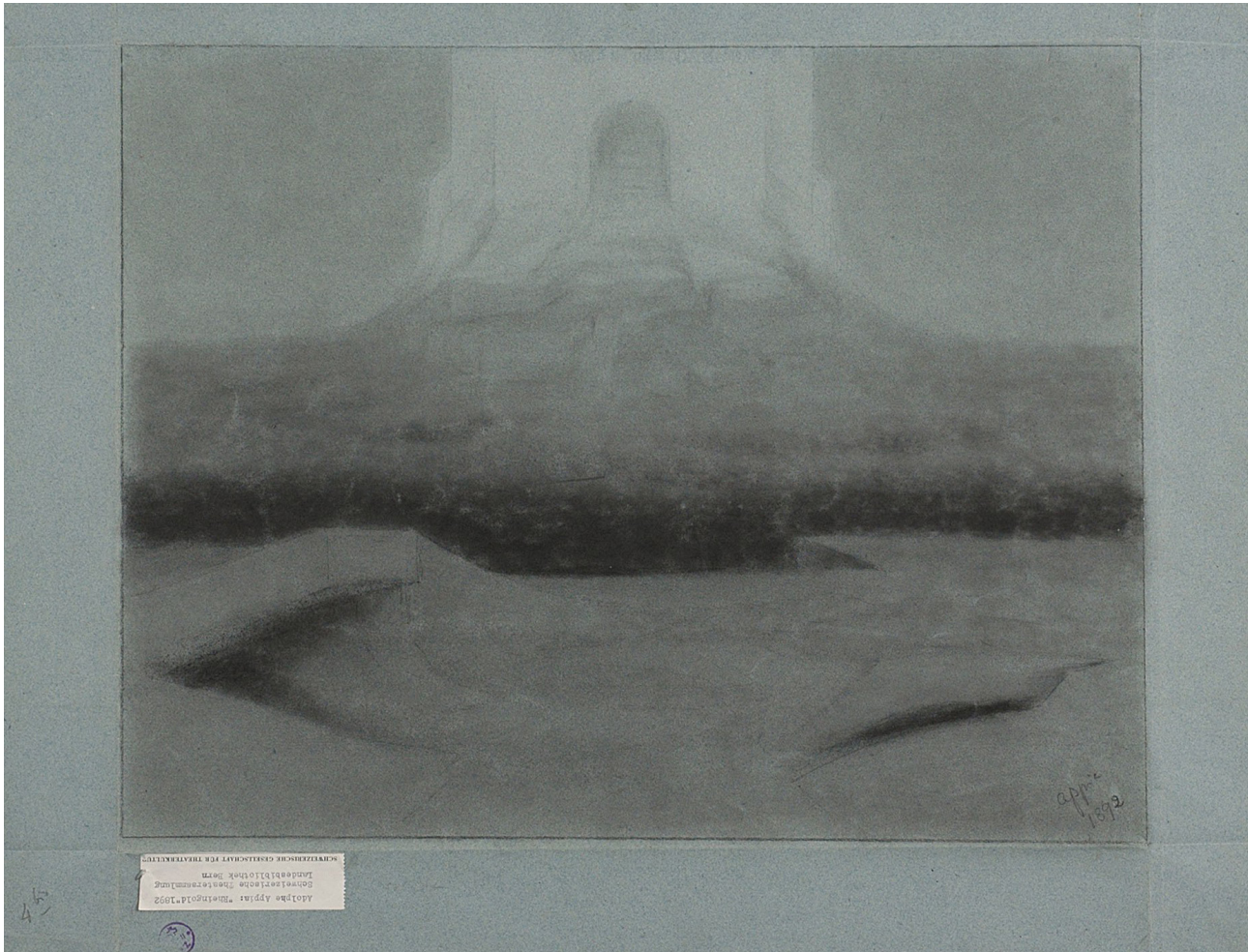


Fig. 7. Adolphe Appia. Stage design for Richard Wagner's *Das Rheingold*, 1892.

the principle of reflected projection to obtain ghostly apparitions that coexisted with real actors, hybridizing the pictorial backdrop and the reflected image on glass [Robinson 2014]. Other forms of optical projection were later found in the animated 'photo-paintings' (*peintures animées*) by Charles-Émile Reynaud, which at the end of the 19th century demonstrated the existence of a primitive form of animated projection; this transformed the scenic surface into a moving visual device through animated projections composed of hand-painted glass plates that showed narrative sequences accompanied by sound.

However, it is with Josef Svoboda that projection became a structural element of scenography. In the 1958 production of *Laterna Magika*, projected backdrops on transparent screens integrated the actors' live performance with film footage, creating multidimensional layers [Titomanlio 2019]. Svoboda introduced the concept of the 'psychoplastic stage', where the design is no longer imprinted on canvas but floats in space through mirrors and reflective surfaces. Svoboda's projected image does not negate drawing; rather, it renders it fluid, allowing the scenography to follow the tempo of the music [Perrelli 2024]. With the adoption of digital technologies and video projectors, the scenographic backdrop has acquired new and unprecedented expressive dimensions [Dixon 2015]. Digital projections now make it possible to transform flat and three-dimensional surfaces into dynamic generative visual environments, characterized by animated images, moving textures, and evolving scenarios. This approach offers the set designer new narrative possibilities, helping define atmospheres, temporalities, and scenic spaces in a more fluid manner compared to static backdrops. Projection transforms the backdrop into a 'mental landscape', where the design can break apart, distort, or fade away in synchronicity with the musical aria [Fuchs 2004].

In opera as well, the use of digital media in scenography transforms drawing into a dynamic image, integrating projections, virtual sets, and interactive surfaces that become an integral part of the performance [Vincent 2021]. Projection surfaces do not completely replace the pictorial backdrop, but integrate and transform its function, turning the theatre into a hybrid visual platform where image, light, and movement dialogue with the performative action. In these contexts, digital projection does not cancel out the presence of pictorial drawing but enriches it visually, conferring movement, depth, and real-time transformation to the stage space. Numerous experiments have led to

the spread and establishment of the hybridization of static images, dynamic projections, and acting even within the context of opera. One need only think of Robert Wilson's 1993 *Madama Butterfly*, which used minimalist projections onto white backdrops (fig. 8); Bill Viola's 2005 *Tristan und Isolde*, which superimposed slow-motion video onto Wagner's music (fig. 9); or Hugo de Ana's 2000 production in Italy, which integrated 3D projections onto painted backdrops for *Aida* at the Arena di Verona. In the 2012 *The Magic Flute* directed by Barrie Kosky, the singers interact instead with animated drawings that echo the aesthetics of silent cinema (fig. 10). In this case, the drawn backdrop has not disappeared but has been made dynamic through digital animation.

Finally, video mapping technology –applied not only to flat surfaces but also to three-dimensional objects and scenic architectures– represents a further frontier for projected backdrops [Monteverdi 2011]. Today, this technique allows for the creation of images that adapt to the physical shapes of the scenic environment, increasing the effect of immersion and integrating animated images into three-dimensional space. The advent of digital projections has not completely supplanted traditional backdrops but has introduced a new synergistic relationship between pictorial surfaces and projection surfaces. Rear-projected backdrops or cycloramas –continuous backdrops often used as a neutral surface for projection– serve as a visual support that combines the tradition of scenic painting with digital imagery.

From projected backdrops to algorithmic backdrops

In recent decades, opera scenography has progressively integrated advanced digital technologies, giving rise to algorithmic backdrops that transcend traditional scenic painting to become dynamic and generative visual environments, capable of evolving in real time in relation to the music, direction, and scenic action. In contemporary opera, projected design can synchronize with the score through sound reactivity algorithms. The use of creative coding software allows the audio frequencies and timbre of the singers to be transformed into inputs for reactive digital stage designs. Rather than merely decorating, these technologies establish an 'aesthetic-mathematical' dialogue between the machine and the opera, pushing Baroque illusionism toward a new frontier: that of a computational spatiality which,

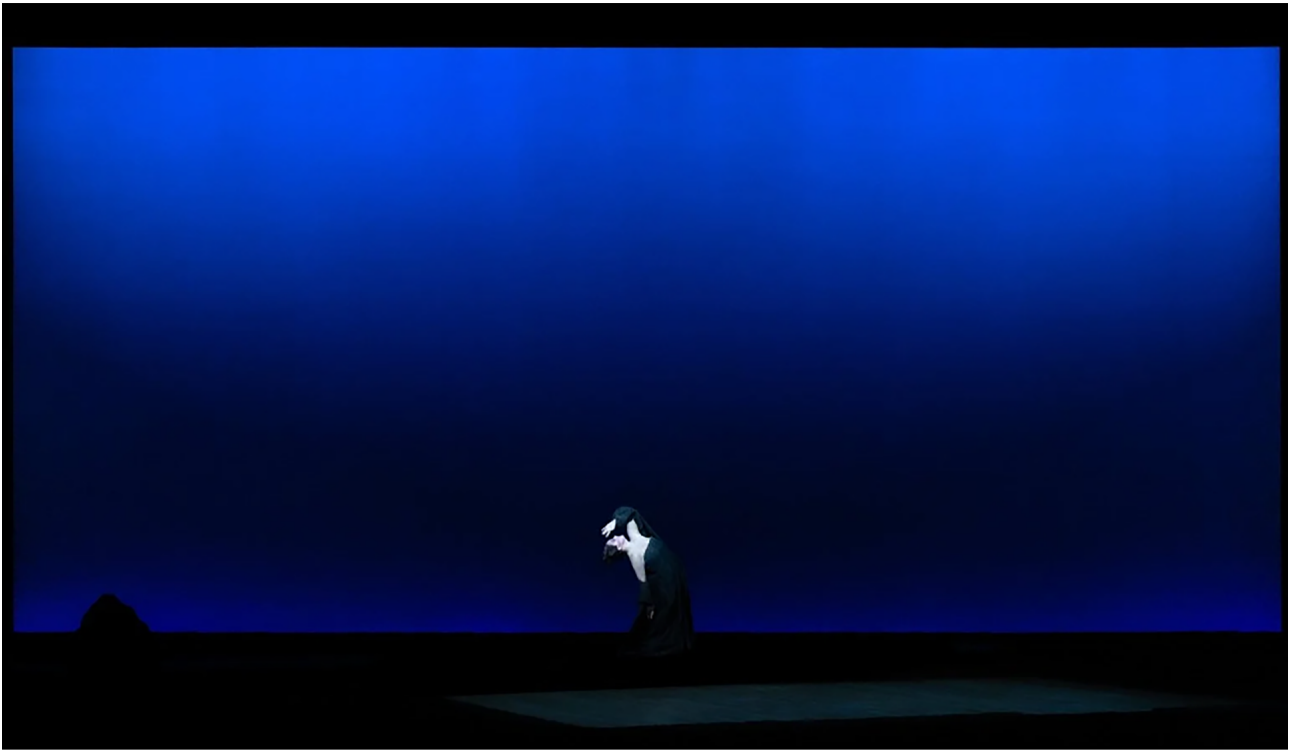


Fig. 8. Robert Wilson. Set design for Giacomo Puccini's *La Madama Butterfly*, at the National Opera in Paris, 1993.

drawing on the principles of generative art, regenerates autonomously at every performance, making each show a unique and unrepeatable visual event. One of the earliest applications of real-time generated, sound-reactive graphics in the operatic field is linked to the production of *Bluebeard's Castle* at the Hungarian State Opera (fig. 11), where Andrew Quinn and Nima Gazestani created generative visuals that reacted to live music via TouchDesigner. In this case, the images on the backdrop are not static but evolve in relation to sound lines and musical events, creating a dynamic correspondence between audio and the visual scene. The integration of algorithmic and generative systems in contemporary scenography marks the transition from a static backdrop to a dynamic visual ecosystem, capable of reacting in real time to

acoustic and performative stimuli. In this context, the backdrop is no longer a pre-established representation, but the result of a computational process.

Algorithmic scenographic backdrops are revolutionizing contemporary opera productions, allowing for the dynamic generation of immersive environments through the use of artificial intelligence and generative algorithms, which integrate traditional elements with digital innovations to amplify the narrative and visual impact. A masterful example is represented by the production of *The Magic Flute* curated by Michael Hansmeyer in 2018 for the Théâtre Royal La Monnaie / De Munt di Bruxelles (fig. 12), where the architectural structure of the stage was generated through complex geometric subdivision algorithms, creating organic shapes impossible to



Fig. 9. Bill Viola. Screenings of Richard Wagner's *Tristan und Isolde* at the Opéra National de Paris, 2005.

design with traditional methods. These examples highlight how the use of digital and algorithmic systems—including real-time video projections, projection mapping, and generative visualizations—is redefining the relationship between scenic space and performance, making it possible to represent abstract concepts, supernatural effects, or impossible landscapes with a degree of fluidity and interaction previously unthinkable in traditional opera productions.

Conclusions

The path traced in this contribution has highlighted how the scenographic backdrop constitutes one of the central elements through which opera constructs its own visual imagination and dramaturgical efficacy. From the first painted surfaces of ancient theatre to contemporary algorithmic environments, operatic design has progressively transformed from a tool of



Fig. 10. Barrie Kosky. Animated backdrops for Wolfgang Amadeus Mozart's *The Magic Flute*, 2012.



Fig. 11. Set designs for Béla Bartók's *Bluebeard's Castle* at the Hungarian State Opera, 2011.

Fig. 12. Michael Hansmeyer. Scenography for *The Magic Flute* for the Théâtre Royal de La Monnaie in Brussels, 2018.

spatial representation into a complex semantic device, capable of engaging in a dialogue with music, words, gestures, and light. The historical evolution of the backdrop shows a conceptual continuity that spans languages, techniques, and technologies: the transition from the decorative backdrop to the perspective, then atmospheric, performative, and finally projective and algorithmic backdrop does not mark a succession of ruptures, but rather a stratification of possibilities. In each phase, scenographic design redefines its role while maintaining a fundamental constant: the ability to evoke worlds, to orient the spectator's perception, and to make visible emotional, symbolic, and narrative dimensions that music and text alone could not fully express. In light of these considerations, the need to grant scenographic design –and particularly backdrops, which are often ephemeral and scattered– an autonomous cultural and historiographical status emerges forcefully. Their documentation, preservation, and archiving do not merely respond to a need to protect theatrical heritage but represent an essential tool for understanding the evolution of visual thought applied to the stage and the way in which opera has contributed, over time, to shaping and transforming the collective imagination. Ultimately, opera continues to be a privileged place of experimentation for design, where tradition and innovation meet, making the operatic stage a space that is always open to the reinvention of the visible.

The introduction of digital technologies and generative algorithms has not nullified the role of drawing; rather, it has expanded its field of action, transforming it into a dynamic and temporal system that is sensitive to musical rhythm and performative variations. The backdrop, from a stable surface, thus becomes a mental landscape and a reactive environment, capable of renewing itself at every performance. The transition from the perspective backdrop to the atmospheric, and finally to the algorithmic one, reveals a precise evolutionary parable: the progressive dematerialization of the graphic mark. If during the Renaissance drawing 'constructed' the world through the geometric rigor of perspective, today computational code 'generates' fluid environments that react in real time to the vibration of singing and music. This evolution has not canceled out the nature of drawing, but has extended its boundaries, transforming it from a static image into a performative event.

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Towards a Deconstruction of Ilomorphism. *Imago-Magia* and Visionary Drawings. From Baroque Metonymy to Contemporary Polycentric Spaces

Cesare Battelli, Giovanni Pirari

Abstract

This paper proposes a reinterpretation of drawing and artistic practice that goes beyond the traditional hylomorphic paradigm, which interprets creative activity as the formal imposition of an active subject upon a passive material. From an ontogenetic and relational perspective, it introduces the notion of synaptic drawing as an interpretive model that describes the creative process as an event of connection, emergence, and co-constitution among the author, the material, and the context. In dialogue with Bruno's metaphysics of polycentricity, Michel Foucault's hermeneutics of the subject, and Walter F. Otto's anthropological theory, the text challenges the form/matter and active/passive dichotomies, highlighting how the work emerges from a dynamic process of interaction.

Through a theoretical exploration that weaves together philosophy, art history, and architectural theory, the text analyses perspectival devices as practices that generate subjectivity and meaning, from the crisis of linear perspective to the polycentric and unstable configurations of modernity and contemporaneity. Within this framework, visual and design examples –from the visionary architectures attributed to François de Nomé to the graphic experiments of Daniel Libeskind and the critical practices of Lebbeus Woods– demonstrate how space emerges as a relational field and the image is constituted in the tension between the visible and the invisible.

Synaptic drawing is thus understood as a practice that activates relationships, transforms the subject, and reconfigures reality. This gives rise to an aesthetic and epistemological paradigm in which the work takes shape as an event and an encounter, opening up to a polycentric and non-hierarchical conception of artistic practice, in which matter, author, and world mutually participate in the genesis of form.

Keywords: polycentrism, encounter, hylomorphism, reversal, anarchitecture.

The overthrow of the anthropocentric paradigm

The hylomorphic view, rooted in the Aristotelian conception of form and matter and embedded in a 'closed-world' and anthropocentric ontology, tends to conceive of drawing as the technical execution of a pre-existing idea, in which form –already realised at the mental level– shapes a material considered inert and malleable. From this perspective, the act of drawing is reduced to a mere operational application, obscuring both the transformative dimension of the act and the intrinsically relational nature of the process, in which subject, gesture, matter and form emerge reciprocally from the formative interaction.

We are, in fact, still bound to an anthropocentric ontology, in which the self is interpreted as the centre of a

shaping and technical action exerted upon inert matter. This is fundamentally a transposition of the Aristotelian model, according to which matter is in itself inert and formless, requiring the idea to determine itself and thus the bearer of ideas par excellence (*homo faber*) as well as his shaping hand.

This model was already challenged over five hundred years ago by the man who was the first to think through the 'open' and infinite universe in all its implications: Giordano Bruno. In an infinite world, there is neither an 'outside' nor a 'centre': it is like a sphere whose circumference is nowhere and whose centre is everywhere. This leads to the collapse of any ontological hierarchy: in such a universe,

every point is a centre and there is no longer strictly speaking an 'above' or a 'below'.

The polycentrism of Bruno's universe forms the cosmological backdrop within which Luigi Pareyson's theory of formativity can be coherently conceived [Pareyson 1988]. The dialectical reversal – "no longer is the moon the sky to us, but we to the moon" [Bruno 2007, p. 456] – also affects the relationship between subject and object in creation. It is no longer the subject who salvifically imparts form to matter; on the contrary, he is formed by the form that emerges in matter through his own activity.

Drawing on the thought of Giordano Bruno, this paper proposes a rethinking of the act of drawing, which embraces the aforementioned reversal of the traditional form/matter hierarchy: drawing is not interpreted as an authorial and 'triumphant' imposition of a form from the outside onto inert matter, but rather repeats in its making the circularity of a sphere whose circumference is nowhere and whose centre is everywhere [Bruno 2007b; Flash 2011]. Against this cosmological backdrop, the subject does not dominate matter, but is part of a process in which it is shaped by its own act of shaping, giving rise to an object that, in coming into being, always exceeds the design, without ever allowing itself to be entirely reduced to it. The object of artistic creation establishes a novelty that is both the active presence of matter –participating with resistances and suggestions– and the revelation of a meaning hidden even from the author and initiator of the creation.

Towards an anthropology of encounter

This paper proposes an interpretation of the drawing as a synapse, understood as a dynamic web of connections closely linked to the creative and operational elements of artistic practice, regarded as an ontogenetic event that generates a circular tension in which the artist and the work co-generate one another.

This involves a return to pre-modern and pre-Cartesian models. As Foucault summarises in *Herméneutique du sujet* (The Hermeneutics of the Subject) [Foucault 2001], within the Western philosophical tradition we can distinguish two different ways of conceiving the conditions of access to truth. The first is what he calls the "Cartesian moment" [Foucault 2001, p. 15], considered representative of the modern age, according to which a subject endowed with sound rational capacity, if they cultivate their intelligence

through appropriate studies and apply it according to a suitable method, would by nature be capable of accessing the truth. The second model, which was predominant in Greco-Roman antiquity, posits instead that reason alone is not sufficient for a person to gain access to the truth. This is not because there is a lack of basic knowledge or a sound scientific method, but because an inner transformation is still required, to be achieved by turning one's attention inwards and through the constant exercise of ethical practice. The set of precepts and activities aimed at structuring this work on oneself, as well as the attempts made and the experiences gained, constitutes what Foucault calls 'spirituality'. This is an epistemological model that does not posit the static nature and centrality of the knowing subject, but rather sees knowledge emerging within a polycentric dialectical space, in which the subject knows to the extent that they are willing to be transformed, and allows themselves to be transformed by the encounter with the object of their own doing and knowing. There is thus a shift from an epistemology and an aesthetics founded on an anthropocentric paradigm to an epistemology and an aesthetics rooted in what we might call an anthropology of encounter, according to which the human being does not exist as an ontologically predefined entity or one that is autonomous from their own practices, but is generated through them, and it is through the process and forms of their doing that they reveal themselves to themselves, giving form to themselves. Mankind –and therefore the artist– has always presented itself to reflection as a being that is, in some way, unfinished, and thus open to processes of formation. The human being enters the world as the only creature lacking a definitive biological form. In Plato's myth of Protagoras, this condition is described as the result of an oversight by the titan Epimetheus who, having exhausted all natural gifts (wings, claws, fur) for the animals, leaves man "naked, barefoot and defenceless" [Plato 2000, p. 819]. However, it is precisely this nakedness that constitutes man's ontological openness, and sows within him artistic potential: not being chained to an instinct or a fixed function, man is compelled to invent himself. Art –and drawing– thus arise from this original lack; it is the technical and poetic supplement that allows an incomplete being to reach out, seeking its own determination in a dialogue with the world, through its own doing. This ontological openness of man was articulated by Pico della Mirandola in his famous *Oratio de hominis dignitate*, where man is described as a "chameleon" and "creator of himself". According to Pico's lesson, God does



Fig. 1. Monsù Desiderio, *Paesaggio architettonico con rovine*, 17th century, oil on canvas, 75 x 120 cm, St. Petersburg, State Hermitage Museum.



Fig. 2. Monsù Desiderio, Città immaginaria, sec. XVII., oil on canvas, 42 x 70 cm, Belgium, Pascal and Louise de Sadeleer Collection (2004).

not assign to Adam “neither a fixed abode, nor a distinct form, nor a particular prerogative”, but places him at the centre of the world so that he may explore its possibilities, and through his own actions and by his own free choice, may shape himself [Pico 1942, pp. 104-107]. Drawing is an exercise of this dignitas as autopoiesis, in which every line drawn on the paper is an act of self-formation.

Luigi Pareyson's aesthetics of formativity provides a solid foundation for this theoretical framework: the work does not derive from an entirely preordained plan, but is constituted in the very making of the process, in which the rules emerge operationally in the course of the productive act [Pareyson 1988]. This gives rise to a conception of artistic creation as dynamism in which the artist does not apply a form to inert matter, but engages with a material that 'responds', offering resistance and suggesting directions.

In this process, the artist does not remain unchanged, but transforms alongside the work: in this ceaseless interplay between the self and the work, the subject is revealed not as a static centre dominating the material, but as a process in the making, revealed to itself precisely by the presence of what it is creating.

This space of the self opening up to a necessary dialogue with the work is part of an 'anthropology of encounter,' which owes much to the theories of Walter Friedrich Otto, as set out in *Il Mito e il corpo umano e la danza* [Otto 1993; 2025]. For the German philologist, myth, ritual, dance and, in general, the most primordial cultural forms are not the result of the creative will of a subject already formed and self-aware in itself, but rather the response of man and his form to the encounter with being and the world, an encounter whose intensity is even compelling for man: as if seized by it, he becomes the channel through which names, words, gestures, songs, temples, ways of inhabiting and representing space come into being. Through this encounter, man is revealed to himself and initiated into a civilisation that thus unfolds, and he comes to inhabit it.

The hand is the organ through which humans come to know themselves. As Anaxagoras has already argued, humans are the wisest of animals, not because of some abstract intellectual superiority, but precisely because they possess the hand [Anaxagoras 2002]. This is the material synapse that connects their unfinished inner self to the outside world. Through the hand, human incompleteness ceases to be passivity and becomes activity. For Giordano Bruno too, the organ that defines human specificity is the hand, not the mind: it is in doing and in interaction with the object that the 'inner world' unfolds.

In this sense, the reversal effected by Bruno concerns not only anthropology, but implies a broader reconfiguration of the relationship between subject and world: no longer an ordering centre that imposes form, but rather a plurality of centres in relation, in which each point is at once active and receptive. The shift from an anthropocentric paradigm to a polycentric structure – which, in Bruno's cosmology, dissolves any hierarchy between centre and periphery – finds its counterpart in the pictorial representation of space. It is no coincidence that Bruno himself conceives of philosophy as a sort of 'internal painting', suggesting a continuity between cognitive and figurative processes.

As Pavel Florensky and Erwin Panofsky have observed [Florensky 2020; Panofsky 1961], the linear perspective developed during the Renaissance corresponds to the emergence of an anthropocentric worldview; conversely, the so-called 'reverse perspective', characteristic of Russian icon painting, symbolically represents a polycentric space, in which the subject does not establish a privileged and ordering viewpoint with respect to the depicted objects.

In this vein, interpreting artistic practice through an 'anthropology of encounter' implies a similar reversal: it is no longer entities that are ontologically and epistemologically anchored to the subject, but the subject itself, revealed to itself through the encounter with the object [Colli 1969].

In the synaptic gesture of drawing, the hand does not merely execute a project conceived abstractly by the mind, but explores the material, learning from its resistances, from which it draws suggestions that transform the act into a cognitive process, opening up possibilities otherwise inaccessible to reflection alone.

In this context, the device of anamorphosis becomes the visible manifestation of this connection: a form that requires transformative engagement and a specific positioning, revealing how drawing is not a practice of domination over the world, but rather the site of a revelation mediated by the act of making.

Baroque metonymy:

Monsù Desiderio and the omniscient perspective

In a historical and conceptual parallel, Baroque metonymy, as observed in the works of Monsù Desiderio (pseudonym of Didier Barra and François de Nomé, c. 1593-1630) [Causa 1956], proposes a similar logic through a metonymic interplay between the part and

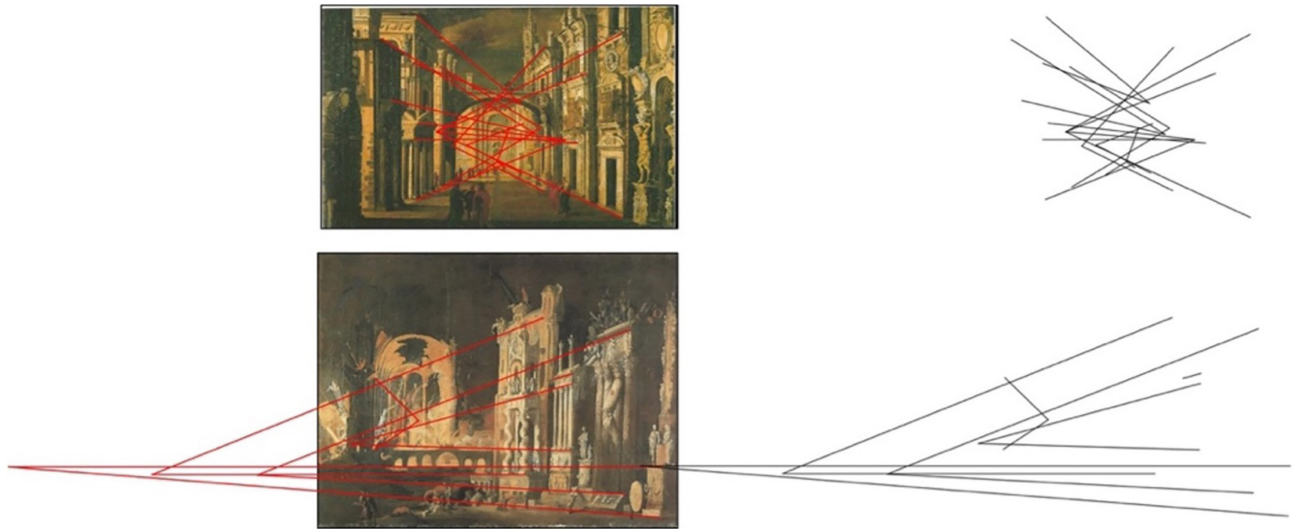


Fig. 3. Cesare Battelli, omniscient perspective diagrams based on two paintings by Monsù Desiderio, 2022.

the reference to the whole, and vice versa. This compositional strategy reflects the tension between the visible and the invisible characteristic of seventeenth-century art and architecture, producing images that condense within an apparently fragmented space, yet extend beyond perceptible physical limits [Shearman 1967]. Just as in the synaptic practice of contemporary drawing, Baroque metonymy also invites the observer to a participatory vision in which meaning is not imposed by the artist, but emerges as an 'interactive machine' between detail, structure and perception [Damish 1984].

Taken as a paradigm, Desiderio's architectural paintings –though not directly attributable to drawing in the strict sense– can be interpreted as a veritable visionary *Theatrum Mundi* of the 17th century [Sluys 1961]. In them, architecture and the play of light and shadow bear a strong resemblance both to the art of memory and to Bruno's conception of an infinite and omniscient universe; a thesis supported by rigorous analysis and perspective reconstructions of his paintings, as well as comparative studies of art and philosophy from the 15th to the 17th centuries [Battelli 2024; Klein 1975; Onfray 2010; Sapir 2008].

Halfway between 'the impossibility of ascent and the precipice', in an analogy with the metaphysics of Bruno and Pico della Mirandola, De Nomé's architectural scenarios lead to an amalgam of styles and references that are not always historically traceable [Battelli 2024]. Cities, fires or ruined architecture share a common denominator of vagueness towards an unknown evoked beyond doors, portals and columns; an unknown that remains invisible or impossible to fully recognise, as in *Architectural Landscape with Ruins* (fig. 1).

It should be emphasised that De Nomé's 'pan-architecture' does not constitute a nostalgic relationship with the past, nor the memory encapsulated in the fragment, nor indeed a taxonomic compilation of ancient glories. The fragment sheds its documentary function to become a pure play of light and shadow, in an organic reproduction that takes place through the dissolution and subsequent recombination of matter. It is precisely this combination of 'death and life' that constitutes the essence of his architectural inventions, which renounce the static nature of stone to become *chiaroscuro*, translated into a space in perpetual evolution and made up of temporal overlaps. Architecture ceases to be a static backdrop to become a pulsating

organism, where ruin is not the end goal, but the point of transition towards a new, unsettling chromatic and spatial metamorphosis [Battelli 2024].

In the artist's paintings, particularly those dating from around 1620, the light source emerges from behind dark columns or architectural masses in shadow, creating a diffuse continuum, an intermediate space where shadow and light interpenetrate. The 'point' of maximum brightness and maximum darkness generates the entire composition, as can be seen in *The Burning of Troy* or in his imaginary cities. The streets lack defined solidity but appear fluid, hazy, unstable (fig. 2). This suspended space is a place where the *Imaginatio* (understood as a form of knowledge of the nature of the whole) operates as a creative force, transforming the act of painting into an ontological experience [Yates 2010].

In De Nomé's work, architecture becomes the setting for a multi-referential blend in which proportions are respected only in appearance, and the human figure appears miniaturised to the point of vanishing. This reduction in scale effectively anticipates that sense of the sublime which would become characteristic of Romantic painting – think of the works of Turner or Friedrich – in which the relationship between man and the infinite plays out precisely through this disproportion, where the subject is no longer the centre of the action, but an infinitesimal point within a spatiality that overwhelms and transcends him. This eclipse of anthropocentrism corresponds to the collapse of unilateral spatial construction. Perspective has no single vanishing point or privileged observer. Horizons multiply, creating disorientation and openness according to an omnicentric principle: every element relates to the others without an absolute centre, and every architectural form refers to its own vanishing point. The horizon thus becomes a cloud of possibilities, a veritable constellation of points (fig. 3).

Bruno's metaphysics, De Nomé's visionary spatiality, portals as thresholds and the multiplication of vanishing points foreshadow certain principles that we find in contemporary drawing practices. Bruno's concept of the infinite universe, where every 'vanishing point' meets its own centre, finds a close parallel in the drawings of Daniel Libeskind, in the musical compositions of John Cage, and in experimental polycentric drawings such as those by Lebbeus Woods or Perry Kulper; regarded as some of the most paradigmatic figures of contemporary polycentric representation. Ultimately, Bruno's lesson resonates in the contemporary world not only from a philosophical perspective, but also

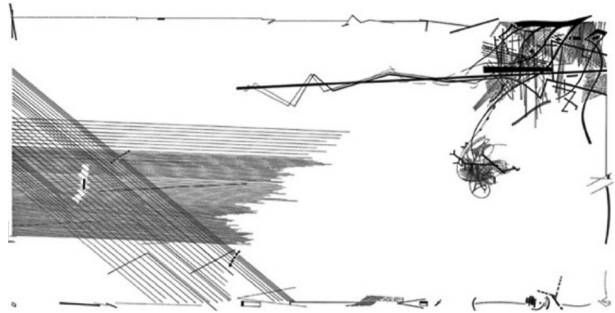
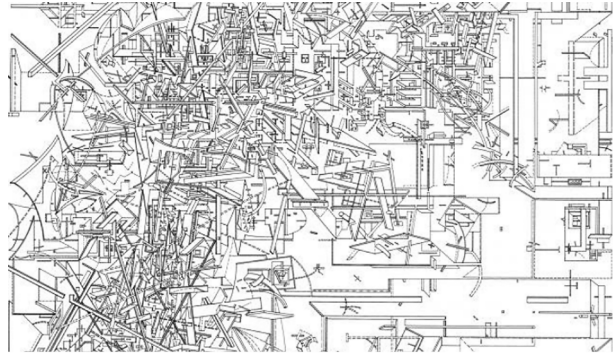


Fig. 4. Daniel Libeskind, *Artie Flowers*, 1975 (Libeskind 1991, p. 17).

Fig. 5. Daniel Libeskind, *Chamberworks*, 1983 (Libeskind 1991, p. 124).

as a basis for a design reflection that does not act by saturating an inert space, but takes the form of a dynamic interface capable of integrating the intrinsic complexity of the 'infinite' universe.

Daniel Libeskind, for example, in the series *Micromegas*, *Artic flowers* and *Chamber works* (fig. 4), develops a space no longer dominated by a single vanishing point or a stable centre. We are faced with a sort of 'radiography' of space composed solely of relationships, in an *an-architectural* narrative that extends beyond the physical limits of representation. The geometric fragments in a non-Euclidean space are arranged according to a tensor structure, generating multiple paths and perspectives [Libeskind 1991]. Each element acquires meaning within the network of interactions with the others, as in an open field of forces.

In this case, the architectural design does not stem from a rigid link to the object; on the contrary, the emerging image is not conceived as being linked to its referent in the same way that a sign is linked to a written meaning. The notion of detachment (understood as detachment from a specifically architectural referent) thus becomes fundamental to understanding 'non-architecture' (anarchitecture) in the Polish architect's work. The possibility of reading his drawings as a form of writing places at the centre the reader's freedom to name the co-things without any specific reference. In his later works, Libeskind eliminates the essential nature of the sign as a vehicle in favour of 'another seriality', in which the drawing deliberately becomes writing. Devoid of traditional representational purposes, it takes the form neither of a detached freehand sketch nor of a narrative of a habitable architectural space. As Peter Eisemann points out, Libeskind's drawings become a non-referential structure without boundaries between beginning and end, taking the form of traces of a process's trajectory [Libeskind 1991].

They are not a random collection of lines, nor are they a precise set of lines that conform to the repetition of a recognisable image; in other words, they are neither one nor the other. They are something else, and it is precisely this otherness that defines them as lying outside the boundaries of architectural tradition, transforming them into a 'non-architecture' and adopting a set of constantly evolving perspectives [Libeskind 1991; Vvas 2015] (fig. 5).

John Cage applies a similar principle to music, often accompanied by drawings and graphic notations, in which the creative gesture does not determine a fixed result, but generates events and relationships. In his graphic scores, such

as *Fontana Mix* (1958) or *Aria* (1958), Cage uses symbols, lines and open forms that do not indicate a rigid sequence of sounds, but offer the performer a map of possibilities, a set of potential paths to explore [Cage 1958; 1960]. Each performance becomes unique, determined by the interaction between musician, instruments and context, where the work is not fixed at the moment of composition but opens up to the flow of shared experience (fig. 6).

Similarly, in his graphic scores, Cage explores the visual dimension of the score, where the arrangement of lines, dots and symbols on the page functions as an open field of forces, within which the reader-performer interprets, decides and discovers, transforming the notation into a sonic and spatial event. The creative act thus becomes a shared experience between artist and material, between subject and object, between form and sound, embodying a sort of 'Brunian multiversality' observed in Baroque painting in general and specifically in François De Nomé.

Alongside Libeskind, Lebbeus Woods proposes visionary architectures and conceptual drawings in which the fragmentation of space, the superimposition of levels (both physical and conceptual) and the multiplication of centres produce unstable and open scenarios, destined to transform both the subject's experience and the sense of *locus*, understood as a dynamic and interactive space. In his works, architecture becomes a relational event, a form of anarchitecture in which objects are no longer static and absolute, but active in the process of transformation.

Taking as an example the drawings for the reconstruction of Sarajevo (*War and Architecture* 1993) (fig. 7), Woods begins with an initial reflection on three fundamental principles of post-war reconstruction: a return to normality, a *tabula rasa*, and the creative use of existing material capable of transforming damaged remains into new spaces, whilst respecting the memory of the destroyed forms and the scars as signs of history [Woods 1996].

The drawings of new urban spaces neither celebrate nor commemorate destruction, but accept what has been lost and gained. The irregular tears in the structures, created by explosions and fires, are unique in their history and meaning, and from them emerge new ways of thinking, living and configuring space. From these conditions arises a heterarchical community, which excludes the hierarchies of organised violence. We also find this paradigm in the design of the World Trade Center tower in New York, conceived as an uninterrupted architectural growth: an active memory of violence that transforms into a symbol of resilience and

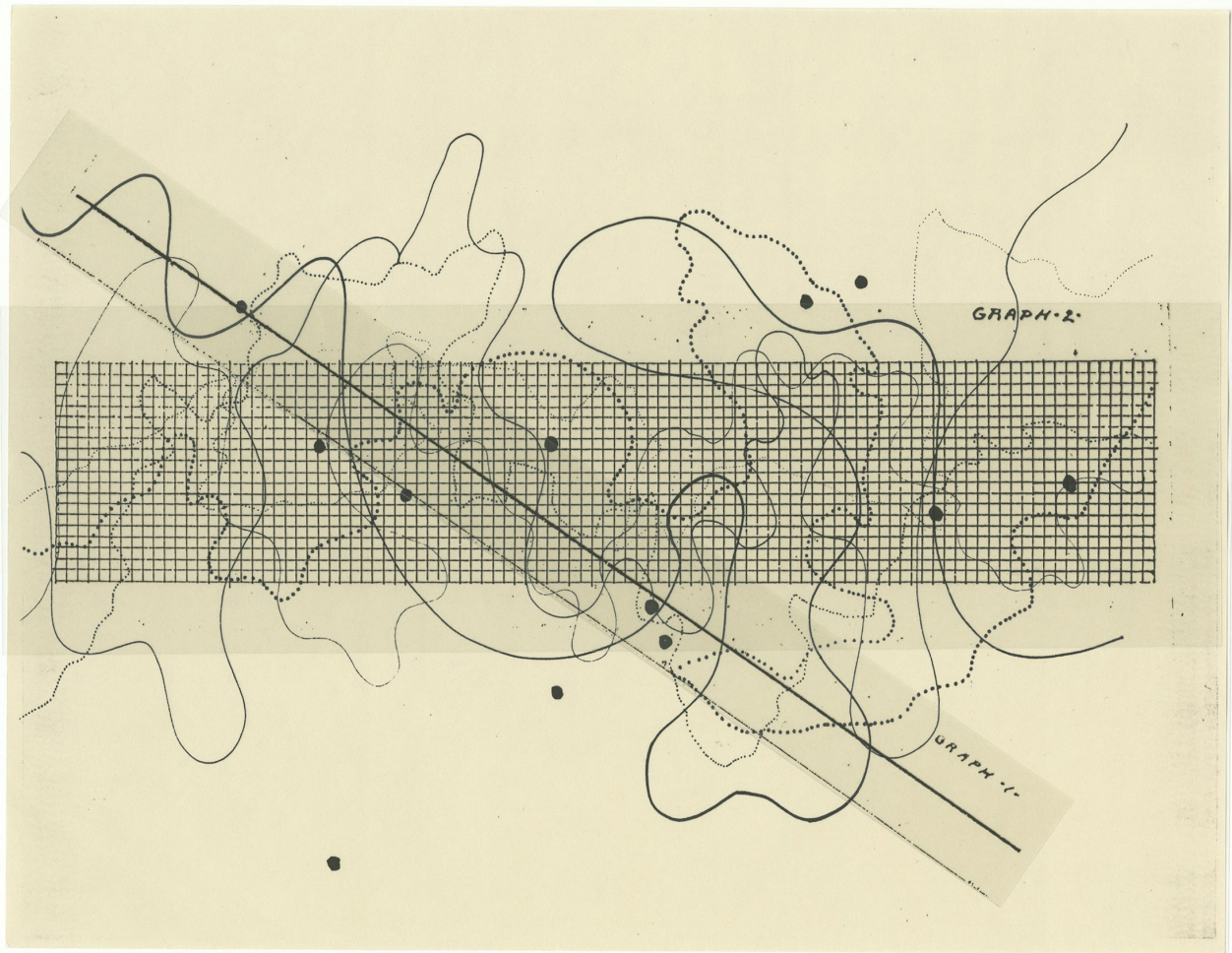


Fig. 6 John Cage, *Fontana Mix*, 1958. Graphic score (pencil and ink on paper and transparent film). New York: Edition Peters (source: <<https://www.walkerart.org/collections/artwork/fontana-mix-material-for-tape-music-of-that-title/>>).

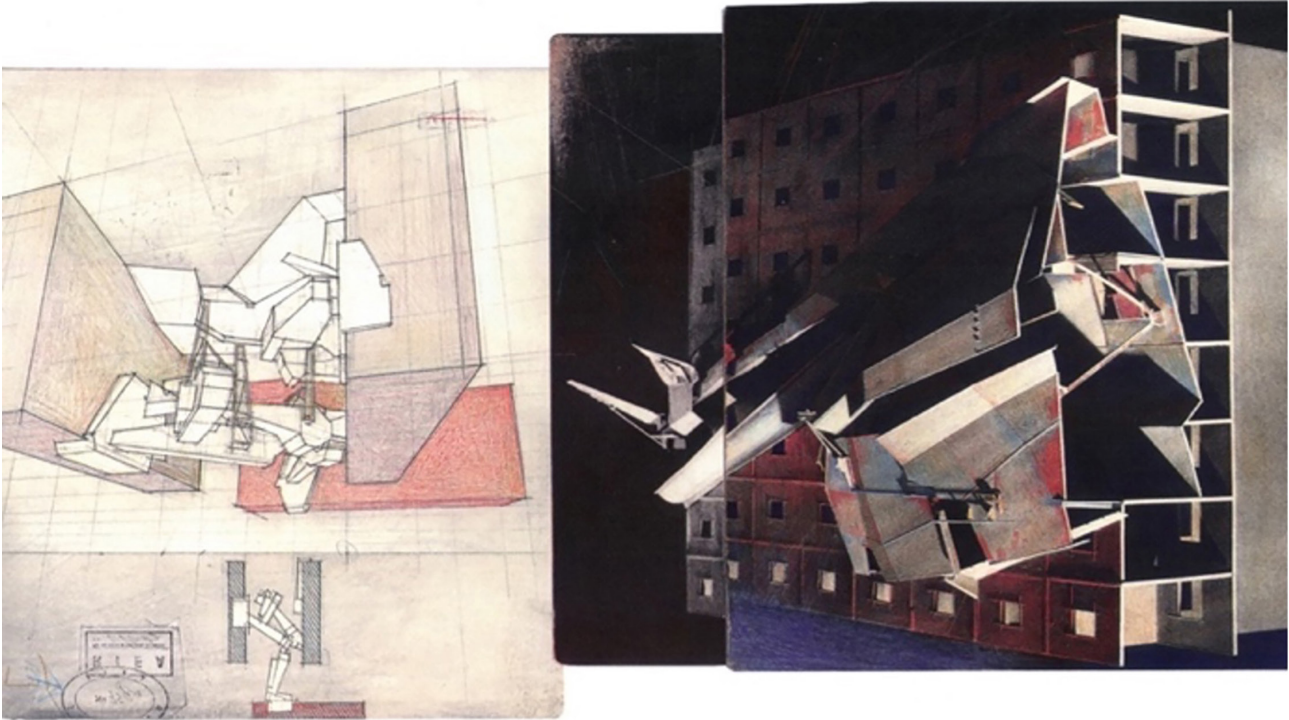


Fig. 7. Lebbeus Woods, War and Architecture. Disegno, 1993 (source: Lebbeus Woods Blog: <<https://lebbeuswoods.wordpress.com/>>).

regeneration (fig. 8). Here, the project is not a simple reconstruction, but an act of 'reincarnation' of matter.

In all these cases, the drawings – with Woods's particular preference for the use of the pamphlet – do not merely refer back to the text but, together with it, constitute a unique form of reflection designed to give shape and rationale to a radical reconstruction of architectural foundations on an ethical basis. Architecture is a living organism that experiments with itself time and again in ever-changing forms, undergoing continuous reincarnations [Quici 2013] (fig. 8).

Perry Kulper's work follows this same line of thought, further radicalising the co-generative nature of drawing. In his strategic drawings and composite drawings, the drawing is neither a representation nor a foreshadowing of a completed architecture, but an open cognitive device, capable of activating relationships between images, texts, diagrams, narrative fragments and heterogeneous references [Chard, Kulper 2013]. Space emerges as a field of possibilities in which there are no stable centres nor perspectival hierarchies, but a constellation of graphic events that coexist in a state of permanent tension (fig. 9). The sheet becomes an operational threshold, a contemporary theatrum mundi in which the observer is called upon to actively construct meaning, continuing, in a meta-design sense, that visionary and relational spatiality which stretches from the Baroque tradition.

This highlights a common thread in which the creative act is no longer conceived as the mere imposition of pre-existing forms, but as a dynamic and transformative process, in which the subject does not dominate, but allows themselves to be permeated by the experience of their own making. Form is neither static nor predetermined, but – as the result of a vision in constant flux and therefore never fully realised – manifests itself as a living entity, open to multiple relationships, capable of reacting, expanding and altering the very perception of space and time [Focillon 2018]. The work thus becomes a field of interactions, in which every gesture, line or volume produces reciprocal effects between creator and material, generating a network of open, non-hierarchical connections. Space has no privileged centre, but emerges as an overlapping of horizons and thresholds where every point is simultaneously origin and destination. Here the work takes shape as an ontological event: a place of transformation in which the subject reveals itself to itself through form. The continuity between Desiderio, Bruno, Otto and contemporary artistic and architectural practices lies precisely in this 'shared creation',



Fig. 8. Lebbeus Woods, *Locus of ascent*, 2009 (source: Lebbeus Woods Blog: <<https://lebbeuswoods.wordpress.com/>>).

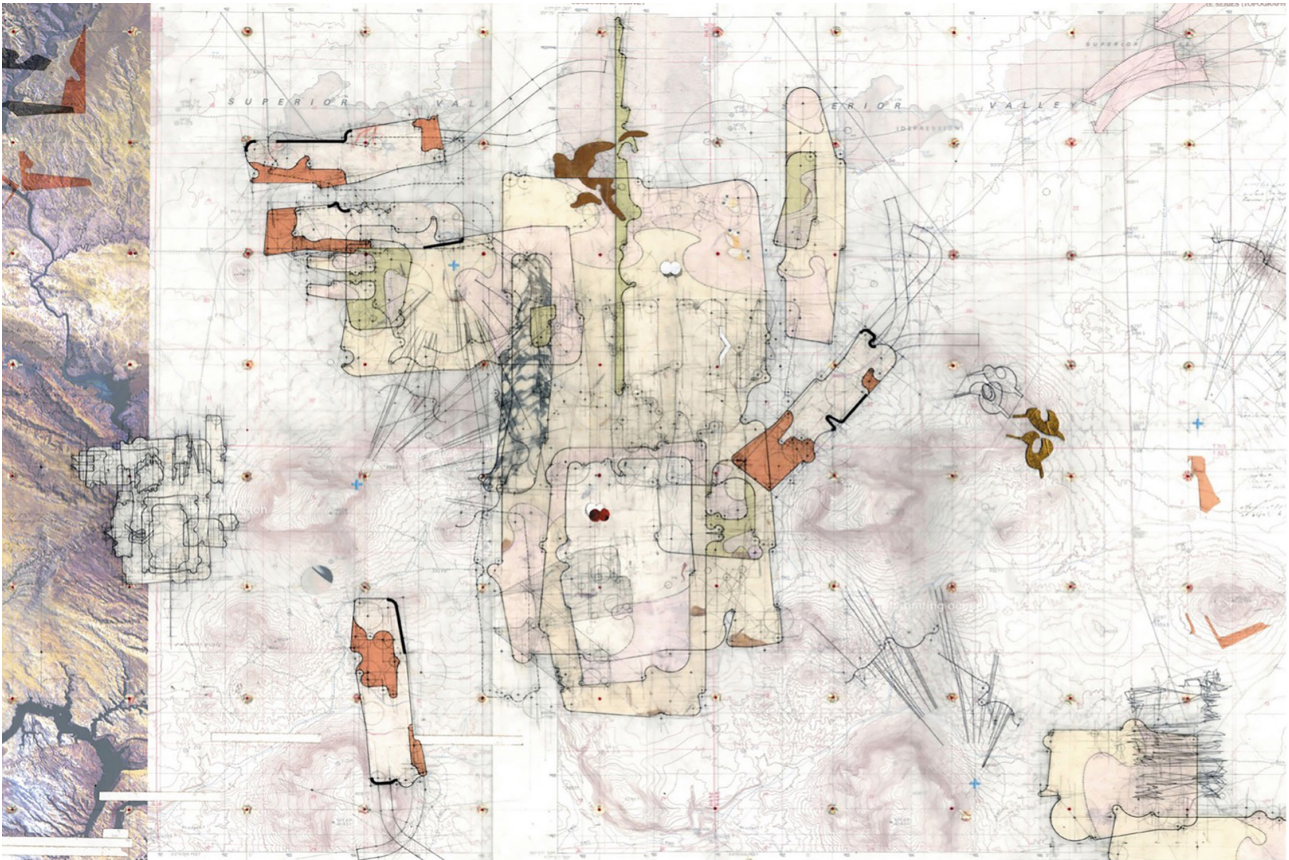


Fig. 9. Perry Kulper, *Fast Twitch: Desert Dwelling, v.01*, Site Drawing, 2004 (Image courtesy of the author).

where meaning is not predetermined, but springs from interaction and the infinite openness of the act of making.

Conclusions

The deconstruction of hylomorphism does not lead to a negation of form but to its restoration as a relational event. Drawing, freed from the notion of being a mere graphic translation of a pre-existing concept, reveals itself as a site of mutual transformation where the hand of the artist or artists does not impose a form upon matter, but enters a field of forces in which matter, gesture and imagination cooperate. From Bruno's cosmology of the infinite to Baroque metonymy and the apocalyptic abstractions of Monsù Desiderio, right through to contemporary polycentric drawings, an alternative genealogy of representation emerges, no longer centred on a sovereign viewpoint, but articulated

as a dynamic constellation of thresholds and relationships. From this perspective, the work is not a closed object, but rather an open device that calls for participation and a willingness to transform.

The shift from an anthropocentric aesthetic to an anthropology of encounter implies a redefinition of knowledge itself, in which knowing entails no form of domination, but rather a letting oneself be shaped by the encounter with what emerges. Drawing thus becomes both a spiritual and cognitive practice, a synapse between the visible and the invisible, between project and excess, between intention and revelation.

In an age marked by the crisis of centrality and the proliferation of horizons, the polycentric paradigm offers not only a framework for interpreting contemporary artistic practices, but also an ontological model in a universe where every point can be a centre, and where meaning arises from interaction, not from imposition.

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From the Museum to the Archaeological Site: Virtual Reconstruction of the Sosandra Sector at the Baths of Baia (Naples)

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Víctor A. Lafuente Sánchez, Daniel López Bragado, David Marcos González

Abstract

The paper presents a virtual reconstruction of the Sosandra Sector within the Archaeological Park of the Baths of Baia, aimed at clarifying its architectural organization and proposing a hypothesis regarding the original placement of the Aphrodite Sosandra statue. Located in the Campi Flegrei area, Baia was one of the most important centres of otium for the Roman elite between the late Republican period and the Early Empire, characterized by a complex architectural layout and the close integration of architecture, landscape, and water features.

The research is based on a 3D survey carried out through dynamic LiDAR scanning, integrated with archaeological and typological analyses and the systematic comparison of coeval structures. The resulting point cloud provided the metric basis for developing a digital model of the sector, organized into four terraces interconnected on both functional and symbolic levels according to a coherent spatial logic. At the same time, the digitalization of the statue, currently housed at the Museo Archeologico Nazionale di Napoli, enabled the testing of different relocation hypotheses within its original context, assessing its visual impact and semantic value within a space likely functioning as a nymphaeum. From this perspective, virtual reconstruction emerges not only as a tool for documentation and critical analysis, but also as an interpretative device capable of restoring the spatial and symbolic complexity of archaeological contexts.

Keywords: Baia, virtual reconstruction, Sosandra sector, Aphrodite Sosandra, digital archaeological heritage.

Introduction

This paper aims to analyse the architectural organization of the Sosandra Sector within the Archaeological Park of the Baths of Baia, with the objective of virtually reconstructing its original configuration and verifying a plausible hypothesis regarding the placement of the *Aphrodite Sosandra* statue. In this context, the research seeks to demonstrate how digital technologies can not only support the documentation of cultural heritage, but also provide interpretative tools capable of restoring the spatial and symbolic complexity of ancient contexts.

The adopted methodology is based on an integrated approach that combines three-dimensional surveying through dynamic LiDAR technology with archaeological and bibliographic analysis. The results highlight how 3D reconstruction enables a more effective understanding of the relationships

between architecture, landscape, and decorative apparatus, identifying the central niche of the axial hall as the most coherent location for the *Aphrodite Sosandra*. The research therefore confirms the value of virtual reconstruction as a critical and interpretative tool, capable of integrating material evidence and reconstructive hypotheses into a unified vision of the archaeological complex.

Historical framework

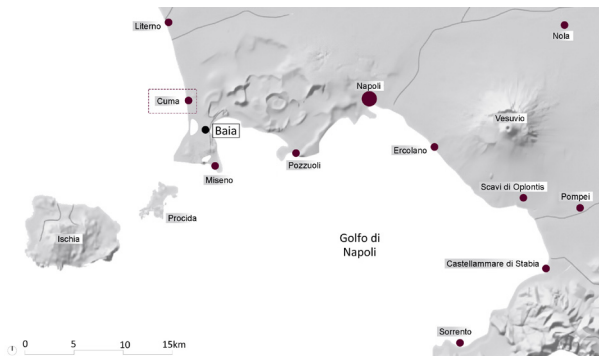
Geographical context of Baia

Baia is located at the western end of the Gulf of Naples, within the volcanic area of the Campi Flegrei, a territory

characterized by intense geothermal activity and a highly unstable coastal morphology (fig. 1). Since antiquity, this environmental context, marked by the presence of thermal springs, fumaroles, and volcanic lagoons, has profoundly influenced settlement patterns and the architectural solutions adopted. Originally, the coastline took the form of a wide inlet opening toward the Gulf of Pozzuoli, protected from prevailing winds and favoured by a mild microclimate: conditions that early encouraged its residential and thermal vocation, making it a renowned place for leisure and retreat.

Over the centuries, bradyseismic phenomena, already documented in Roman times, significantly altered the original configuration of the coastline, causing the gradual subsidence of extensive coastal areas. A substantial part of the ancient urban and thermal complex is now submerged, while what remains visible today represents only a fragment of the original settlement. These transformations were compounded by the impact of the eruption of Monte Nuovo in 1538, which radically modified the topography of the area, as well as by extractive and industrial activities developed during the modern period. The archaeological site of Baia currently accessible to visitors thus appears as the result of a long stratification of natural processes and human interventions, which have fragmented and partially decontextualized a landscape once conceived as a unified system based on the close integration between architecture, water, and territory.

Fig. 1. Territorial framework of Baia within the Gulf of Naples and the Campi Flegrei area, with focus on the principal archaeological and urban centres. Image by the authors (graphic elaboration by the authors).



Importance of Baia as a recreational and social center

Beginning in the late Republican period and throughout the Early Empire, Baia established itself as one of the most important centres of *otium*, healing, and self-representation for the Roman elite. Rather than functioning as a city in the strict sense, it operated as a true aristocratic extension of Rome in Campania: a privileged space devoted to cultivated *otium*, where thermal practices, social relations, and symbolic display were integrated into a unified architectural and landscape system. Ancient sources repeatedly emphasize the exceptional character of the site, highlighting the combination of natural beauty, architectural luxury, and social prestige that made it a favoured destination for senators, high-ranking officials, and members of the imperial family.

The thermal facilities, enhanced through sophisticated hydraulic systems, constituted the functional core of this constructed landscape; however, their significance extended far beyond a merely therapeutic dimension. In Baia, bathing complexes, terraced villas, gardens, nymphaea, and monumental vaulted halls formed a continuous fabric conceived to structure a spatial experience that was simultaneously sensory, visual, and social. The scenographic use of water, the careful arrangement of sculptures, and the calibrated orchestration of views toward the sea and the volcanic landscape transformed these complexes into devices for the representation of rank and power. From this perspective, Baian architecture cannot be reduced to mere thermal infrastructure, but must instead be interpreted as a sophisticated cultural instrument capable of translating, through stone, water, and light, the values of refinement, authority, and imperial identity into material form.

Architectural description

The Baths of Baia complex

The archaeological complex of the Baths of Baia constitutes one of the most extensive and complex architectural systems of the Roman world, both in terms of its surface development and its vertical articulation into a series of superimposed terraces. Far from corresponding to a single unified design, the complex is the result of a long process of growth and transformation extending from the late Republican period to the advanced Imperial age, during which private residences, thermal spaces, gardens,

nymphaea, and large representational halls were progressively integrated into an architectural continuum adapted to the rugged volcanic topography [Veronese 2018]. The complex is arranged along the slope of an ancient crater, exploiting the natural gradients to create a terraced system of platforms connected by ramps, stairways, and vaulted passageways. This layout enabled not only functional circulation between the different levels, but also a sophisticated choreography of visual and spatial sequences, in which the relationship between interior and exterior, architecture and landscape, played a central role [Maiuri 1951]. The large domed halls traditionally known as the "Temples" of Mercury, Venus, and Diana, which for centuries constituted the only visible remains of the complex, must be understood within this system as specialized thermal

environments embedded in a much broader network of spaces dedicated to *otium* and representation (fig. 2). From a technical and constructive perspective, Baia occupies a leading position in the history of Roman architecture. The early use of *opus caementicium* for the construction of large vaulted structures, the experimentation with wide-span domed forms, and the integration of complex hydraulic systems anticipated technological solutions that would later be codified in the great imperial baths of Rome. At the same time, the continuous adaptation of the complex to the geological phenomena characteristic of the Campi Flegrei and to the successive phases of use and renovation gives the ensemble a strongly stratified character, in which residential, bathing, and landscape functions overlap [Cennamo et al. 2024].

Fig. 2. The Archaeological Park of the Baths of Baia in Bacoli, including the layout of the principal sectors in plan and a focus on the current configuration of the Sosandra Sector (graphic elaboration by the authors).

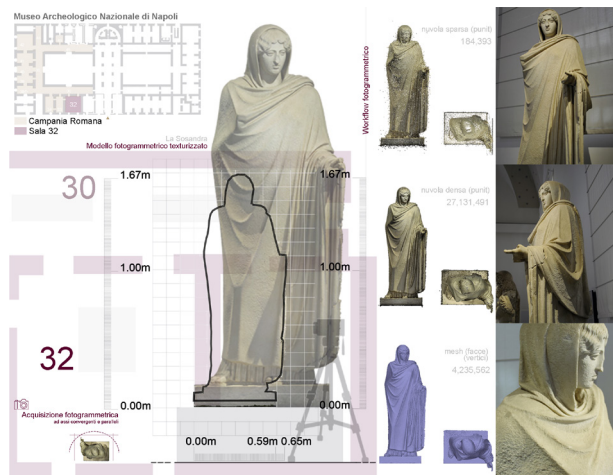


The Sosandra sector

Within this vast system, the Sosandra Sector occupies a central and strategically articulated position. Located between the Mercury complex and the *Villa dell'Ambulatio*, the sector develops across four large terraced levels that exploit the natural slope of the volcanic terrain to organize an ascending sequence of residential spaces, gardens, porticoes, representational halls, and hydraulic devices. Such an arrangement does not merely respond to topographical adaptability, but rather to an architectural conception in which verticality, the superimposition of terraces, and the visual articulation between different levels play a fundamental role in constructing a hierarchically organized spatial experience.

The organization of the sector is structured around one or more compositional axes that regulate the succession of terraces and define the relationship between open and enclosed spaces. Along these axes are arranged peristyles, exedrae, and large vaulted halls conceived as transitional spaces between the external landscape and the internal architecture. The circulation system, based on ramps, stairways, and vaulted corridors, allows a continuous traversal of the complex, generating a spatial choreography in which the visitor progressively experiences the relationship between architecture, water, and landscape.

Fig. 3. Photogrammetric survey of the Aphrodite Sosandra statue in Room 32 of the Roman Campania section (graphic elaboration by the authors).



Water constitutes one of the structuring elements of the Sosandra Sector. Fountains, basins, and nymphaea contributed not only to climatic comfort and ornamentation, but were also integrated into a complex scenographic program intended to intensify the visual, acoustic, and symbolic effects of space. The presence of reflective surfaces, the movement of water, and its association with vegetation and sculpture reinforced the perception of this sector as a carefully constructed artificial landscape, in which nature was dominated and sublimated by architecture.

Within this system stands out a large axial hall equipped with three monumental niches, identified as the environment in which the *Aphrodite Sosandra* statue was discovered. Its dominant position within the complex, the direct relationship with the gardens and circulation axes, and its connection with the hydraulic devices suggest that this space played a central role within the representative program of the sector. It was not a secondary or transitional hall, but rather a true scenographic nucleus conceived for the display of sculptural images of high symbolic and aesthetic value.

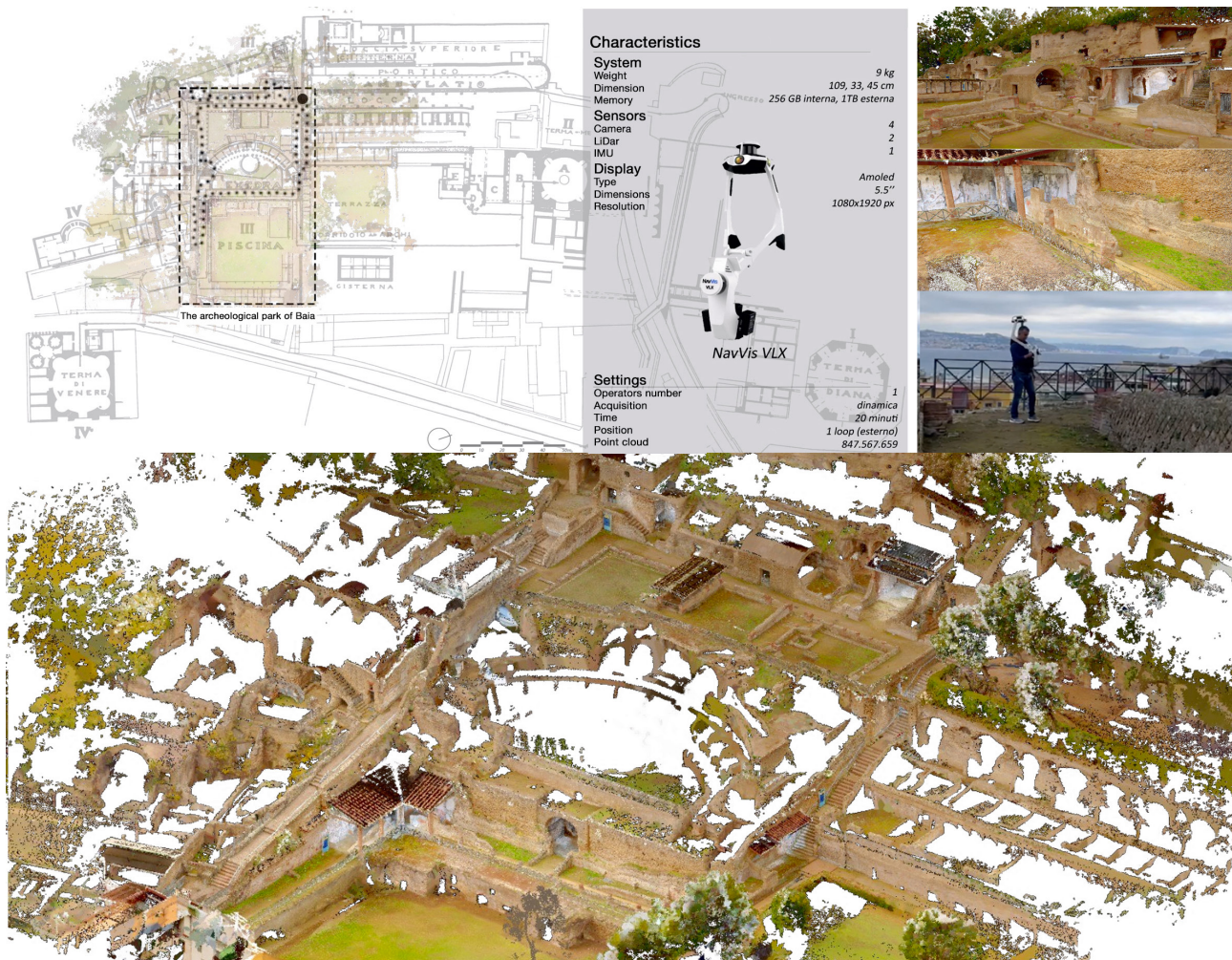
Consequently, the Sosandra Sector must be interpreted as a unified architectural organism in which residence, *otium*, representation, and landscape are integrated into a single spatial device. The articulation of the terraces, the sequence of open and enclosed spaces, the control of visual perspectives, and the strategic placement of sculpture reveal a profoundly scenographic conception of space, aimed at producing a sensory and socially codified experience coherent with the elitist and symbolic character of Baia as a place of imperial *otium*.

The sculpture of Aphrodite Sosandra

Aphrodite Sosandra between semantic fulcrum of the Thermal Complex and contemporary device of cultural mediation

The *Aphrodite Sosandra* statue represents one of the principal interpretative nodes for understanding the sector of the same name within the Baths of Baia complex, both because of its historical-artistic significance and because of the symbolic and spatial value it must originally have possessed. The sculpture is a second-century AD Roman marble copy derived from a Greek bronze original attributed to Kalamis and datable to the mid-fifth century BC, belonging to an iconographic type that clearly differs from the more familiar representations of the goddess [Ridgway 1981].

Fig. 4. SLAM survey of the Sosandra Sector using NavVis VLX instrumentation, including views of the point cloud (graphic elaboration by the authors).



The *Aphrodite Sosandra* embodies an ideal of femininity marked by composure and restraint: the enveloping drapery, controlled posture, and introspective attitude refer to the concept of *sophrosyne*, presenting the divinity as a guarantor of balance and order, far removed from more overtly sensual interpretations. Precisely this “moderate” dimension –the *Sōsándra*, “she who saves men”– makes her presence particularly coherent within spaces associated with bodily care and the thermal practices that defined the Baian landscape. From this perspective, the statue cannot be regarded as a mere ornamental element, but rather as an authentic visual and conceptual fulcrum capable of semantically qualifying the surrounding environment.

Within the framework of the valorization project linked to the new Baia railway station, the three-dimensional reproduction of the work assumed a paradigmatic role, configuring itself as an emblematic case of integration between archaeological research, digital technologies, and heritage mediation strategies. Through the combined use of 3D

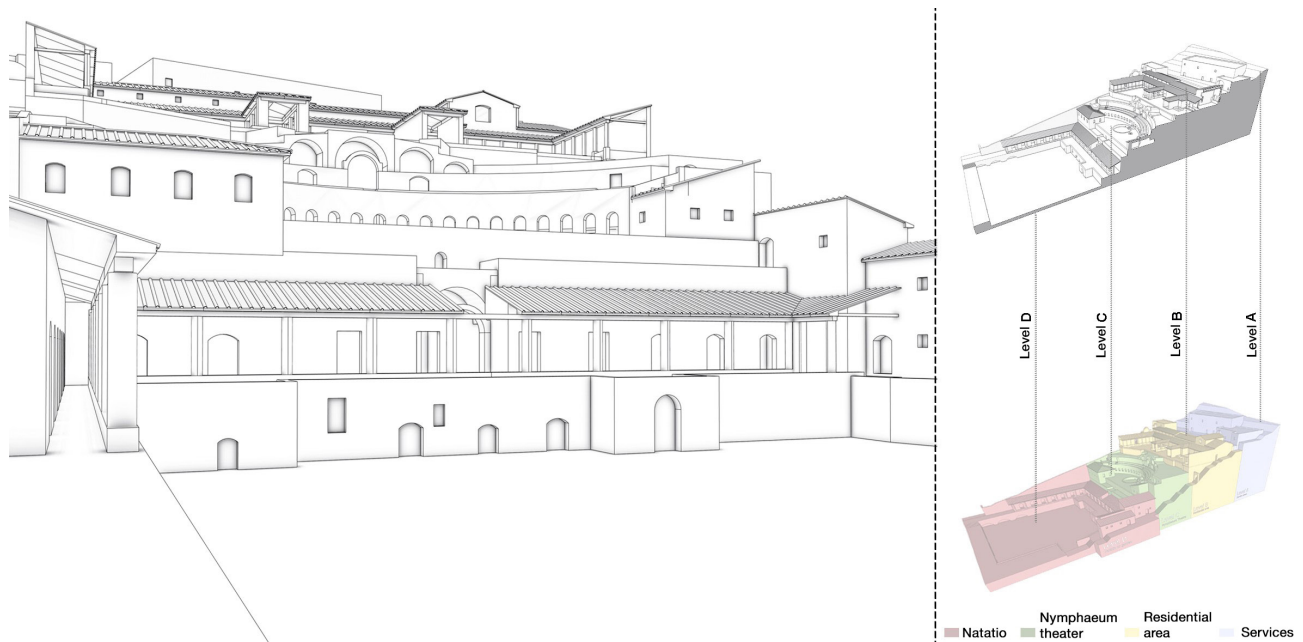
acquisition, digital modelling, and additive manufacturing, the research translated specialist knowledge into accessible forms, returning a cultural heritage to the wider community beyond the confines of the museum.

The 1:1 scale replica of the *Aphrodite Sosandra* –together with the Dioscuri, the imperial busts, and the head of Apollo– forms part of a broader reflection on the epistemological value of the copy, understood not as a substitute for the original, but as an autonomous device capable of conveying meanings, proportions, and modes of adaptation of ancient space within a contemporary context [Jeffrey 2015]. In this way, an infrastructure of mobility is transformed into a place of diffuse cultural narration, fostering a daily encounter with antiquity and contributing to the configuration of Baia as a landscape of heritage integrated into public space [Pinna 2011; Bonacini 2014].

Discovery of the statue

The *Aphrodite Sosandra* statue was discovered in 1946

Fig. 5. Virtual reconstruction of the *Sosandra* Sector showing the terraced articulation and functional distribution of the different levels (graphic elaboration by the authors).



during one of the most significant excavation campaigns conducted in the eastern sector of the Baths of Baia, within an environment characterized by the presence of niches and an articulated decorative pavement apparatus [De Franciscis 1965]. The context of discovery, situated along the terraced system structuring the so-called Sosandra Sector, suggests for the sculpture an original placement of strong scenographic value, likely associated with a representational space or an environment involved in ceremonial circulation routes. The insertion of the statue within an architecturally qualified and hierarchically significant hall directed scholarly interpretation toward recognizing a function that was not merely ornamental, but rather central within a complex visual and symbolic apparatus, in which the sculpture established a calibrated dialogue with both the architecture and the surrounding landscape [Caruso 2001]. From this perspective, the Sosandra functioned as an ordering element within a spatial experience aimed at constructing a process of harmonization between body, architecture, and the thermal environment.

The profound transformations that affected the site over the centuries, particularly the phenomena of bradyseism and the progressive loss of decorative apparatuses, have however compromised the legibility of the original relationships between the statue and its architectural context. In response to this condition of fragmentation, virtual reconstruction assumes a methodologically central role, as it makes it possible to reconstruct, in hypothetical yet scientifically grounded form, the placement and significance of the work within the terraced system. The digital model thus emerges not only as a visualization tool, but also as a device for critical analysis and interpretative verification, capable of integrating archaeological data and reconstructive hypotheses into a coherent framework [Dell'Unto et al. 2013; Forte 2010].

Digitalization of the Statues at the MANN Museum

The original sculptures discovered at Baia are today preserved in Rooms 30 and 32 of the Roman Campania section of the Museo Archeologico Nazionale di Napoli. It is from this museum context that the digitalization process began, aimed both at the virtual relocation of the statues within their original environment and at the production of physical replicas destined for the Baia railway station.

The digitalization was carried out through an integrated approach: laser-scanner surveying of the museum spaces was combined with digital photogrammetry of the individual sculptures. This approach made it possible to establish an

operational workflow capable of generating high-resolution 3D models able to reproduce with great precision both the overall geometry of the works and the surface and material details fundamental for their study and faithful reproduction [Forte, Pescarin 2013; Pescarin 2020] (fig. 3).

Particular attention was devoted to the digitalization of the *Aphrodite Sosandra*, whose formal complexity required highly accurate acquisition procedures followed by a subsequent phase of editing and optimization of the models. The digital model made it possible to test hypotheses regarding the relocation of the statue within the Sosandra Sector, verifying the spatial relationships between sculpture, architecture, and landscape, and contributing to the reconstruction of the scenographic organization of the complex [Campi et al. 2025].

For the statue, the acquisition workflow combined close-range photogrammetry (300 acquisitions using a full-frame sensor) to obtain a highly detailed morphology, with a Faro Focus 3D scan used exclusively for validating the scale and metric accuracy of the digital model. The digital prototyping of the elements was performed using the non-decimated photogrammetric mesh, ensuring maximum resolution in the final integration.

Virtual reconstruction of the Sosandra sector

Methodology

The virtual reconstruction of the Sosandra Sector was based on the integration of geometric data obtained through SLAM LiDAR scanning with archaeological, planimetric, and bibliographic information deriving also from historical excavation campaigns and more recent surveys. The use of a dynamic scanning system enabled the generation of a continuous and georeferenced three-dimensional point cloud capable of reproducing the current morphology of the complex and constituting the reliable metric basis for the entire reconstruction process [Remondino, Campana 2014]. The modelling methodology adhered to high-fidelity metric criteria, establishing a positional tolerance of ± 8 mm for the archaeological complex through data acquisition using the NavVis VLX 3 scanner.

Starting from this point cloud, the data underwent cleaning, segmentation, and classification processes, identifying the different masonry bodies, vaulted structures, platforms, and preserved hydraulic elements. The morphometric model was subsequently imported into a three-dimensional

modelling environment, within which an interpretative reconstruction of the lost volumes was developed, based on criteria of constructive coherence, typological analogy, and structural compatibility [Fernández Ruiz 2002] (fig. 4).

Throughout this process, a clear distinction was explicitly established between documented elements, those reconstructed through analogy, and those of a purely hypothetical nature, thereby ensuring the traceability of reconstructive choices. The principal objective of the model was not the production of a final image, but rather the construction of a spatial analysis tool capable of testing hypotheses, evaluating visual relationships, and verifying the architectural plausibility of the proposed reconstructions [Ortega-Vidal et al. 2011]. From this perspective, virtual reconstruction was conceived as an open process, susceptible to revision and updating according to the acquisition of new archaeological or interpretative data.

Formulation of the Hypotheses Across the four levels

The Sosandra Sector was interpreted as an architectural system articulated into four major levels, corresponding to the terraces archaeologically documented and represented within the geometric model. Each level was subjected to a specific reconstruction process, taking into account both its hypothesized function and its relationships with the other areas of the complex.

The lower level, situated closest to the hydraulic systems and service areas, was interpreted as a zone of access and distribution, from which the ascending route toward the more representative spaces originated. The second level, characterized by the presence of porticoes and open areas, was reconstructed as a transitional environment in which gardens and basins articulated the relationship between interior and exterior spaces. The third level concentrated the large

Fig. 6. View of the virtual model with the hypothetical placement of the Sosandra statue within the central niche (graphic elaboration by the authors).



vaulted halls and representational spaces, organized according to compositional axes and carefully controlled visual relationships. Finally, the upper level, associated with panoramic terraces, was related to residential and contemplative spaces overlooking the entire gulf and the gardens below (fig. 5). The modelling of these four levels made it possible to verify the coherence of the Sosandra Sector as a unified scenographic architecture, in which the superimposition of terraces does not respond exclusively to topographical requirements, but rather to an explicit intention of spatial hierarchization and the progressive construction of the experience of place. The virtual reconstruction of the Sosandra Sector was carried out through CAD modelling based on the point cloud. The verifiability of the hypotheses relies on in situ archaeological evidence for the site plans, while for the volumetric reconstruction and the placement of the sculptures, criteria of historical analogy were applied, based on typological parallels from the same period and on the consulted bibliographic documentation. Therefore, the virtual reconstruction of the Sosandra Sector was carried out through a systematic and traceable workflow grounded in historical evidence. This process combines critical documentary analysis, parametric digital modelling, the application of rendering textures, and the use of real-time visualization technologies. The applied methodology adheres to the principles established by the London Charter (2009) and the Seville Principles (ICOMOS, 2017), ensuring

transparency, scientific traceability, and critical rigour in the digital reconstruction of cultural heritage (Table 1).

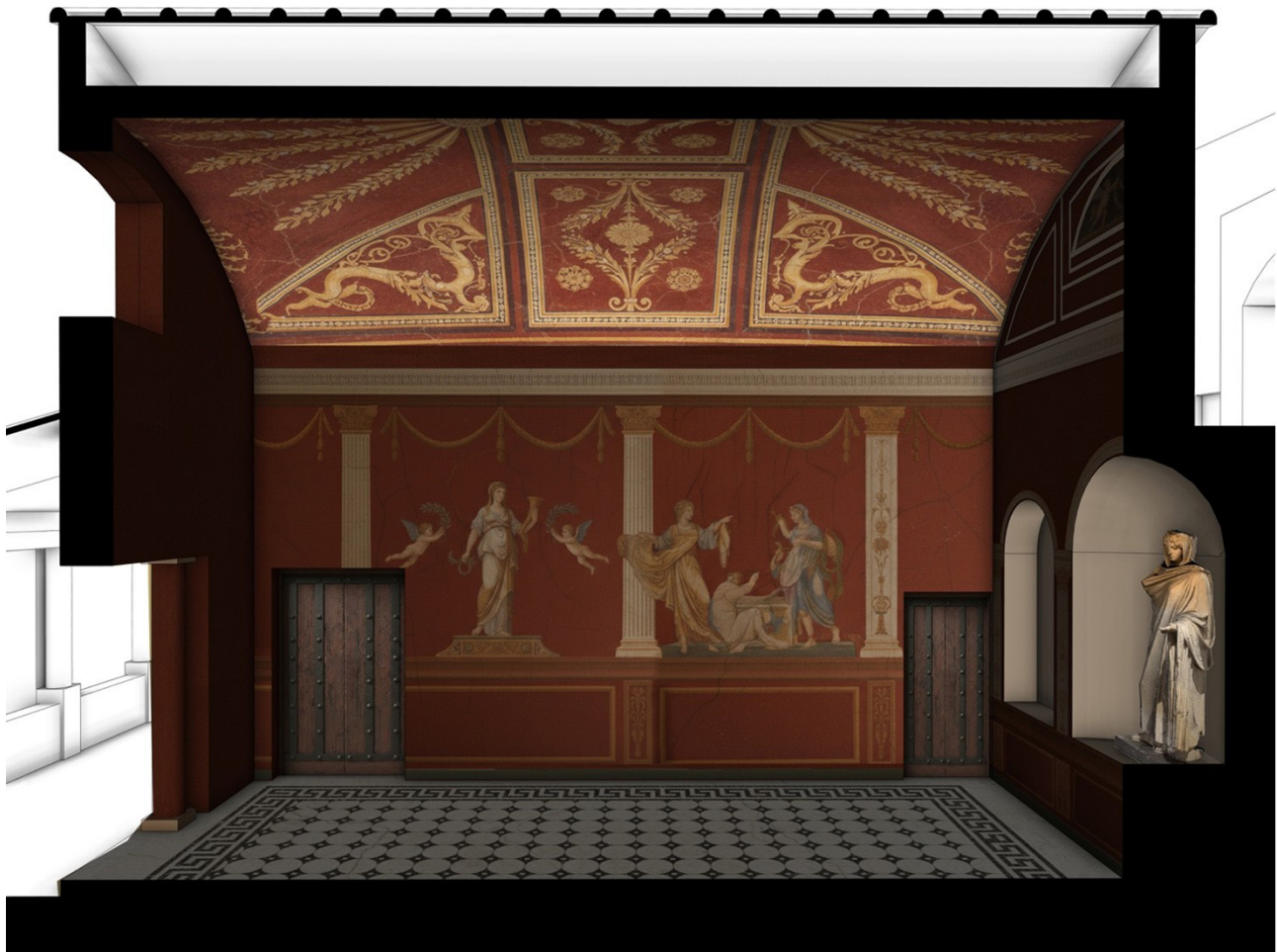
The Sosandra hall and the placement hypothesis

The three-dimensional digitalization of the *Aphrodite Sosandra*, carried out at the Museo Archeologico Nazionale di Napoli, made it possible to integrate the sculpture within the virtual model of the Sosandra Sector. Starting from the actual dimensions of the statue and the reconstructed geometry of the niche hall, several placement hypotheses were tested by evaluating their visibility along the principal circulation axes, their relationship with the gardens and hydraulic devices, and their perceptual impact within the architectural ensemble (fig. 6). The analysis demonstrated that positioning the statue within the central niche of the axial hall maximizes both the formal legibility and the symbolic effectiveness of the composition (fig. 7). From this location, the Aphrodite becomes the visual fulcrum of the space, dominating the compositional axis that articulates the different levels of the sector and establishing a direct dialogue with the landscape and water. Such a configuration reinforces the interpretation of the environment as a representational nymphaeum, in which the sculpture does not function merely as an ornamental element, but as a structural component in the construction of the spatial meaning of the environment [Gómez Robles 2013, p. 62].

Table 1. Levels of evidence in the virtual restitution.

Level of Evidence	Description	Applied Criteria	Examples of Restitution
Direct evidence (documented/certain)	Elements whose form, proportions, and position are demonstrated by primary sources or preserved physical remains	Partial or total preservation of the material Verifiable historical graphic documentation Precise documentary sources	Arrangement of the different buildings and their related access routes (stairs/ramps) Height of most buildings, as demonstrated by the traces of the stairways
Indirect evidence (deduced/probable)	Elements not fully preserved, but whose form can be deduced from coherent material or documentation	Partial remains or archaeological evidence Incomplete textual or graphic references Typological correspondence with verified coeval buildings	Relationship between the hydraulic channels of the different levels of the sector Plan layout of all buildings Arrangement of the vaults according to their state of preservation
Well-founded hypothesis (plausible reconstruction)	Elements not preserved or directly described, reconstructed through scientific criteria based on historical, typological, and constructive analogies	Comparative analysis with analogous buildings Structural and stylistic coherence Explicit architectural justification	Arrangement of elements such as columns and roof slopes (with a non-preserved wooden structure) Junctions between some of the buildings Interior finishes of the environments

Fig. 7. Perspective section of the virtual reconstruction of the Sosandra Sector, with focus on the positioning of the statue (graphic elaboration by the authors).



The virtual reconstruction also made it possible to evaluate the relative scale between the figure, the architecture, and the surrounding environment (fig. 8), an operation that would have been impossible either from the isolated statue within the museum context or from the fragmentary remains preserved in situ. In this way, the three-dimensional model emerges as a tool for the archaeological validation of the proposed placement hypothesis (figs. 9, 10).

Social impact and the 'pop-effect' action

The opening of the new Baia station along the Cumana railway line, enriched by the presence of 3D reproductions of the statues originating from the Baths of Baia, represents a significant case of integration between contemporary infrastructure and archaeological heritage (fig. 11). The research does not limit itself to a traditional operation of cultural enhancement, but rather takes shape as a device capable of generating a concrete social impact, activating a return effect on the territory and, in particular, on the Archaeological Park of the Baths of Baia.

Although the thermal complex constitutes one of the most imposing and significant architectural ensembles of the Roman world, it has long suffered from a condition of marginality due to critical issues related to accessibility and transport efficiency. The difficulty of reaching the site has progressively reduced its perception as a central component of Campanian heritage, limiting its full public use despite its exceptional historical, architectural, and landscape value.

Within this framework, the new Baia station assumes a strategic role, positioning itself as an infrastructure capable of directly influencing the relationship between the archaeological site and the mobility network. The station becomes a threshold of access not only in a physical sense, but also in a symbolic one, to the archaeological heritage. It is precisely in this context that the 'pop-effect' action of the intervention emerges. The presence of the statues within a space traversed daily by commuters and visitors makes the heritage immediately visible, recognizable, and accessible, reducing the symbolic distance between the public and the archaeological asset.



Fig. 8. Virtual reconstruction of the Sosandra Sector (graphic elaboration by the authors).

Fig. 9. Detail of Level C of the Sosandra Sector - the theatre-nymphaeum (graphic elaboration by the authors).

Fig. 10. View of the virtual model of the Sosandra Sector (graphic elaboration by the authors).

Fig. 11. The new Baia metro station (graphic elaboration by the authors).



The informal experience of the replicas stimulates curiosity and interest, encouraging an initial encounter with the heritage that may subsequently develop into a desire for deeper understanding and direct visitation. In this sense, the station is capable of anticipating the archaeological experience, orienting visitors toward the Park and strengthening the relationship between infrastructure and site.

This mechanism proves particularly effective within the Phlegraean area, characterized by a strong historical stratification but also by infrastructural and environmental fragilities. The placement of heritage within a space of everyday life contributes to redefining the relationship between community and territory. The Baia station therefore does not merely improve physical accessibility to the archaeological park, but also redefines its image, restoring its centrality within the urban and metropolitan system.

The effect generated by this operation may thus be considered strategic and functional, insofar as it possesses the capacity to activate a virtuous relationship between mobility, public space, and archaeological heritage. The sculptural replica, inserted within an infrastructural context, acts both as a catalyst of attention and as a tool of diffuse narration, contributing to the reactivation of the social and cultural potential of a complex that, despite its monumentality, has long remained undervalued. In this way, cultural mediation and technological innovation become strategic instruments for overcoming accessibility challenges and strengthening the relationship between archaeological heritage and contemporary society.

Conclusions

This paper has examined the role of virtual reconstruction within archaeological heritage studies through the case study of the Sosandra Sector at the Baths of Baia. Through the integration of architectural, topographical, and sculptural data, the research demonstrates how digital technologies are not only tools for documentation and

preservation, but also instruments for critical interpretation and for the reactivation of ancient contexts within contemporary space. The virtual reconstruction of the Sosandra Sector restored legibility to a heavily compromised archaeological complex, clarifying the spatial and symbolic relationships between architecture, landscape, and sculpture. The *Aphrodite Sosandra* emerges as a key element whose digitalization and virtual relocation make it possible to interpret the ideological and representational function of the sector within a systemic framework.

A decisive role in the reconstruction process was played by the topographical data provided by Dr. Paola Miniero and Dr. Enrico Gallochio of the Archaeological Park of the Baths of Baia. Direct collaboration with them, together with the analysis of previously conducted surveys, represented a valuable contribution to understanding the historical evolution of the site and made it possible to verify and integrate the reconstructive hypotheses, relating the current condition of the complex to its past configurations. At the same time, the production of 1:1 scale additive-manufactured replicas of the statues and their placement within the new Baia station along the Cumana railway line highlight the social and communicative potential of digital technologies: the copies do not replace the originals, but rather become autonomous artefacts capable of generating new forms of use and mediation, inserting heritage into everyday public space. The experience demonstrates how the integration of digital surveying, 3D modelling, and additive manufacturing overcomes the traditional separation between museum, archaeological site, and urban space, promoting a vision of heritage as a dynamic and relational system.

The project opens the way for future developments, both in terms of immersive virtual environments and in the application of the model to other contexts characterized by similar critical conditions, demonstrating how scientific research, cultural design, and technological innovation can support the enhancement and informed use of cultural heritage.

Credits

The research group is composed of: Massimiliano Campi, Marica Camerino, and Marika Falcone for the Department of Architecture of the University of Naples Federico II, Italy; Víctor A. Lafuente Sánchez, Daniel López Bragado, and David Marcos González for the Department of Urbanism and Representation of Architecture, University of Valladolid, Spain.

Although the research is the result of joint work, Massimiliano Campi, Marica Camerino and Marika Falcone are the authors of: *Architectural description; Virtual reconstruction of the Sosandra Sector; Digitalization of the Statues at the MANN Museum*; Víctor A. Lafuente Sánchez, Daniel López Bragado and David Marcos González are the authors of: *Introduction; Historical framework; The sculpture of Aphrodite Sosandra*.

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From Step to Mark: Knowledge and the Proliferation of Undecidable Meanings between Trace, Experience, and Interpretation

Antonella Pettorruso

Abstract

This contribution advances an operational thesis: drawing does not merely fulfill an illustrative function; rather, it constitutes a process that dynamically participates in the visual semantic field, acting as a cognitive engine within the creative act. Indeed, it selects, orders, and correlates dispersed data, transforming them into legible and debatable figures. This process is structurally akin to walking: both operate as iterative practices of orientation, grounded in rhythm, correction, and the progressive construction of meaning. Cartography is thus understood as an 'already reinterpreted space', a trace that directs the gaze and prefigures itineraries; yet, in the transition from the paper to the physical street, the initial direction does not predetermine the experience. While the trace guides the steps, it cannot govern material friction, micro-perceptual variations, the observer's affective state, or the situated encounter with the landscape. This gives rise to a proliferation of partly undecidable meanings: the map and the layout generate knowledge not by confining reality within a single reading, but by triggering plural interpretations within shared constraints (scales, codes, sequences). The text integrates case studies and theoretical references: from John Snow's epidemiological mapping as the graphic proof of a phenomenon, to schematic maps that orient without exhausting, through to the reading of historical routes as devices of memory and perception (Rutigliano). Through a neurocognitive lens, the in situ experience is interpreted as embodied cognition, wherein the environment activates perceptual-motor and affective responses (Gallese). Consequently, drawing –much like walking– becomes an integrated methodology to interpret territories, construct design themes, and render time operable within places.

Keywords: representation, traversal, embodied cognition, historical cartography, proliferation of meanings.

Introduction

To know requires either drawing or walking, traversing either cartographic space or the material space of the street. This posits that the graphic support is never neutral; rather, it always depicts a space that has already been interpreted, thereby offering an initial reading that orients the step. Tracing with a finger a path drawn by others is equivalent, in a preliminary form, to allowing oneself to be guided. It must therefore be considered a gesture that attempts to direct the hiker's feet even before they touch the ground.

From this arises a proliferation of knowledge, because cartography –stratified and already 'translated' by a prior gaze– is, in the act of walking, reinterpreted in turn by the observer according to their own repertoire of

experiences and competencies. In the same vein, whoever traces a mountain trail or a subway route offers merely an initial direction, a line of possibility. Within this perspective, two irreducibly unpredictable moments emerge. On one hand, the person sliding a finger across the map cannot anticipate what they will feel when that layout becomes ground: the friction, the incline, the rhythm of the step. On the other hand, the one who draws multiplies reality through the mark, yet cannot govern what will transpire along the walk: the texture of leaves underfoot, the scent of the air; the fatigue on the slope, a sudden light, nor –above all– the state of mind with which that landscape will be encountered and interpreted. It is precisely within this excess between

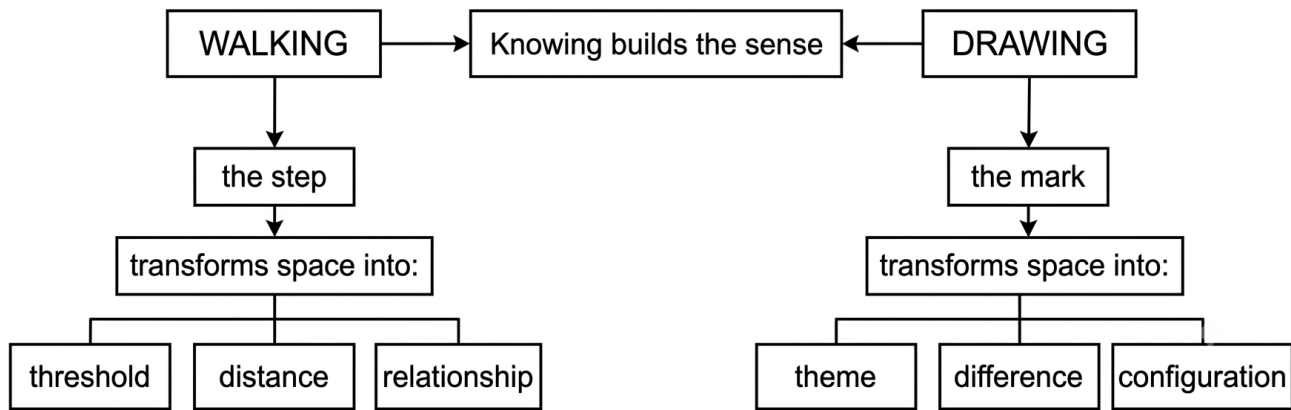


Fig. 1. Walking is like drawing, (graphic elaboration by the author).

trace and lived experience (*vissuto*) that knowledge is produced: the itinerary prescribes an orientation, but experience fills it with unpredictable meanings. As Ing-hillieri suggests [Ing-hillieri 2012], certain places can exert a therapeutic effect of emotional regulation; if for the child a first object 'external' to the mother may be a doll, for the adult the landscape can perform an analogous function of containment and calm. Finally, it is within this situated interaction that—in line with the thesis of Gallese and Morelli [1]—mirror neurons participate in the construction of meaning: by reacting to what stands before us, they transform perception into an embodied cognition, inseparable from the gesture, the step, and the trace. This text advances an operational thesis: knowledge does not precede representation; rather, it is produced through it. Drawing does not merely 'clarify' what is already known; it is a process that selects, orders, correlates, stratifies, and, in doing so, renders the world legible and open to debate. Yet, this is inseparable from walking: to draw requires traversing—if only mentally—an already interpreted space (the paper, the map, the layout), alongside a physical space that resists full prediction (the street, the path, the terrain, thresholds, sounds, irregularities) (fig. 1). Within this dual traversal, the initial trace orients but does not exhaust: it opens a direction and generates a proliferation of meanings that remains, in part, undecidable [2].

The grammar of the mark as a rhythm of kinetics and representation

Drawing from a lineage of thought that extends from Schopenhauer [3] toward an interpretative conception of representation, the act of 'representing' does not equate to faithful reproduction; rather, it entails transforming the object into a language. Every image is the outcome of a specific mode of observation; it therefore carries judgment rather than neutrality [4]. Drawing as an analog practice, operates through codes: metaphors, analogies, schemas, and reductions. It is precisely here that knowledge emerges as a construction: without representation, the world would remain a formless mass of facts, devoid of hierarchies and relationships.

This logic manifests with particular clarity within historical cartography [5]: a map is never a 'first time' [6] but almost always a rewriting. The cartographer integrates pre-existing maps, updates details, and superimposes layers. Consequently, multiple spaces (the base and the intervention) and multiple times (the instant of the survey, the memory of the previous map, and the projection of future utility) coexist within the same sheet. Drawing, in this context, signifies 'mapping time': rendering visible transformations, permanences, deviations, meanders, and discontinuities. Time is not merely narrated; it is made operable through the mark.

In this perspective, walking is not an external theme, but rather the corporeal correlate of drawing [7]. Every graphic trace

implies kinetics: rhythm, pressure, advancement, and correction. In the linear gesture, as in the step, there are accelerations, pauses, returns, and deviations. It is no coincidence that many representations of movement throughout art history (from the Egyptian 'regal' stride to classical figures structured upon dynamic *contrapposto*) demonstrate that motion is communicated through differences [8], alternations, and tensions. Analogously, in drawing, the line suggests movement not because it 'imitates' the body, but because it reconstructs its rhythmic grammar.

This processual equivalence becomes even more compelling when considering education in drawing: the child draws just as they explore –through contours, trials, and repetitions– whereas the adult tends to discipline, abstract, and select. In both instances, however, drawing remains a form of situated learning: one learns while tracing. The distinction lies within the threshold of control, not in the cognitive nature of the act.

The itineraries of perception and the constellations of the trace

The case of John Snow [9] is paradigmatic because it clarifies that mapping does not merely serve to communicate already acquired results; rather, it serves to produce them. The correlation between deaths and the water supply source becomes intelligible precisely when it is translated graphically: positioned within space, bounded, and rendered comparable. The map thus operates as a device of proof, capable of giving form to a hypothesis and exposing it to public refutation. Within this perspective, knowledge is not content that is simply transferred from the world to the page; instead, it is the outcome of an operation of selection, montage, and visual organization of data (fig. 2).

At the end of August 1854, during the cholera epidemic in London, Snow excluded the hypothesis of airborne transmission and oriented his investigation toward a potential transmission through water. Observing the concentration of cases in the Piccadilly area, he identified the Broad Street pump (located between Broad Street and Cambridge Street) as a crucial node in the residents' supply system. Traversing the streets of the neighborhood, he recognized that the majority of deaths were clustered in proximity to the pump: a regularity that, in order to become arguable, had to be made visible. Snow therefore worked upon an existing cartographic base –published by the C.F. Cheffins studio (Holborn) at a scale of 30 inches to a mile– and transformed it into an analytical

tool by integrating three essential elements: the location of the pumps, a dashed line defining the area of influence, and black bars marking the fatalities.

It is precisely within this transformation –from topographical image to relational diagram– that the map produces evidence, rendering the association between health events and water infrastructure verifiable.

In December 1854, Snow presented his findings to the London Epidemiological Society, where further connections to the population's hygienic and sanitary conditions emerged. However, interpretations were not immediately unanimous: additional corroboration arrived from the analysis of an initially neglected fatality (the case of an infected child) and from the reconstruction of the role of a cesspool, whose contents leached through the soil, contaminating the drinking water. Here too, the strength of the argument does not reside in a single, isolated datum; rather, it lies in the possibility of reconstructing a coherent chain of relations among space, user behaviors, infrastructure, and the distribution of cases [10].

A trace can be radically directive and, at the same time, non-deterministic. A network diagram (such as the celebrated logic of simplification (fig. 3) found in Beck's schematic maps [11] for the London Underground) orients displacement: it indicates sequences, nodes, interchanges, and directions. Yet, it does not govern experience: it does not control overcrowding, noise, fatigue, mood, or the personal memory that grafts onto every journey. The trace, therefore, directs without determining; the line guides the feet, but it does not possess the body.

The act of walking becomes a method in the discourse on historical routes, as the road is not merely a functional infrastructure: it constitutes a landscape monument, a device of memory, and a 'privileged itinerary' [12] through which to rediscover and understand a stratified Italy. Within this framework, the road is a territorial writing that warrants preservation and valorization, particularly because numerous traces have been erased or degraded by modernization and the homogenization of layouts. The proposal to rediscover historical routes is explicitly tied to a 'slow and inquisitive' tourism and to a pedagogy of the gaze: a return to reading places along the line of a traversal that carries with it walls, bridges, hydraulic works; signs of a 'making' coherent with the *genius loci*. Hiking practices (such as CAI report-mapping, guided crossings, and field surveys) demonstrate a key point: walking produces description, and description tends to become textual cartography. Through the step, one recognizes inclines, materials, water regimes, and land-use shifts, but above all, one constructs a sequence of decisions: where to pass, where to halt, and

Fig. 2. Redrawing of the London epidemiological map. The prisms identify the contagion zones, while the cylinders signal the presence of the pumps (graphic elaboration by the author).

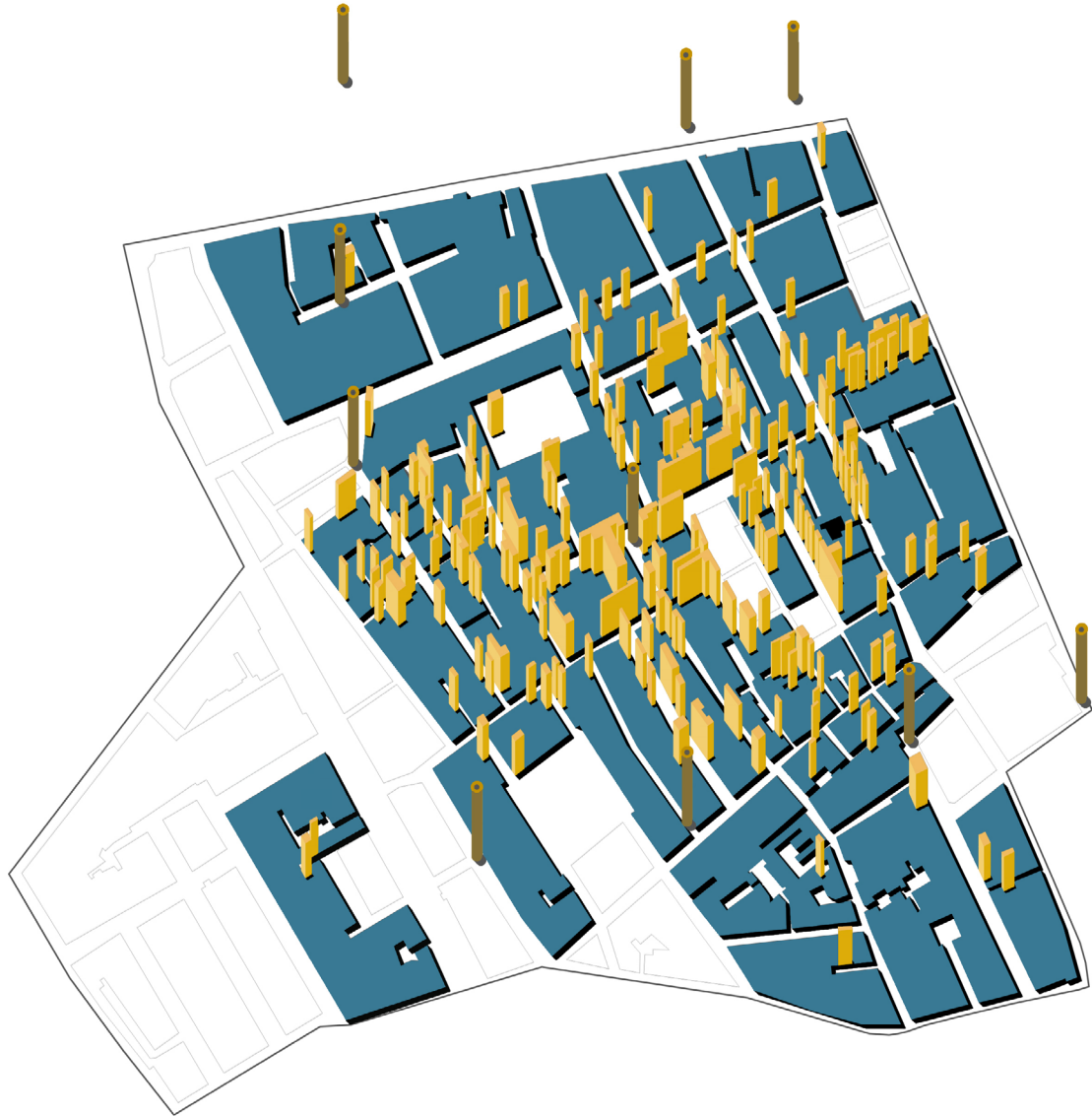
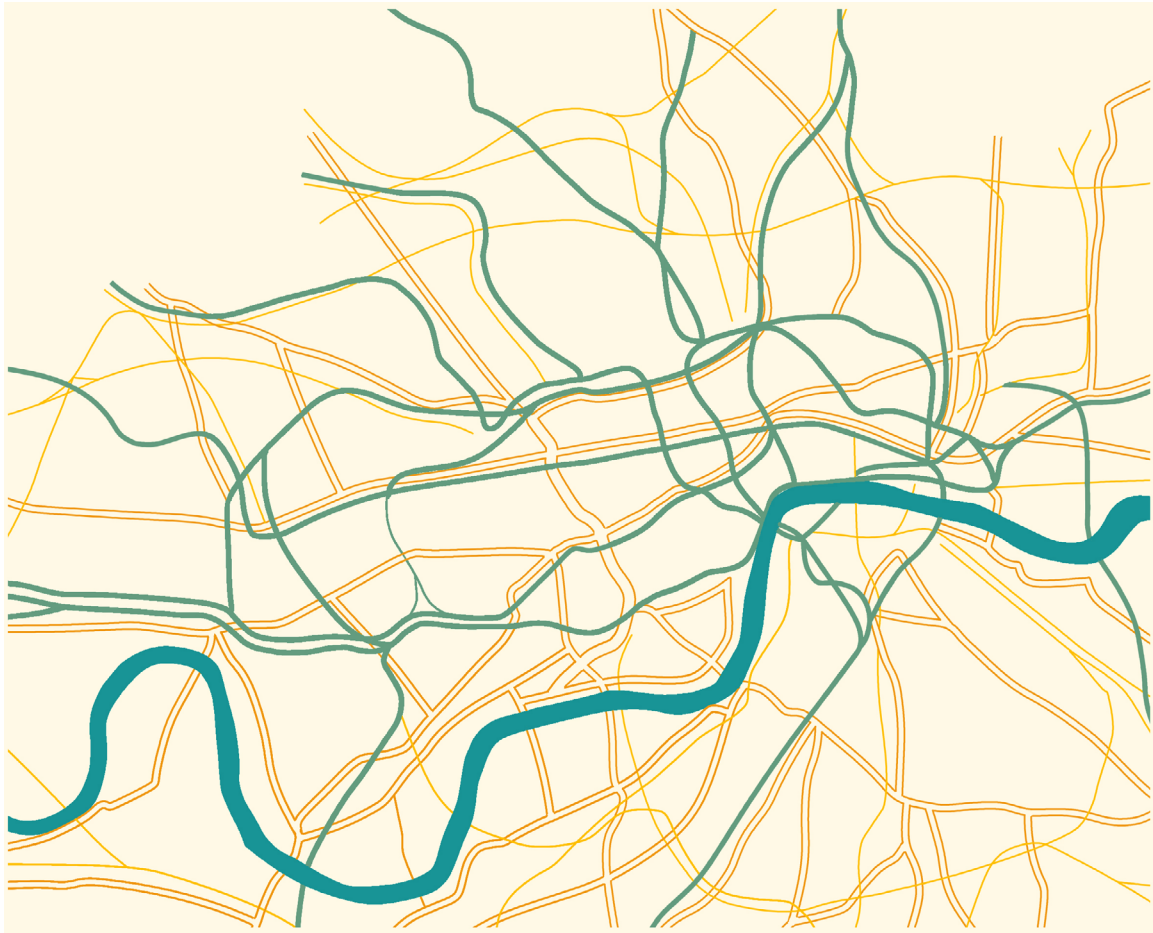


Fig. 3. Redrawing of the London Underground map, 1930-pre-Beck. The route of the metro line is shown in green, the routes of other road infrastructure in orange and mustard, and the River Thames in turquoise (graphic elaboration by the author).



what to avoid. Walking, in this sense, is a corporeal algorithm that transforms space into relation. When cartographic analysis identifies territorial continuities and recurring elements, it does not merely 'discover' objects; rather, it extracts a theme and employs it as a design rule. Here, knowledge proliferates through the stratification of historical maps, technical maps, toponomastic data, *in situ* perceptions, and, ultimately, the new design synthesis. In this regard, the final product is not a static image, but a traversable network constructed of terrestrial paths, waterways, crossings, and control devices.

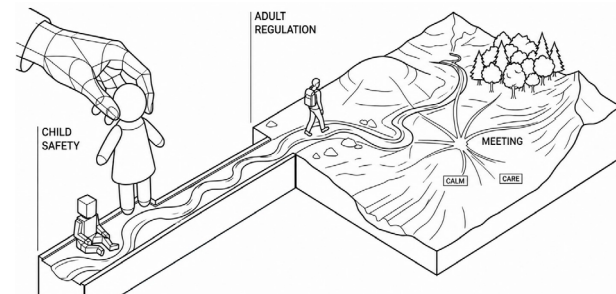
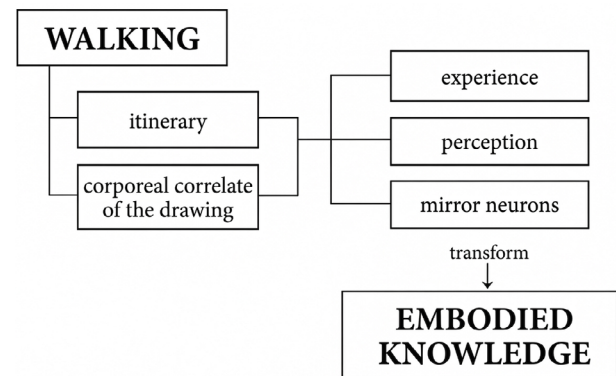
From trace to presence: insights on knowledge arising from drawing and walking

Convergent results emerge from these cases. First: drawing is an epistemic act because it produces relations. It does not limit itself to describing entities; rather, it places them into a configuration (proximity, influence, hierarchy, sequence). Knowledge arises as a structure, not as a list. Second: the trace is always 'first' and 'not final.' It represents an initial direction, akin to a marked trail or a line on a map: it orients movement, yet leaves the quality of the experience indeterminate. This indeterminacy is not a defect; rather, it constitutes the very condition for the proliferation of meanings. Third: cartography is a space that has already been reinterpreted. Walking 'within the map' means tracing with a finger a route that someone has already deemed relevant, practicable, and nameable [13] (fig. 4). Yet, in doing so, the observer reactivates the map through their own knowledge: what to one is an 'incline' becomes a stimulus to another; what to one is 'flat terrain' becomes monotony to another; or a promise of speed. Fourth: the transition from the map to the physical street produces a surplus that cannot be fully translated. The map does not contain the friction of leaves underfoot, the anxiety on the cliff's edge, the unpredictability of the wind, or the unexpected joy of a visual opening [14]. The tracker can dictate the direction; they cannot prescribe sensibility. Fifth: this surplus is not merely poetic, but neurocognitive [15].

If, as in Gallese's readings [16], our understanding of the world is mediated by systems of embodied simulation (mirror neurons and related mechanisms), then the environment triggers responses that depend not merely on information, but on presence. The street 'forces' the body into action: demanding specific postures, focuses of attention, and anticipations. Knowledge is generated within the reciprocal grip between organism and context.

Fig. 4. Walking: trace, experience and meaning (graphic elaboration by the author).

Fig. 5. Security and emotional regulation: from the doll to the landscape (graphic elaboration by the author).



From mark to step in the cognition of undecidable meanings

To state that 'drawing is akin to walking' does not imply reducing drawing to a mere metaphor for movement; rather, it means recognizing an identical operational structure: both are iterative processes of orientation. Walking is a practice of the minimal measure (the step) that transforms space into threshold, distance, and relation; drawing is a practice of the minimal measure (the mark) that transforms reality into theme, difference, and configuration (fig. 5).

The decisive point lies in the proliferation of undecidable meanings [17]. 'Undecidable' here does not denote arbitrary; it means inexhaustible by a single reading. A historical route is simultaneously infrastructure, document, monument, memory, aesthetic occasion, economic resource, and political device. An epidemiological map is simultaneously description and argumentation. A hiking trail is simultaneously direction and narrative. Knowledge is not unequivocal: it is a proliferation

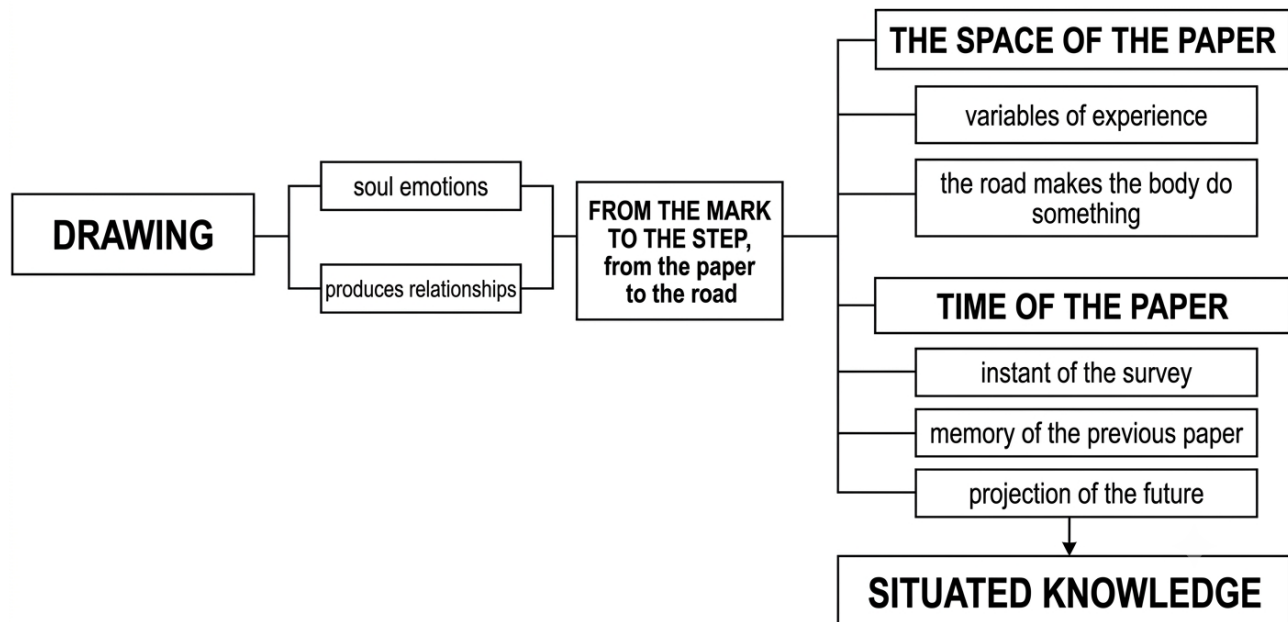
governed by constraints (topography, scale, graphic codes, rules of walking) yet open in its interpretations.

The affective dimension is situated precisely within this openness. If, as in Inghilleri [18], the transitional object for the child (the doll) acts as a mediator between security and the external world, for the adult, the landscape can function as a mediator of regulation: soothing, reorienting, and capable of 'healing' through perception. The trace (map/road) prepares the encounter; the encounter activates emotions [19] that, in turn, become situated knowledge (fig. 6).

On walking and tracing: knowledges of place and the care of their ways

For research: treating drawing and walking (fig. 7) as integrated methods allows for the construction of 'two-tier' investigation protocols. These can involve the analysis of

Fig. 6. From sign to step (graphic elaboration by the author).



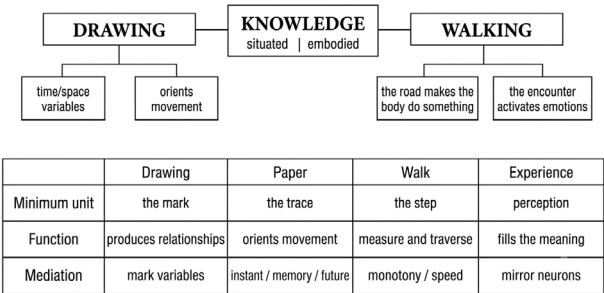


Fig. 7. Conceptual matrix (elaboration by the author).

cartographies and toponyms followed by *in situ* perceptual and narrative verification; or, conversely, exploratory walking followed by subsequent graphic formalization. In both cases, validity resides not merely in the 'precision' of the data, but in the apparatus's capacity to bring forth relations. For territorial design: considering historical routes as landscape monuments implies intervention criteria that cannot be reduced to mere traffic functionality. Valorization requires preserving the legibility, continuity, and perceptual quality of the traversal, rather than focusing solely on the road cross-section. For pedagogy: teaching drawing as a form of walking means shifting attention from the 'beautiful mark' toward the construction of experience and judgment; learning what to trace is equivalent to learning what to see.

Notes

[1] The volume explores the concept of 'embodied simulation', explaining how our motor system does not merely execute actions but actively participates in understanding the world. In this perspective, perception is not a purely visual or abstract process but a profoundly bodily experience: by interacting with the environment and with traces (graphic or physical), the subject constructs meaning through a continuous sensorimotor exchange between themselves and the context [Gallese, Morelli 2020].

[2] For the distinction between cartography as an abstract 'place' and walking as a 'practiced space', see de Certeau [de Certeau 1984]. The article highlights how walking is not limited to following a route but 'inhabits' it, transforming the trace into a dynamic experience that escapes the closure of the drawing.

[3] For Schopenhauer, 'representing' (*Vorstellung*) does not mean reproducing an object 'in itself', but rather constituting the world as an 'object-for-a-subject': what we call the world is, first and foremost, 'representation', that is, a

This approach entails at least three limitations. First: the proliferation of interpretations can slide into relativism if it is not anchored to explicit constraints (scales, sources, selection criteria, conditions of traversability). Second: the *in situ* experience is inherently variable (season, weather, bodily state, competencies), making it difficult to replicate. Third: the link between perceptual processes and neuro-cognitive explanations (mirror neurons, embodied simulation) serves as a powerful interpretive framework, yet it demands caution when employed to 'prove' point-by-point causalities within complex contexts.

Conclusions

Drawing is akin to walking because both constitute knowledge through the medium of the trace. The trace is not a secondary outcome; rather, it is the very means by which the world becomes legible and, simultaneously, an invitation to be traversed.

To walk within a cartography means to follow the intelligence deposited by others, yet it also entails reactivating it through one's own singularity; to walk upon a physical street means accepting that direction does not govern experience, and that precisely here arises the proliferation of meanings. Within this oscillation between guidance and indeterminacy, between code and sensation, a knowledge is produced that does not coincide with a single truth, but rather with a network of relations: a knowledge capable of generating design, memory, care, and, above all, new questions.

phenomenon dependent upon the forms of knowledge (space, time, and causality) and inseparable from the perspective of the knowing subject. In this sense, without a subject there is no object, and reality is always given as a relation, never as an absolute datum [Schopenhauer 1818].

[4] On the nature of cartography as a cultural practice that shapes reality rather than merely reflecting it, see Cosgrove [Cosgrove 1999]. The author highlights how 'maps' are visual devices that, through the selection and organization of data, construct a spatial order intrinsically linked to specific power structures and ideologies, surpassing the idea of representation as a transparent transcription of the real.

[5] The set of cartographic practices and products of the past (manuscript and printed) are assumed not as simple 'images' of the territory, but as cognitive and cultural devices: situated representations, constructed according to technical codes and conventions of the time, which select, prioritize, and render space (and often its uses) governable. In this sense, historical

cartography is read as interpretative stratification: each map incorporates previous sources, scale choices, omissions, and accentuations, and therefore returns both a territory and a historical gaze on the territory itself.

[6] The set of cartographic practices and products of the past are assumed not as simple 'images' of the territory, but as cognitive and cultural devices. See Harley and Woodward [Harley, Woodward 1987], who define cartography as a social and historical construction that selects, prioritizes, and renders space governable. In this sense, the historical map is read as interpretative stratification: each sign incorporates previous sources, scale choices, omissions, and accentuations, returning both a territory and a historical gaze on the territory itself.

[7] The statement that walking is not an external theme but the bodily correlate of drawing should be understood in an operative sense: both function as tracking practices. As Ingold observes, drawing and walking produce lines that organize experience, transforming space into a path and into a relationship; and, from Careri's perspective, walking is not limited to traversing places, but knows them and "constructs" them through a sequence of perceptual and narrative choices. In this sense, drawing can be read as a graphic translation of kinetics (rhythm, pressure, correction), while walking can be read as a bodily writing that makes the territory readable [Ingold 2007; Careri 2006].

[8] In the lexicon of art history, movement is often rendered not as cinematic registration, but as an effect of structural differences: oppositions and asymmetric balances that make one perceive a 'potentiality of motion'. In classical contrapposto, exemplary in Polyclitus's Doryphoros as understood by Asa Simon Mittman [Mittman 2019], it is used to explain how balanced asymmetry—crossed tension/relaxation—produces the effect of vitality and implicit motion. The figure appears alive because the weight is concentrated on one leg (tensed) while the other relaxes, and the alternation is mirrored in the arms: a grammar of tension/release that suggests dynamism even in stillness.

[9] John Snow (1813-1858) was a British physician and one of the founders of modern epidemiology. During the 1854 cholera epidemic in London, he refuted the 'miasma' hypothesis and argued for the waterborne transmission of the disease, demonstrating the correlation between fatalities and the Broad Street pump through a map of cases and a spatial analysis; the removal of the pump's handle became a landmark intervention for a data- and territory-driven approach.

[10] Snow's intervention is situated, moreover, within a broader genealogy. The mapping of fatalities had previously been employed to investigate plagues and fires (1665-1666), and in the United States, Valentine Seaman applied cartography to medicine in 1798 through epidemiological maps. A further theoretical reference is Ludwig Finkle, who in the 1780s conceptualized a disease atlas in continuity with Hippocratic influences, seeking common environmental factors (soil type, vegetation, animal treatment). Although the project was halted due to the costs of the Napoleonic Wars, Finkle produced a world map of the geographical distribution of diseases in 1792. Within this framework, Snow's contribution demonstrates with particular clarity the epistemic nature of representation: the map is not a neutral 'background' but an apparatus of intelligibility that makes it possible to see what, without tracing, would remain scattered and incomparable.

[11] Harry Beck (1902-1974) was an English technical draftsman who, in 1931, devised the famous schematic map of the London Underground, first published in 1933. By replacing geographical accuracy with a 'diagrammatic'

logic (simplified lines, regular angles, non-scalar distances), Beck rendered the network comprehensible as a sequence of nodes and interchanges: a graphic orienting device that guides movement without coinciding with the actual territory, and which has durably influenced transit cartography worldwide. The trajectory leading to Beck's 'definitive' map clearly illustrates that drawing is not merely a graphic vessel for pre-existing content, but a method of knowledge constructed through successive trials. In 1931, Beck proposed an initial scheme; it was deemed too distant from established conventions and was rejected. In 1932, he resubmitted it with targeted corrections: the proposal was accepted and, prior to full distribution, was even tested via a trial print run. This sequence highlights the epistemic core: to draw means to formulate a hypothesis about the world (which relationships matter; which should be simplified, which hierarchies render a system legible), to subject it to public verification, and to modify it in light of the effects it produces. Knowledge, here, does not precede the mark: it emerges within the mark, because it is the drawing that renders relations comparable and allows one to determine whether an idea 'functions' as a tool for orientation and comprehension.

[12] In the volume *Strade storiche. Monumenti da salvare*, Oreste Rutigliano [Rutigliano 2022] interprets 'historical roads' not as mere infrastructure, but as authentic linear 'monuments': unified works that integrate engineering, landscape, and decorum, constructed using traditional materials and methods, and conceptualized to encompass aesthetic qualities (alignments adhering to the terrain, curves and hairpin bends, stonework, arched bridges, tree-lined avenues, and furnishings). Within this reading, their cultural value was recognized belatedly: many have been destroyed or altered, while others remain forgotten, necessitating rediscovery and restoration. Rutigliano links their protection to a contemporary demand for 'slow' and inquisitive tourism, capable of reactivating inland areas and the historical landscape through trails, villages, and itineraries.

[13] The shift from the conception of the map as a static object to a vision of 'mapping' as a processual practice is supported by Kitchin and Dodge [Kitchin, Dodge 2007]. According to the authors, the map does not exist as an immutable datum, but constitutes itself through situated interaction with the subject: it 'happens' only when used in the context of movement, making cartography a continuous practice of negotiation and transformation.

[14] On the primacy of multisensory experience in inhabiting space and on the limits of an architectural culture excessively dominated by sight ('oculocentrism'), see Pallasmaa [Pallasmaa 2012]. The author argues that the authentic experience of a place—and therefore also of architecture—requires the involvement of all the senses, as only through tactile, auditory, and bodily contact does the environment reveal itself as a deep and significant reality, escaping the purely iconographic reduction of the graphic design.

[15] The nature of experience as knowledge inseparable from the body that inhabits the world is the core of Merleau-Ponty's reflection [Merleau-Ponty 2012]. The author argues that perception is not a datum that the subject receives passively, but an act of direct involvement in which the body, through its own movement and its own situated presence, gives meaning to matter. This phenomenological vision offers the interpretive framework necessary to understand how the 'surplus' that emerges in the walk—that is, what the map cannot anticipate—constitutes the very essence of a knowledge that is generated in the encounter between the intentionality of the gesture and the resistance of the physical world.

[16] Giacomo Rizzolatti and colleagues identified in the early 1990s, in the macaque frontal lobe (area F5), neurons that activate both when the animal performs a goal-directed action and when it observes the same action performed by others. Giacomo Gallese played a central role in the development of the theoretical interpretation of this system, proposing that these circuits support a form of 'embodied simulation' at the basis of the immediate understanding of others' actions through a pre-reflective sensorimotor coupling. In this perspective, mirror neurons are not a simple 'imitation mechanism' but a neurocognitive device that connects perception and action, making the experience of the other intelligible as a possibility of one's own body [Gallese et al. 1996; Gallese 2005].

[17] As Barthes [Barthes 1977] suggests, the meaning of a text –or a graphic trace– does not reside in an ultimate and closed intention, but rather in its nature as an open space that the reader, or the walker, must constantly reactivate and rewrite.

[18] In *I luoghi che curano*, Paolo Inghilleri (a social psychologist at the University of Milan) frames 'care' or 'healing' not as an abstract property, but as a situated effect born from the encounter between the individual and the environment: places, objects, and nature can function as protective

factors because they modulate emotions, attention, a sense of security, possibilities for action, and the overall quality of experience. Within this perspective, the landscape is not a neutral 'background' but a mediator: through its perceptual and symbolic characteristics (forms, light, vegetation, visual openings, accessibility, cultural signs), it can support positive experiential states, reduce stress, and foster mechanisms of psychological and social regulation. Healing, therefore, emerges from relationships and practices (dwelling, traversing, pausing) rather than from any presumed intrinsic power of the place itself [Inghilleri 2012].

[19] For Goleman, an 'emotion' is not a simple state of mind; rather, it is a complex construct that encompasses a feeling, its distinctive thoughts, psychological and biological states, and a range of 'propensities to act'. Within this framework, emotions are considered evolutionary devices for behavioral orientation: "impulses to act" [Goleman 1996, p. 355], that is, action plans designed to prepare the body for rapid responses to environmental demands (sharing its etymological root with *muovere*, 'to move'). This definition appears explicitly in Appendix A (where the author clarifies his conception of emotion and its connections to mind, body, and action) and is anticipated in the opening chapter, which is dedicated to the function of emotions as prime movers of action.

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Diagrams in Action: Performative Synapses and Critical Taxonomy of Graphic Operations in BIG

Cristiana Bartolomei, Caterina Vignoli

Abstract

This contribution proposes a critical reading of Bjarke Ingels Group's diagrams as hybrid devices, which are simultaneously operational, narrative, and communicative. Starting from the theme of the σύναψη, the performative synapse is defined not as a general metaphor, but as an analytical model capable of describing the transition from heterogeneous conditions –context, program, constraints, data, and intentions– to verifiable graphic and spatial transformations. The article distinguishes between representation, drawing, and diagram, problematizing the rhetoric with which BIG presents its own processes and proposing a taxonomy of recurring diagrammatic operations: single gesture, negotiation sequence, and programmatic loop. The cases of The Twist, VIA 57 West, and Villa GUG are reinterpreted through a grid that identifies input, operator, transformation, function, and limits of evidence. What emerges is a notion of the diagram that is reducible neither to pure formal generation nor to simple illustration, but is rather positioned within an intermediate field where drawing builds connections, makes decisions legible, and organizes design knowledge.

Keywords: diagram, architectural representation, performative synapse, design storytelling, taxonomy.

Introduction

In recent decades, architectural representation has undergone a profound transformation, which has reshaped its aims, tools, and epistemic status. The integration of digital techniques, information models, and iterative visual strategies has altered the relationship between design thinking and drawing. What was once conceived primarily as a moment of translating the idea now participates in its formation, verification, and progressive transformation. Drawing, therefore, no longer appears as a neutral medium, but rather configures itself as a dynamic operational field in which actions, constraints, and relationships are made visible and constantly negotiated (fig. 1). The diagram occupies a central position in this transformation, condensing heterogeneous conditions into

recognizable graphic sequences. However, its effectiveness demands critical caution: uncritically assuming its generative nature risks confusing the logic of the project with the rhetoric of its presentation. This ambivalence is central to Bjarke Ingels Group (BIG), whose graphic language is an identity trait of contemporary architectural culture.

The present study critically interrogates BIG's diagrams as visual materials, analyzing how they construct a causal chain of form, which relationships they highlight, and which aspects remain post-rationalized. The contribution proposes a reading of the diagram as a performative synapse: an analytical structure capable of connecting heterogeneous elements, activating transformations, and

transferring knowledge. In a landscape dominated by the computational horizon, BIG's diagram acts in a dialectical position as a conceptual interface that simulates algorithmic logic while belonging to a narrative register.

This notion operationally describes the transition between initial conditions, graphic operations, and spatial configurations. In the cases of *The Twist*, *VIA 57 West*, and *Villa GUG*, this transition assumes three taxonomic declinations: a torsion that connects differences in height, a volumetric sequence that mediates urban constraints, and a loop that organizes program and topography. The analysis verifies how BIG's diagrams respond to a critical taxonomy of graphic operations, which constitutes the main contribution of the essay.

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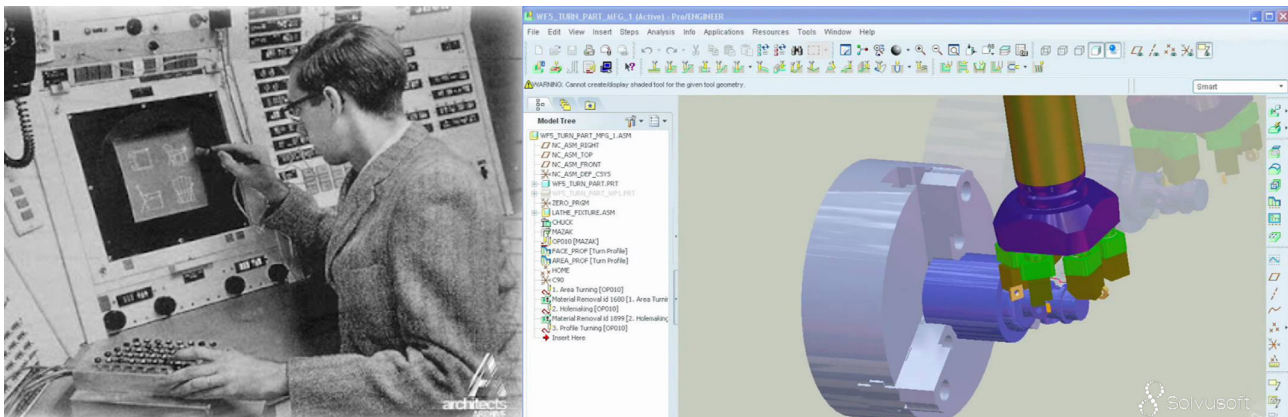
Drawing, diagram, and relationship: theoretical framework and definitions

To avoid an indistinct use of terms, it is necessary to clarify from the outset the epistemological relationship between representation, drawing, and diagram. Representation

constitutes the broader field of visual practices through which a project is made knowable, communicable, and debatable within the disciplinary discourse. Drawing, on the other hand, configures itself as a graphic and cognitive practice that can assume descriptive, constructive, ideational, or communicative functions. Finally, the diagram specifies itself as a peculiar form of drawing that privileges relationships, transformations, and logical processes over the figurative rendering of the object. Consequently, while not every drawing can be considered a diagram, the latter is properly defined as a drawing oriented toward making a specific logic of connection and change visible (fig. 2).

Throughout the twentieth century, this function of the diagram was defined through various lines of research, which were not always genealogically connected but converged in redefining drawing as an operational device. Initially rooted in Modernism as an analytical-functional de-structuration –such as the functionalist schematization of urban and building flows (fig. 3)– the diagram underwent a radical reversal of tendency with the neo-avant-gardes of the 1960s and 1970s. In Archigram's urban collages, the image does not describe a completed building, but rather activates mobile, flexible, and technologically imagined scenarios [Cook 1972]; in parallel, within Superstudio's grids, drawing is converted into a critical tool capable of interrogating the relationship between modernism,

Fig. 1. Digital evolution: on the left, *Sketchpad*, MIT, 1963 (source: MIT); on the right, *Pro/ENGINEER*, PTC (source: Parametric Technology Corp).



standardization, and the social imaginary. In both cases, representation ceases to be the document of an object to become a speculative space in which architecture is tested as a cultural possibility [Lang, Menking 2003].

On different theoretical foundations, Peter Eisenman subsequently attributed a generative role to the diagram internal to the construction of form. In his theoretical projects and famous Houses (fig. 4), the diagram does not operate as an a posteriori explanatory synthesis, but as a transformation mechanism in which shifts, rotations, distortions, and recombinations produce the spatial configuration starting from abstract syntactic rules [Eisenman 1999]. The strength of this position lies in having placed the diagram not after the project, but inside its functioning. Precisely for this reason, however, the transition from Eisenman to BIG cannot be assumed as a linear continuity. Eisenman works within a culture of disciplinary autonomy and form as a theoretical problem; BIG, conversely, operates within a pragmatic, media-driven, and highly communicative culture. Trans-

ferring the thesis of the 'form-generating diagram' from Eisenmanian avant-garde architecture to the populist practice of the Danish firm therefore requires problematizing this shift, recognizing that in BIG the formal matrix is always extroverted, meaning it is bent toward the narration of programmatic and contextual demands. With Rem Koolhaas and OMA, indeed, the diagram assumes a further function, transforming into a true grammar of urban complexity. In OMA's projects, flows, densities, programs, economies, and collective behaviors are translated into graphic structures capable of rendering operational those conditions that would otherwise be difficult to govern. The diagram does not reduce urban reality to a simplified image, but selects strategic relationships to transform analysis into design material [Colonnese 2013]. This strategic dimension is fundamental to understanding BIG, a firm that inherits from OMA not a formalist method, but a deeply rooted culture of diagrammatic communication and operational narration.

Fig. 2. Operational distinction between representation, drawing, and diagram (graphic elaboration by the authors).

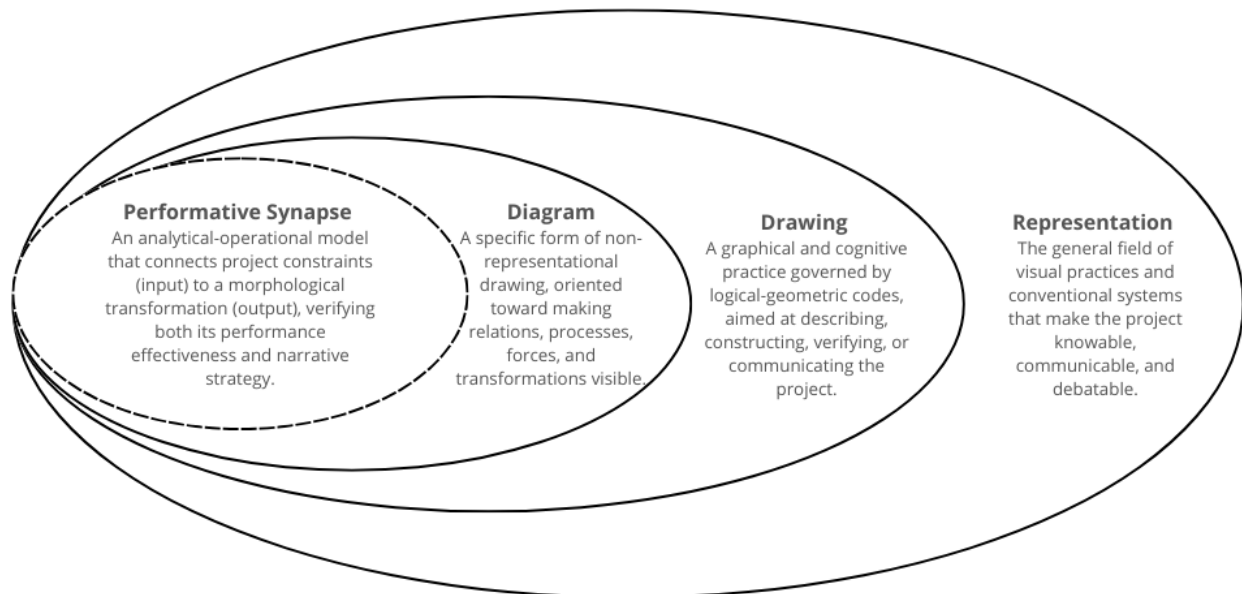


Fig. 3. Le Corbusier, Plan Voisin, 1925: model showing cruciform towers isolated within the greenery of the modern model (source: Fondation Le Corbusier).



The efficacy of the diagram resides precisely in its interstitial nature. In contemporary architectural theory, it acts as an operator of transition: Stan Allen [Allen 1998] clarifies that the diagram does not describe the appearance of things but organizes their functioning, configuring itself as a kinematic device that maps forces before they crystallize into a form. It is within this space that the notion of the performative synapse fits, assumed here in its structural meaning as a space of transition and transmission. Just as in neurobiology the synapse identifies the point where the impulse is transformed and transmitted between distinct entities, so in drawing the performative synapse describes the exact moment when the heterogeneous demands of the project are connected and translated into graphic operations. This operational character recalls Robert Somol's [Somol 1999] reflection on the performance-oriented diagram, understood not as a mirror of a pre-existing reality, but as an activator of real effects.

However, as recalled by Anthony Vidler [Vidler 2000], the diagram constantly oscillates between logical abstraction and the rhetoric of transparency, risking transforming into a tool of persuasion that conceals the complexity of actual choices. To scientifically anchor this oscillation within the disciplinary field of representation, the reflection of Italian manualistics proves invaluable. Authors such as Mario Docci and Diego Maestri, together with the reflections of Livio Sacchi and the readings of Marco Bovati, understand architectural drawing as a code regulated by systems of conventions and logical structures that govern the correspondence between graphic signs and design intention [Sacchi 1994; Docci, Maestri 2009; Bovati 2016]. In this perspective, the diagram reveals itself as a normative and geometric device that orders relationships, establishes priorities, and defines the conditions for the verifiability of form.

The advent of digital modeling and information systems does not erase this tradition, but alters its horizon. In parametric models, geometry depends on constraints, attributes, and algorithmic dependencies, structuring representation as a system of active relationships. This aspect, however, must not be confused with the nature of the diagrams published by BIG. In the cases examined, the original parametric models or the firm's calculation files are not available; what can be analyzed are conceptual and narrative diagrams that construct a linear sequence of the project. For this reason, the reference to the

parametric is to be understood as a cultural framework and conceptual simulation, not as the technical documentation of a digital workflow [Eastman 1975; Picon 2010; Carpo 2011].

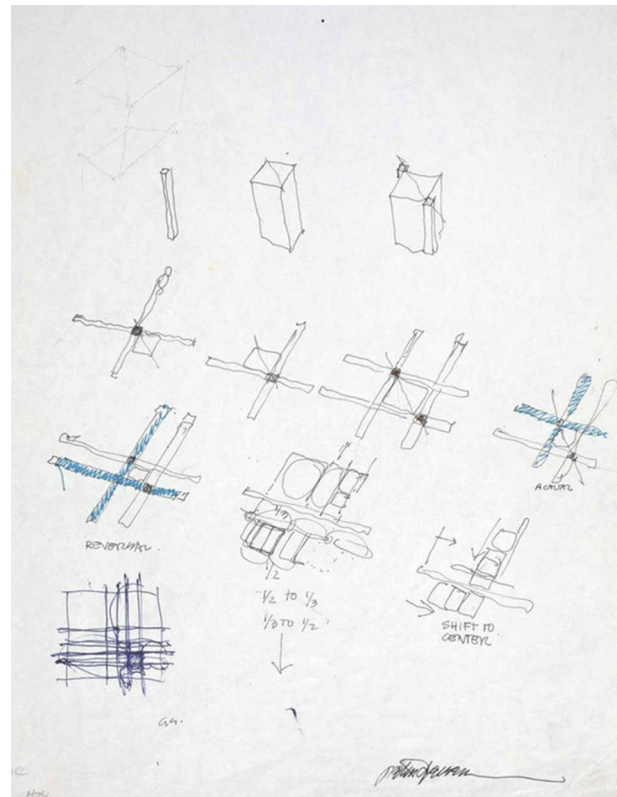
Within this framework, the notion of the diagram as a spatial algorithm must be used with caution. Graphic operations –torsion, lifting, excavation, wrapping– can be read as operational instructions only when it is possible to geometrically demonstrate their effect on the spatial configuration. Their analytical value does not depend on the suggestiveness of the gesture, but on the possibility of identifying input, transformation, and function [Garcia 2010]. The proposed shift thus allows for moving from an uncritical reception of the diagram to a verifiable reading, in which representation is rigorously interrogated in its concrete modes of functioning.

Method: from the metaphor of the synapse to an operational taxonomy

To respond to this methodological need, this contribution adopts the performative synapse as a structured analytical model rather than a purely metaphorical expression. A graphic representation can be defined as synaptic when it connects heterogeneous elements, produces or renders legible a morphological transformation, transfers knowledge between different registers of the project, and allows for a scientific verification of the relationship between initial conditions and the final configuration (fig. 5). Consequently, its performativity does not necessarily coincide with the technical production of form, as it can also decline into the codification of a decision-making sequence, the selection of a clear design causality, or the communicative structuring of a complex process.

The adopted method is articulated in four consequential steps. The first consists in collecting and cataloging the official graphic materials published by BIG, integrated by secondary sources from scientific and critical literature describing the projects. The second step involves the analytical decomposition of the diagrams according to a common reading grid, aimed at tracing the initial conditions, the diagrammatic operator employed, the resulting volumetric transformation, the specific function of the representation, and its relative limit of scientific evidence. The third stage proposes an operational taxonomy of recurring actions, specifically distinguishing between the

Fig. 4. P. Eisenman, diagrammatic sketches for House IV, 1975, (source: Peter Eisenman Archive, CCA).



single transformative gesture, the negotiation volumetric sequence, and the programmatic loop. Finally, the fourth step compares the three chosen case studies to verify whether the taxonomy allows for mapping real differences in the use of drawing, removing the analysis from the simple reception of the firm's official discourse.

This approach also introduces a necessary criterion of methodological caution. The diagrams published by BIG are not treated as neutral documents of the internal process, but rather as constructed and controlled representations, destined to function simultaneously both within the project and in its public communication. The proposed critical reading therefore does not attribute an absolute generative value to the diagrams, but investigates their intermediate position between geometric operability and media narration, recognizing that they possess the capacity to clarify a design logic without necessarily coinciding with the original moment of its production.

The proposed taxonomy (Table 1) does not intend to replace the historical-critical analysis of individual architectural complexes with a rigid grid, functioning instead as a comparative device useful for explaining how analogous graphic operations can fulfill different functions, and how morphologically different operations lead to identical communicative effects. In this sense, the method seeks to shift the discourse from the mere iconographic or stylistic recognition of BIG's diagrams to the critical evaluation of the structural relationships they organize. The question concerns not only the object or the icon that the diagram shows, but invests the connections it

organizes, the transformations it renders plausible on a geometric plane, and the degree of verifiable evidence it places at the reader's disposal.

BIG between design process and graphic storytelling

The critical re-reading of BIG's diagrams requires addressing a central ambiguity that lies at the heart of contemporary architectural culture. The Danish firm has structured one of the most recognizable visual identities on the international scene, founded on elementary graphic sequences, immediate icons, and visual narratives capable of translating complex decisions into linear and understandable stories. The volume *Yes is More*, explicitly defined by Bjarke Ingels as an archicom, shows this media vocation in which the project is formalized as a chain of logical and rational moves, presented through a pop and accessible register [Ingels 2009]. This communicative effectiveness does not constitute a simple accessory apparatus, but rather represents a structural and foundational element of BIG's design strategy.

Precisely for this reason, however, BIG's diagram cannot be naively assumed as a transparent or indexical proof of the internal generative process. It belongs to a regime of public communication in which narrative clarity becomes an integral part of the construction of the architecture's economic and cultural value. The diagram operates through precise actions of simplification, selection, and retrospective ordering, aimed at making a choice geometrically necessary that, in the real process, might have

Fig. 5. Analytical diagram of the performative synapse (graphic elaboration by the authors).

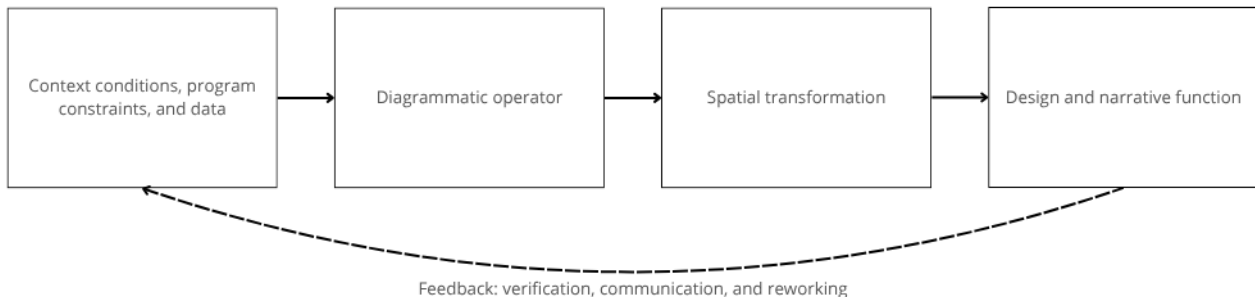
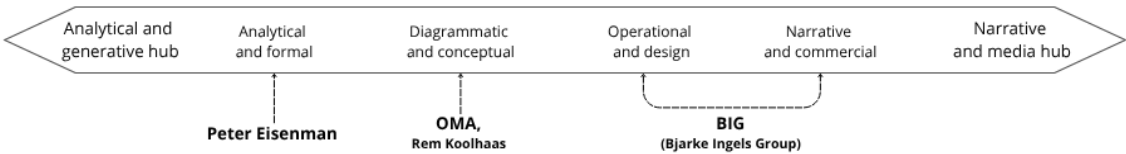


Table 1. Critical taxonomy of BIG's diagrammatic operations (graphic elaboration by the authors).

Category	Case study	Operator	Triggered relations	Predominant function	Critical limit
Single transformative act	The Twist 	Volumetric torsion	Altimetric integration, infrastructural continuity, and exhibition path	Kinematic connection of heterogeneous contextual conditions	Graphical post-rationalization; concealment of the actual structural and constructive complexity of the joint
Negotiated Volumetric Sequence	VIA 57 West 	Decomposition, subtraction, and elevation	Settlement density, courtyard daylighting, urban visual cones, and dialogue with the skyline	Morphological and typological mediation of contextual constraints	Strong narrative and ideological component of the layout
Programmatic loop	Villa GUG 	Continuous fluid enveloping	Vehicular flow, domestic transition, privacy hierarchies, and topographical integration	Topographical synthesis and functional integration of the program	Scientific evidence bound to the studio's official conceptual materials

Fig. 6. Critical axis between generation and narrative (graphic elaboration by the authors).



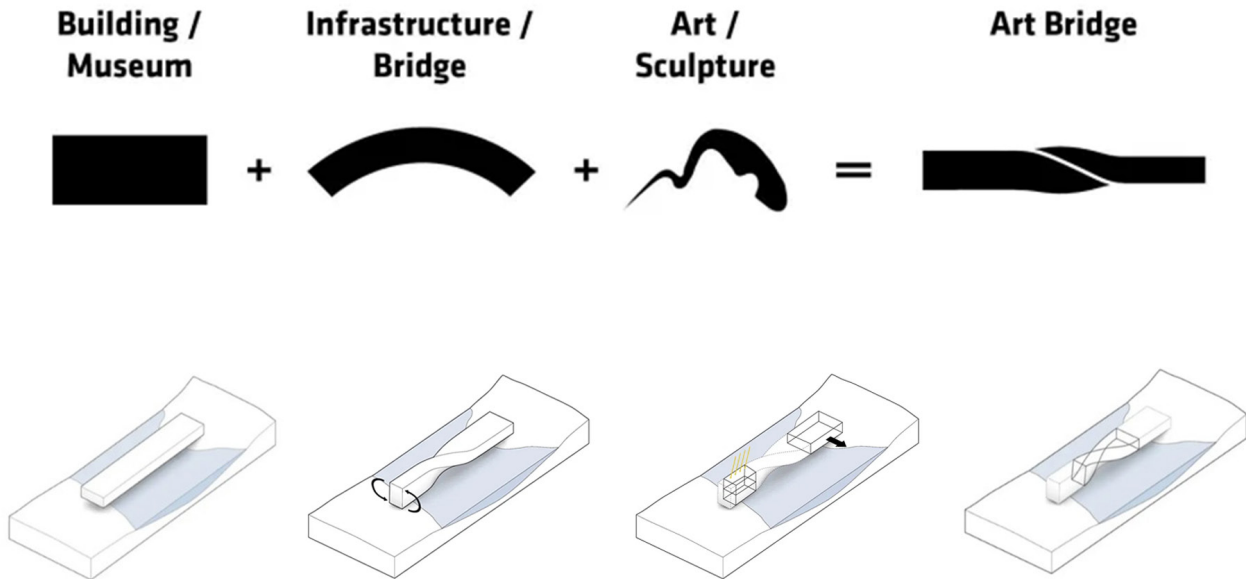
been determined by contingency, uncertainties, or economic negotiations.

This ideological and rhetorical character is brought into focus by the most advanced critique. Douglas Spencer [Spencer 2016] highlights how BIG's diagrams operate a true 'naturalization' of the project. According to Spencer, the firm's engaging and apparently consequential graphics present formal solutions as the only logical and objective outcome possible in the face of contextual constraints, concealing the underlying market logics and ideological choices behind a faked diagrammatic neutrality. In this perspective, as also remarked by Reinier de Graaf [de Graaf 2017], the diagram shifts from the field of heuristics to that of pure post-rationalization once the project is

defined, configuring itself as an effective tool for marketing and commercial seduction [Spencer 2016; de Graaf 2017]. The scientific interest of these materials does not diminish at all in light of this reading, growing on the contrary when drawing is considered a hybrid device that operates constantly on the thin ridge between project, narrative, and legitimization.

This key of interpretation allows for avoiding two opposite and equally ineffective reductions. On one hand, it would be limiting to consider BIG's diagrams as simple promotional or advertising tools, since they effectively organize real and legible spatial and programmatic relationships. On the other, it would be equally problematic to consider them in the manner of pure formal generation,

Fig. 7. Conceptual diagrams and official generative sequence for *The Twist*, 2019 (source: BIG - Bjarke Ingels Group <<https://big.dk/projects/the-twist-2-1337>>).



as if the graphic signs deterministically coincided with the firm's actual operational practice (fig. 6). Their disciplinary specificity resides precisely in the ability to simulate a graphic causality of the project—meaning a sequence of logical-visual steps that makes a spatial thesis communicable—while remaining consciously selective, partial, and oriented toward storytelling.

Three case studies: the diagram as a transformative agent

In the three selected complexes, the proposed taxonomy distinguishes as many modes of drawing, highlighting their limits of evidence. BIG's strategy entrusts the diagrammatic component with the role of simplifying real complexity through immediate and effective formal equations (fig. 7). The Twist responds to the category of the single transformative gesture. The project, in the Kistefos sculpture park, connects two banks at different heights, integrating museum and infrastructure. The diagrammatic operator resides in the geometric torsion of a rectilinear volume, presented as a ninety-degree rotation. This expedient makes the typological shift from bridge to museum legible, structuring a continuity between difference in height and transit. However, the analytical redrawing reveals the gap between narrative and constructive reality: the diagram isolates the plastic gesture but conceals the complexity of the structural nodes. Here, the performative synapse connects infrastructure, landscape, and movement. The torsion is an ex-post graphic operator that connects the

Fig. 8. Official typological diagram for VIA 57 West: fusion between the tower block and the urban courtyard, 2016 (source: BIG - Bjarke Ingels Group <<https://big.dk/projects/via-57-west-2350>>).

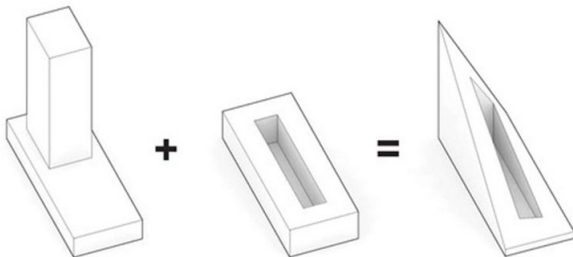
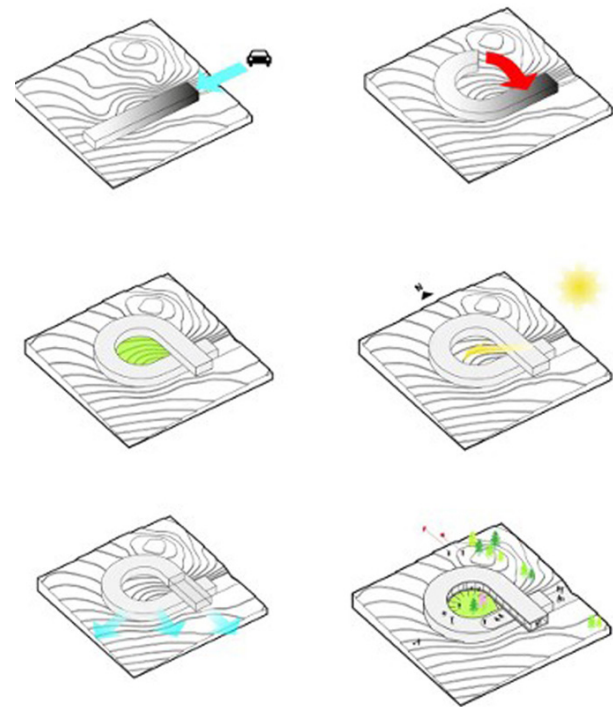


Fig. 9. Official diagrammatic sequence of Villa GUG: genesis of the loop and relations with the topographical context, 2022 (source: BIG - Bjarke Ingels Group <<https://big.dk/projects/villa-gug-2994>>).



site levels, converting a constraint into a memorable and communicable spatial experience.

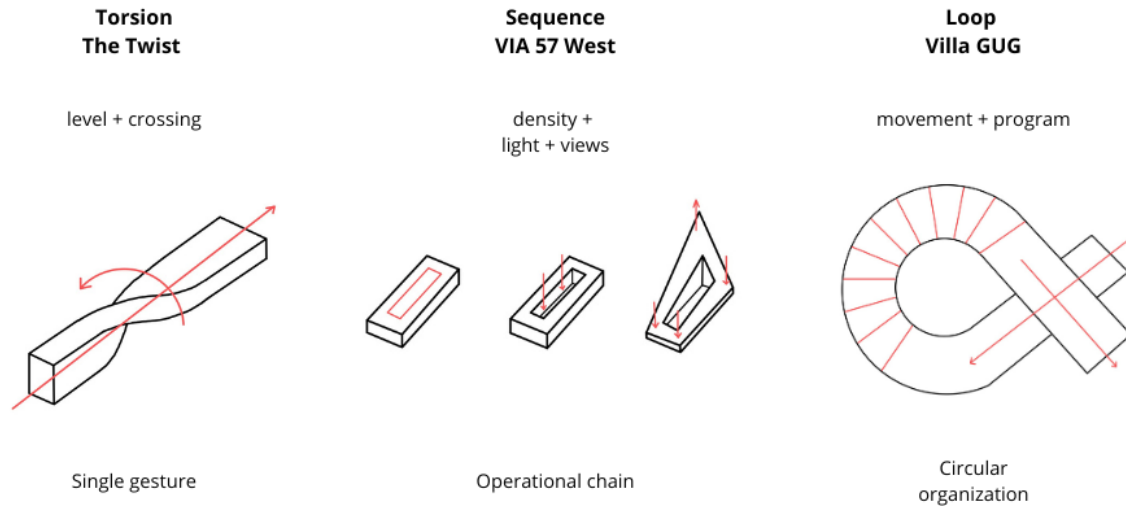
The VIA 57 West complex corresponds to the negotiation volumetric sequence. The project modifies a compact block through graphic operations: lowering three corners, lifting one vertex, and opening a courtyard. Each step responds to urban conditions (density, view corridors, sunlight), defining the courtscaper typology as the outcome of successive mediations (fig. 8). Here too, the scientific evidence oscillates toward storytelling: the sequence suggests a determinism that the real process, conditioned by economic and regulatory parameters, did not possess. The category of the negotiation sequence records this ambivalence, demonstrating that the diagram does not document the real genesis but legitimizes the final outcome.

Finally, Villa GUG introduces the programmatic loop, aimed at integrating the garage into domestic life. The main operator is a continuous path that wraps around a

courtyard, organizing the transitions between public and private, car and home. The loop produces spatial hierarchies and topographic relationships. The official diagrams (fig. 9) codified by formulas such as garage to living room or optimize views— show a distributive succession in which movement generates the building. The limit of scientific evidence remains analogous: the graphic materials deconstruct the communicative logic but do not reveal the actual office practice. The loop acts as a conceptual matrix capable of synthesizing program and morphology into a single icon.

The comparative comparison, made explicit by the redrawing of the geometric operators (fig. 10), highlights that BIG's diagrams assume the configuration of the gesture, the sequence, or the loop, differently articulating the relationship between constraints and form. Their real performativity resides in constructing a clear field of visual relationships, within which the project is ordered and legitimized before the public.

Fig. 10. Comparative redrawing of the three graphic operators (graphic elaboration by rge authors).



This shift maps the distance from historical experiences. Compared to Eisenman, BIG does not claim a syntactic autonomy; compared to OMA, it does not reduce the sign to pure strategic analysis; compared to the neo-avant-gardes, it does not place it on the plane of utopia. The specificity of BIG lies in a highly legible graphic sequence, in which complexity is made accessible without losing operational value (Table 2). This hybrid density, suspended between generation and narrative, renders the firm's diagrams a fundamental object of investigation for contemporary drawing theory.

Conclusions

The critical deconstruction of BIG's materials clarifies the status of contemporary drawing, moving beyond celebratory readings of the diagram as an automated generative mechanism. This essay demonstrates the operability of the performative synapse, highlighting the gap between the geometric-spatial efficacy of the sign and its rhetorical superstructure. Through the tripartite taxonomy (single gesture, sequence, loop), the investigation shows that drawing does not merely record a linear process, but rather acts

as a device for selection and post-rationalization, aimed at legitimizing the work within the media circuit. In the cases of The Twist, VIA 57 West, and Villa GUG, the diagram is not an indexical trace of parametric genesis, but a conceptual simulation. Performativity shifts from the technical plane of formal production to the cultural plane of consensus, where the reduction of complexity into a visual icon becomes a tool for negotiation with both clients and the context. This dual nature, balancing between the logic of constraints and storytelling, reaffirms the centrality of the diagram as an observatory of disciplinary shifts. The research opens three future trajectories: the transferability of the taxonomy to other firms of the same generation; the structuring of a critical archive of analytical redrawings for education, aimed at decoding contemporary visual inflation; and finally, the comparison between the communicative regimes of the diagram and processes driven by Generative Artificial Intelligence. In a landscape where image production risks detaching from any graphic or tectonic causality, the critical investigation of the relational devices of drawing stands as an essential scientific safeguard to reclaim representation as an autonomous structure of knowledge and thought.

Table 2. Comparative matrix of the three case studies, structured according to the procedural categories of the synapse analytical model (graphic elaboration by rge authors).

	The Twist	VIA 57 West	Villa GUG
Input	two banks, different levels	high-density site, illumination, and views	topography domestic program
Operator	torsion	lifting and excavation	loop
Transformation	bridge-museum	courtscraper	path-house
Function	to blend	to negotiate	to configure
Critical limit	official reconstructed	official interpreted	official interpreted

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Sensorial Synapses

What is a Drawing

Daniele Zavagno

Drawing, which fundamentally underpins all forms of graphic representation, is one of the oldest modes of expression, with the earliest recorded marks dating back approximately 30,000 years [Massironi 2002]. As a means of expression and communication, it predates and serves as a precursor to written language. It is also one of the most versatile and virtually universal expressive media, capable of transcending linguistic barriers. However, between the 1930s and 1960s, a variety of scholars argued

that the recognition and understanding of what is represented in two-dimensional images—including drawings—is a learned skill. While this may hold true for scientific or technical notations, it is doubtful whether it applies to all forms of graphic representation. Yet, the thesis that we “learn to see” drawings is supported by several cross-cultural studies conducted with populations lacking a figurative culture. Participants were asked to recognize scenes and objects in photographs and line drawings, or

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

to produce drawings themselves [e.g., Hudson 1967; Mundy-Castle 1966; Nissen, Machover, Kinder 1935; Segall, Campbell, Herskovits 1966; for a critical review, see Kennedy 1974]. A popular argument was that the meaning of spatial relationships in pictorial images is a learned construct [Stone, Church 1968]. Other research, however, supports the exact opposite. One of the most compelling studies was conducted by Julian Hochberg and Virginia Brooks [1962] using their own son as a subject. From birth, they limited his exposure to two-dimensional images. At 19 months, they began a test showing him line drawings of objects semantically familiar to the child, followed by photographs of the same objects. The unequivocal result was that the child was able to name almost all the images shown, whether they were drawings or photographs. The ability to recognize what is represented in a two-dimensional image –for which James Jerome Gibson [1954; 1979] coined the term “picture perception”– thus appears to belong to the human cognitive toolkit. But could it be otherwise, considering that our ancestors were already depicting figures on cave walls?

Drawing is often perceived as the product of a specific talent or skill, whether artistic or technical. Yet almost everyone has drawn at some point in their life, regardless of proficiency. What, then, is a drawing and how does it work? The question may seem trivial, but the answer is rather complex and has several ramifications. I will attempt an answer in relation to the perception of three-dimensionality –that is, space.

Let us begin with the most superficial layer: a drawing is a human artifact, intentionally created for diverse purposes, including ludic, aesthetic, communicative, exploratory, and design-related ends, as well as combinations thereof. The aesthetic dimension is almost always present, given that the human being is an “aesthetic animal”. Whatever its purpose, a drawing is always a representation of something, even when abstract. One might think that only scribbles and doodles are exceptions, as they often lack a specific representational intent, much like the early drawings of young children. However, children’s scribbles are not ends in themselves; they are exercises in motor control –a ludic activity enjoyed through the marks left on the pictorial support. More often than not,

children provide an interpretation or meaning only after the work is completed [Arnheim 1974]. One might say: *post hoc, ergo propter hoc*.

Every drawing defines, and therefore represents, a space. This applies even to absent-minded doodles, as any mark traced on a support –which we may define as the “pictorial surface”– alters its spatial qualities. These marks are spatial notations that can perceptually nullify the material flatness of the support. Indeed, it is extremely difficult to create a pictorial image that completely negates any impression of three-dimensionality and spatial depth; every mark on a potential pictorial surface can induce a sense of spatiality in the observer. What is even more fascinating is that any discrepancy on a physical surface could trigger experiences of spatiality that transcend the flatness of the surface itself –experiences that are pictorial in nature and typically defined as “resembling images” [Alberti 1999] or “*pareidolia*” [for a discussion on these terms, see Zavagno, Della Vedova 2025, note 12, p. 211]. Leonardo da Vinci was fully aware of this phenomenon: «I shall not omit to include among these precepts a new device for study, which, although it may seem trivial and almost laughable, is nevertheless of great utility in awakening the mind to various inventions. And this is: if you look at certain walls soiled with various stains, or at stones of different mixed colors, if you have to invent some setting, you may see therein similarities to various landscapes, adorned with mountains, rivers, rocks, trees, vast plains, valleys, and hills in diverse ways; you may also see battles, and rapid actions of figures, strange expressions of faces, and costumes, and an infinite number of things which you can reduce to good and integrated form» [Leonardo Da Vinci 2019, pp. 89,90; trans. by the author].

One of the most established theories explaining the ability to see things where they are not physically present is the cognitivist approach. According to this view, we learn to recognize the spatial relationships between ourselves, objects, and physical space. The organization of a visual scene is thought to be based on “cues”: units of visual information that must be learned through experience. In the context of picture perception, these are called “pictorial cues”, as they are information that can also be found in two-dimensional images.

The cognitivist hypothesis suggests that artists identified and learned how to reproduce critical visual information contained in the retinal image (the cues) correlated with real three-dimensional stimuli. The theory posits that, starting from the set of cues reproduced by an artist, unconscious inferential processes are activated in the observer on a probabilistic basis. These processes, governed by experience and species-specific genetic knowledge, aim to recreate the visual scene that best fits the "reality of the facts", what is most congruent with the distal stimulus (the physical reality from which the proximal stimulus is originated).

While the cognitivist approach to visual perception is the most widely represented in general psychology textbooks, it faces evident problems and fallacies. Let us examine just one macro-issue regarding drawings and bi-dimensional images in general: the theory maintains that recognizing what is represented depends on unconscious inferential processes where visual input (cues) from retinal stimulation is combined with the observer's prior cognitive information to produce an output (visual experience) congruent with the distal stimulus. But herein lies the problem: when looking at a drawing, the visual experience is never congruent with the distal stimulus. This is not only because the distal stimulus is materially flat (consisting of the support and the marks), but also because a drawing is inherently subject to the artist's style. No human-made image is an objective rendering of physical reality for two reasons: 1. style conflicts with the concept of verisimilitude; even in hyper-realism, a drawing expresses the creator's viewpoint; 2. we do not perceive physical reality "as it is", because knowledge of the external world is mediated by our sensory systems. In visual perception, we simultaneously see less and more than what physical reality offers: less, because we are not sensitive to all electromagnetic waves; more, because we perceive "meaning" and "relationships" even when they are physically fictitious, e.g., the launching effect studied by Albert Michotte [1946]. Wolfgang Metzger [1971] rightly defined physical reality as "metempirical", as it lies beyond our capacity for direct knowledge.

What is extraordinary –and often overlooked– is that even a simple line drawing can trigger an

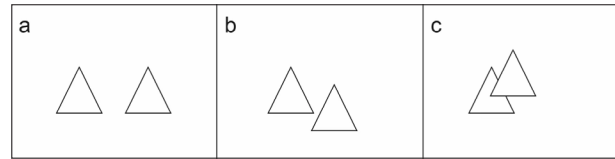


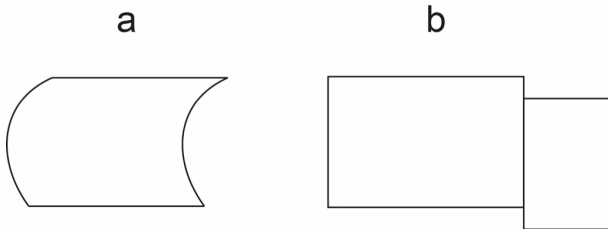
Fig. 1. a. most observers see the two triangles as coplanar; b. most observers see the two triangles as displaced at different distances; the perception of coplanarity is instead difficult to obtain in a stable way; c. example of partial occlusion that resolves the perceptual ambiguity of panel b concerning the spatial dislocation of the two triangles.

experience of three-dimensionality. In other words, the eye is remarkably easy to deceive. One could argue that we "see things" because pictorial cues have been placed on a surface either accidentally or intentionally. However, such an analysis risks missing a fundamental point: the ease with which the eye is "deceived" might signify that space is not a datum to be "reconstructed" from proximal (retinal) cues, but rather an intrinsic dimension of the visual system itself, regardless of the correspondence between proximal and distal stimuli. If anything, the role of these cues –which I prefer to call "indices" as a more theoretically neutral term– is to "shape" that space [Zavagno 2025] which, in the absence of proximal discrepancies, would result in the perception of an "ocular fog", i.e. "Ganzfeld" [Metzger 1930].

Every visual experience necessarily implies some experience of spatial three-dimensionality, even with materially flat images. Figure 1a shows two physically identical triangles aligned horizontally; there are four possible perceptual outcomes. The primary one is the perception of coplanarity; however, with minimal effort, one can alternately see the right or left triangle as being slightly deeper in space. Finally, one might perceive the triangles as holes. Figure 1b shows identical triangles but displaced in a different way on the pictorial plane: the impression of coplanarity is now virtually impossible, and the observer tends to see one triangle in the foreground and the other in the distance.

Creating a perceptually flat drawing –one that yields no impression of depth– is nearly impossible. Even in the coplanar case (fig. 1a), the triangles are seen

Fig. 2. a. the configuration is seen either as convex or concave; in other words, it does not appear like a flat surface; b. the two partially juxtaposed rectangles can also appear as parts of a same folded rectangular structure, so that one part lies on the sheet while the other is raised.



as lying against a homogeneous white background. "Partial occlusion" is a crucial index always present in the visual field (except in a *Ganzfeld*) that highlights the hierarchy of spatial planes (fig. 1c). One might suggest, then, that the challenge is not nullifying the flatness of the surface, but generating figures that appear three-dimensionally solid.

The remarkable thing about line drawings is that, despite their visual "poverty", they are highly informative and capable of inducing a perception of "solid" three-dimensionality. Figure 2 shows two multistable configurations. Figure 2a is usually seen as a sagittal section of a tube, showing its external convexity. However, with little effort, it can be seen as concave. Figure 2b is even more ambiguous, showing two rectangles with an adjacent side but slightly offset in height. Many readers may initially see coplanarity; however, the longer one observes it, the more likely it is to appear like a folded card, sometimes with the smaller rectangle projecting forward, or vice versa.

Looking at figure 2, some might hastily conclude that a line drawing remains inherently ambiguous and can never truly "deceive" the observer. Regarding this last point, figure 3 reproduces a drawing used by John Kennedy [1974] in an experiment where participants were asked to draw something in the empty space between the children. Several people, while focusing on that central space, absent-mindedly attempted to pick up the drawn pencil. This demonstrates that, in a given context, even a line drawing can take on the characteristics of a *trompe l'œil*.

Ambiguity depends on a drawing's complexity and its chosen geometry. Figure 4 offers graphic solutions to resolve the ambiguities in figure 2. The geometry of space is fundamental. It is often taught that linear perspective faithfully simulates what happens on the retina (the proximal stimulus). This is true, but we can perceive solid bodies using other projective systems, such as axonometric projections. These are commonly used in technical manuals (e.g., furniture assembly instructions) because they maintain constant dimensions regardless of where parts are placement in pictorial space. In contrast, in linear perspective, two physically identical objects are drawn in different sizes depending on their pictorial depth. Which method is more "natural" or better suited to represent the world as we see it? In my view, both are consistent with our perceptual experience. Linear perspective is the translation of the optical laws governing how we receive optical information: it is particularly important for

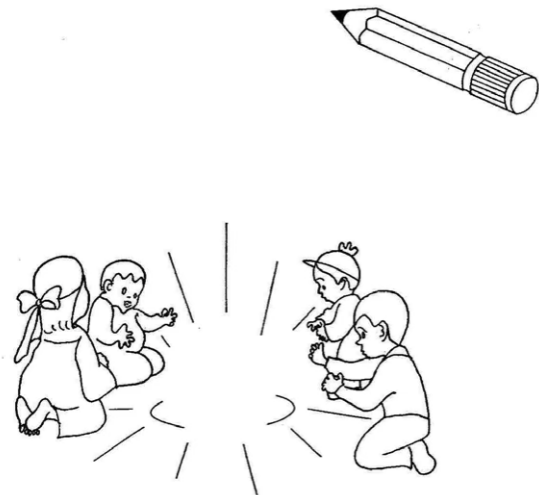
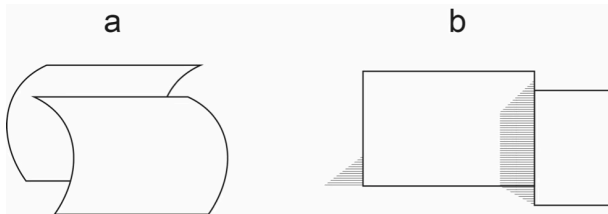


Fig. 3. Example of a figure used by Kennedy in an experiment in which the task was to draw the missing object in the center of the drawing. While focusing on the empty spot, several participants absentmindedly tried to pick up the pencil drawn above: Kennedy 1974, fig. 7, p. 52.

Fig. 4. Possible solutions to the multistable perceptual outcomes in fig. 2. The shading shown is not based on a geometrically constructed method; rather, it is intended solely to illustrate how a general use of shading can induce the perception of depth and three-dimensionality.



size constancy, which is provided by relationships in terms of perceived distances. In fact, according to Emmert's law [1881], the perceived size of an object depends on the product of two factors: the size

of its retinal image (angular size) multiplied by the perceived distance. It is by virtue of this relationship that we do not perceive objects as enlarging or shrinking in proportion to their retinal projection, which, in fact, varies in proportion to the distance between us and the observed object. Axonometric projections, on the other hand, while not adhering to the laws of optics, provide us with perceptual experiences similar to the so-called visual concepts discussed by Arnheim [1974], whereby boxes appear as more or less regular parallelepipeds and soccer balls as circles, regardless of the angle from which we view them.

Both systems are valid as they both exploit the underlying architecture of our perceptual system. Could it be otherwise, given that humanity, in the attempt to translate perceptual experiences into images, has worked to refine these methods of representation over millennia?

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Sensory Synapses of Drawing. Touch, Imprint and Embodied Knowledge in Giuseppe Penone's Drawings

Elena Trevisan

Abstract

This essay investigates the role of drawing in Giuseppe Penone's work, considering it not as a preparatory or ancillary practice in relation to sculpture, but as an autonomous device of knowledge. Through the analysis of significant nuclei within his graphic corpus –from the references to Chauvet and Leonardo to Sulla punta delle dita, Rovesciare i propri occhi, Palpebre, Pressione, Propagazioni, and Paesaggio del cervello– the article shows how drawing operates as a site of relation between body, matter, and perception. The notion of analogy makes it possible to read the morphological continuity between natural and bodily forms, while touch and imprint shift the cognitive process beyond the primacy of vision. In Penone's works, the surface is not a passive limit, but an active threshold: skin, paper, wall, and skull become sites of registration, emergence, and transformation of the mark. Drawing thus appears as an embodied practice, capable of making visible correspondences that are normally imperceptible and of restoring to representation an epistemic function. From this perspective, Penone's graphic work is configured as a sensory and relational field in which contact produces form and the mark becomes the trace of thought in action.

Keywords: Giuseppe Penone, drawing, imprint, touch, analogy, embodied knowledge.

"A drawing that is not exhausted by the effect of its technique, but that prompts a reflection on the world and offers an unexpected vision of reality, precisely so" [Penone 2009, p. 275].

"The first image produced by humankind is the imprint of hands" [Penone 2022, p. 27].

Introduction

In Giuseppe Penone's work, drawing emerges as a primary field of experience and formal elaboration: not a site subordinated to sculpture, nor merely a preparatory phase of the work, but an autonomous space in which thought takes form.

The title of this study, *Sensory Synapses of Drawing*, understands the synapse not only as a metaphorical image, but as a critical model for a form of knowledge that is not produced through the isolation of elements, but rather through the relation that connects them. Biologically, indeed, the cognitive process cannot be reduced to the single neuron but is activated within the minimal and generative space of the synaptic relation: an infinitesimal threshold in which passage, transmission, and transformation make the emergence of meaning possible. In an analogous way, Aby Warburg identifies in the *Zwischenraum* –the 'in-between space', the 'intermediate distance'– the foundational condition of culture and the substratum of artistic creation [Warburg 2002]. It designates the interval

that human beings place between impulse and immediate response: a space in which experience can be retained, elaborated, and converted into image, ritual, and thought. In Penone's graphic corpus, this intermediate space assumes a specific inflection. If in Warburg the *Zwischenraum* is above all a psychic, cultural, and symbolic space, in Penone the 'in-between' becomes physical and tactile. It coincides with the threshold of contact between skin and world. It is within this minimal yet generative zone that contact is transformed into trace, and trace becomes form. Meaning, therefore, does not reside in an isolated element –the body, matter, the surface, the mark– but in the relation activated among them. In Penone's drawings, the image does not present itself as a closed and autonomous configuration, but as the visible outcome of a process: the encounter between a bodily presence and a surface capable of registering its passage.

From this perspective, Penone's drawing does not represent, through resemblance, an already given form, nor does it retrospectively illustrate the sculptural work. To draw means, rather, to activate an operation of contact, emergence, and registration: to make a relation visible. The mark does not translate a pre-existing idea, but documents the formation of an embodied knowledge in which perception, gesture, and matter are co-produced. Drawing thus becomes an instrument of the *Zwischenraum*: it does not simply depict the body or nature, but records the threshold at which body and nature enter reciprocal transformation. The hypothesis guiding this study is therefore that, in Penone's graphic corpus, drawing operates as a relational and sensory device: not a completed image, but a field of passage; not the representation of an object, but a site in which perception becomes process and process becomes legible. Knowledge emerges at the point of contact, in that fragile and intensive zone in which the 'in-between' –biological, bodily, material, and symbolic– becomes the condition for the emergence of form.

Drawing as access to thought

Over time, Penone has accumulated more than four thousand sheets, experimenting with different techniques and materials: preliminary projects, sketches, but also autonomous works that cannot be translated into any other form. Although few exhibitions have been devoted exclusively to his drawings, the donations to the Philadelphia Museum of

Art [Basualdo 2022], the Centre Pompidou [Storsve, Pesenti 2022], and the Castello di Rivoli Museo d'Arte Contemporanea testify to the artist's desire to preserve their unity as a coherent corpus and object of study, rescuing them from dispersal.

In Giuseppe Penone's practice, drawing constitutes direct access to thought, a space in which the image is not simply recorded but brought into emergence. When conceiving a work, the artist initiates a free and reiterated process: the images that surface are noted, accepted, or more often abandoned, until an essential form is reached. Drawing thus operates as a critical and reflective device, an instrument for analyzing reality and bringing into focus the natural processes that the work seeks to activate. It does not describe the future sculpture: it triggers it and accompanies its emergence. In this sense, it is both anticipation and residue, a site of sedimentation and renewed projection.

To question the role of drawing in Penone's work also means asking why a sculptor, an exponent of Arte Povera since 1968, who has moved beyond the traditional boundaries of sculpture by working in forests, on his own body, and within natural processes, should recognize drawing precisely as a privileged instrument of knowledge. The sources he himself has acknowledged help to clarify this centrality. When asked about his most significant points of reference [Penone, Guzzetti 2020, p. 537], Penone first cites the marks traced some 35,000 years ago on the surface of the Chauvet-Pont-d'Arc cave (fig. 1). We do not know who made them, nor the reasons for which they were produced; and yet, Penone observes, it is still possible to understand the emotion of those who traced them.

For Penone, the distinction between the imprint of his own body (fig. 2) and "the imprint of prehistoric man" is irrelevant, since their "animalities are equivalent" [Zevi 2011, p. 77]. It is a matter of "a resemblance by contact" [Didi-Huberman 2009, p. 13]. Prehistory exerts "an emancipatory effect on the modern artist, who perceives it as primordial" [Karatas 2019, p. 12].

Alongside Chauvet, Penone acknowledges the influence of masters such as Leonardo da Vinci and Pierre Bonnard. It is not style that interests him, but the internal motivation of the mark: the reasons behind the choices, the intensity of the process. In Leonardo's sheets, he recognizes a vision of nature and of humankind extended to the idea of the cosmos [Penone, Guzzetti 2020, p. 528], in which the movement of stone among the elements assumes the same form as the river.

Fig. 1. Chauvet-Pont-d'Arc Cave, Ardèche, Panneau des Chevaux (Panel of the Horses), Salle Hillaire, detail of the horses and rhinoceroses one another (© J. Clottes / MC).



The drawing of analogy

Penone's interest in Leonardo da Vinci's drawings is rooted precisely in their analogical mode of thought. In Leonardo's sheets, rivers have veins, the whirlpools of water echo the curls of hair, and the movement of crowds mirrors that of fluids: different manifestations of a single morphogenetic law. What Penone shares with Leonardo is not a style, but a mode of thought. The artist himself states that he cannot work through mere formal variation [Penone, Guzzetti 2020, p. 519]; the work arises from an analysis triggered by a suggestion from reality, by an association of ideas. Drawing thus becomes a moment of synthesis, a place in which latent connections become visible.

It is in this passage that the principle of analogy assumes methodological value for Penone. To draw means to slow down the gaze, to suspend perceptual immediacy, and to read the structure of phenomena. From this perspective, drawing is not primarily representation, but an instrument of knowledge: it makes it possible to recognize the same formal logic in different realities, to identify, in the bifurcation of a branch, the ramification of a vein, or the division of a watercourse, the expression of one and the same dynamic principle [Penone, Daniel 2022, p. 20].

An emblematic example is *Essere fiume (To Be a River)* (figs. 3-4), where the action of the river on stone is recognized as analogous to the sculptural gesture. The idea that the most "perfect" work in stone might consist in repeating the action of the river translates analogy into an operative process. On one side, though we shall not know which, a stone taken from a point on the mountain is carved in the most traditional and humbly mimetic way. On the other lies the model for this object: a large stone gathered from the river, at a lower level of the same mountain [Didi-Huberman 2008, p. 17]. As Penone would say: "it is being river that is the true sculpture" [Penone 2009, p. 151].

It is significant that the sculpture in question bears as its title an infinitive verb, almost an endless desire and, at the same time, a categorical imperative [Didi-Huberman 2008, p. 17]. In Penone's practice, one must be tree, be river, be stone: one must assume analogy as a cognitive posture.

According to Walter Benjamin, the mimetic faculty [1] constitutes one of the original principles of human experience: a disposition to recognize and produce resemblances, correspondences, and analogies among the forms of the world, which in archaic cultures would have played

a structuring role in the anthropological-perceptual relationship with reality. From this perspective, ancient human beings would have inhabited a universe densely traversed by "magical correspondences" [Benjamin 1979, p. 66], while modernity, relying increasingly on rationality, would have progressively obscured those "subtle dimensions of reality" [Hanegraaff 2015, p. 59] that elude a purely functional and optical-retinal reading.

Within this framework, Giuseppe Penone's work may be read as an attempt to reactivate an analogical and embodied mode of perception, in which contact with matter becomes an instrument of knowledge. In Penone, drawing is not merely the representation of a form, but rather a process through which relations emerge. Analogical practice thus serves to decipher the 'cryptogram' of the world [2], making visible correspondences that are normally imperceptible and restoring to representation an epistemic function. In this sense, Penone's work shows how knowledge does not derive exclusively from the distance of the gaze, but also from the embodied experience of contact and from the capacity of the mark to reveal, rather than reproduce, the deep relations that traverse the living. The work thus becomes a vehicle of access to this network of relations: what is experienced is "one's own nature, perceived everywhere" [Basualdo 2022, p. 14].

Seeing with the fingertips

The passage from analogy as a cognitive posture to the progressive questioning of the primacy of vision finds a figure of synthesis in the series *Sulla punta delle dita (On the Fingertips)*. In one of the most intense drawings of the cycle (fig. 5), the hand extends into an arboreal ramification. The thumb becomes birch, the index finger rowan, the middle finger ash, the ring finger alder, the little finger willow. The same formative logic runs through human beings and nature. It is at a tiny sensory threshold, that of the fingertips, that this relation emerges.

In Penone's artistic practice, matter is never placed at a distance as a mere object of observation, but is approached, touched, incised, pressed, traversed by gesture. The artist writes that one must "see with the fingertips" [Penone 2009, p. 70] or "see with closed eyes" [Penone 2009, p. 324]. To see through a blind gesture means to expand the imagination and to gain access to a "sensible knowledge" [Semin 2013, p. 182], grounded in the direct relation

Fig. 2. Giuseppe Penone, *Impronte - Sottosopra* (Imprints - Upside Down), 1987. India ink, printing ink, 33 × 48 cm (Credit: Archivio Penone. © GIUSEPPE PENONE, by SIAE 2026).



Fig. 3. Giuseppe Penone, *Essere fiume* (To Be a River), 1979. Watercolour and pencil on paper, 16 × 23.1 cm (Credit: Archivio Penone. © GIUSEPPE PENONE, by SIAE 2026).

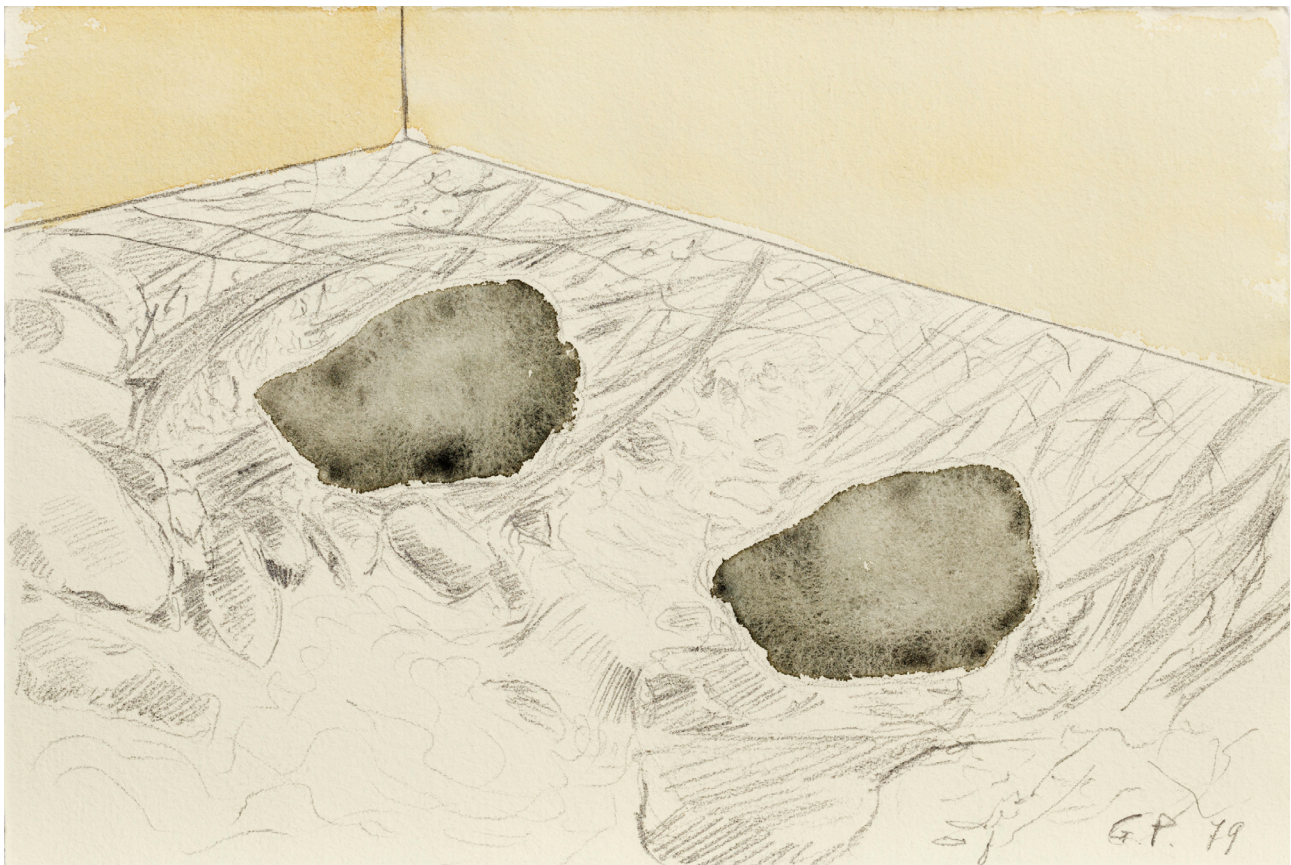


Fig. 4. Giuseppe Penone, *Essere fiume (To Be a River)*, 1999. River stone, quarry stone (white Carrara marble), 36 × 50 × 63 cm each (Credit: Archivio Penone. © GIUSEPPE PENONE, by SIAE 2026).

Fig. 5. Giuseppe Penone, *Sulla punta delle dita (On the Fingertips)*, 1992. Watercolour and India ink on paper, 38 × 28.2 cm (Credit: Archivio Penone. © GIUSEPPE PENONE, by SIAE 2026).

between subject and matter. Touching the bark of a tree, for instance, makes it possible to feel it as skin, to perceive its surface and, at the same time, to intuit its inner life. The imagination that derives from this is not an escape from reality, but its intensification: contact activates bodily memories, associations, and analogies.

Penone's artistic practice may be fully read within an embodied conception of knowledge [3]: the body is not merely a medium of perception, but the site through which the world manifests itself. Ultimately, 'seeing with the fingertips' means knowing the world not as something standing before the subject, but as a reality in which the body participates.

Reversing the gaze

The question is radicalized in *Rovesciare i propri occhi (Reversing One's Eyes)* (fig. 6), a series created in 1970, in which Penone explores perception through the voluntary annulment of sight. The mirrored lenses render the artist blind, yet they reflect what stands before him, transforming the gaze into a surface of contact. The elaboration of *Rovesciare i propri occhi* stems from a phase of free research: in order to arrive at the solution of mirrored contact lenses, Penone passes through a period of reflection in which drawing (fig. 7) summons forms and visual hypotheses, subsequently abandoned until the emergence of the resolving image [Penone, Daniel 2022, p. 20].

The title is decisive: it is not a matter of closing the eyes, but of reversing their function. The subject who looks becomes the object of another's gaze; the viewer sees themselves reflected, drawn into a perceptual circuit that dissolves the traditional hierarchy between the one who observes and that which is observed. The work thus calls into question vision understood as mastery, and the primacy of the visual as a privileged form of knowledge.

The inversion of the visual process suspends the optical circuit founded on the centrality of the subject and transforms it into a relational circuit. The subject is no longer



Fig. 6. Giuseppe Penone, *Rovesciare i propri occhi* (Reversing One's Eyes), 1970. Photographic documentation of the artist's action (Photo: Paolo Mussat Sartor. Credit: Archivio Penone. © GIUSEPPE PENONE, by SIAE 2026).

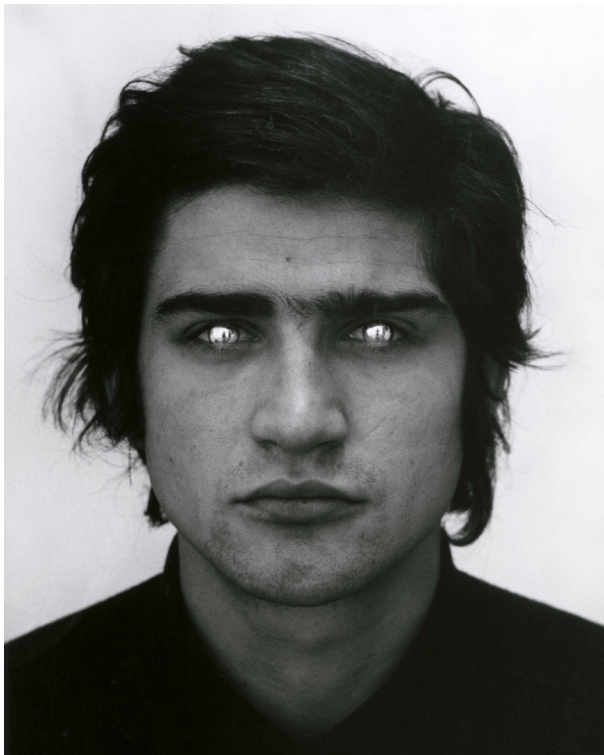


Fig. 7. Giuseppe Penone, *Progetto per lenti a contatto specchianti - Guardare la strada* (Project for Mirroring Contact Lenses - Looking at the Road), 1970. Ballpoint pen on paper, 32.9 x 18.1 cm (Credit: Archivio Penone. © GIUSEPPE PENONE, by SIAE 2026).



configured as the organizing center of space, but as matter among matters, an integral part and reflection of what surrounds it. In this operation, one may recognize an enactment of the principle of reversibility elaborated by Maurice Merleau-Ponty: the body is not only that which sees, but that which is seen, flesh of the world traversed by the visible [Merleau-Ponty 1969, pp. 150-165].

The connection with touch is not literal, but structural. The eye, rendered tactile, loses its function as the dominant organ of vision and is configured as skin, as an exposed surface. The concept of contact extends beyond the epidermal dimension to implicate vision itself: the proximity it establishes, analogous to that of touch, implies vulnerability, exchange, and mutual exposure.

If in *Rovesciare i propri occhi* the gaze is reversed as a reflecting surface, in *Palpebre* (Eyelids) (1977) it is brought to zero: the closed eyelid becomes the material threshold at which vision encounters its own limit. The drawing arises from the negative of the skin. Penone applies a layer of glue to the skin, obtaining a transparent film; he places it between glass plates and projects its image onto the wall: the cavities more heavily charged with matter appear darker, while the thinner parts appear lighter (fig. 8). The drawing is then reconstructed 'point by point', through a dense constellation of minimal graphic marks (fig. 9). As the artist says: "With the eyelid closed, it was like bringing the gaze to zero" [Penone, Guzzetti 2020, p. 540]. The formulation should be understood phenomenologically. It is not a matter of showing the anatomical interior of the eye, but of making visible the threshold of vision, withdrawing the gaze from the representation of the world and concentrating it on its own material condition.

Recalling the making of *Palpebre*, Penone describes the experience as a kind of tactile immersion in place [Didi-Huberman 2008, p. 24]: "As I proceeded, I came to know something more about my body, as much as about the surface of the wall. It was like walking in my own skin and, in addition, walking in the skin of space" [Celant 1989, p. 22]. From the second half of the 1970s onwards –with the large site-specific versions in Lucerne in 1977, and in Cologne and Essen in 1978– Giuseppe Penone developed a family of works deriving from *Palpebre*. In *Pressione* (Pressure), the artist devises a procedure in which the skin becomes a matrix: "I dirtied my fingers with black, touched the skin and lifted an imprint with a piece of adhesive tape, which I then projected onto the wall and redrew" [Penone, Guzzetti 2020, p. 525]. Penone carries out the

Fig. 8. Giuseppe Penone, *Palpebre* (Eyelids), 1977. Charcoal on canvas-backed paper. Documentation of the making of the work in the artist's studio (Credit: Archivio Penone. © GIUSEPPE PENONE, by SIAE 2026).



retracing on the wall with charcoal, a material the artist describes as “the dust of existence” [Penone, Daniel 2022, p. 20]. The logic is minimal and radical: to employ an organic remnant, a memory of the living world, to produce a mark that insists in the present and reactivates a cognitive process.

Enlargement and isolation produce a revelatory and unsettling effect: something “that ‘was there’ from the beginning but concealed by the modesty of ‘normal’ proportions” [Barilli 1976, p. 14] –the epidermal weave– suddenly becomes an unknown landscape. It is here that Penone’s research may be brought into relation with the phenomenology of Maurice Merleau-Ponty: the invisible is not elsewhere, but constitutes a dimension immanent to the visible itself, one that emerges through experience [Merleau-Ponty 1969, pp. 150-165].

Propagations: the imprint as drawing

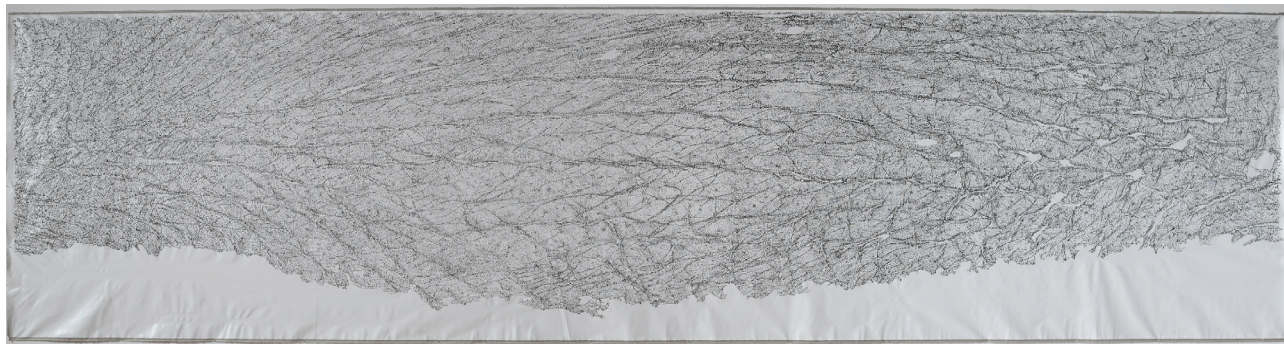
From the mid-1990s onwards, and with mural developments from 1997, the mark made by contact assumes a new centrality in *Propagazioni* (Propagations). The starting point of this series is the imprint of a fingertip dipped in printing ink and pressed at the center of a sheet of paper. The act of drawing sets the propagation of the imprint in motion. With India ink, Penone connects and extends the lines of the imprint until he obtains a closed form which, through repetition, gradually expands.

In *L'impronta del disegno* (The Imprint of Drawing) (figs. 10, 11), a group of ten large works on canvas-backed paper, made over the course of a year between 2002 and 2003, the distance between one pencil line and the next, traced around the fingerprint, is constant: always one millimeter. Each *Propagazione* required a long period of execution, pushed to the point of self-inflicted ‘pain’ through the choice of a coarse-grained paper, adopted as a deliberate obstacle [Penone, Guzzetti 2020, p. 531]. The artist seems intent to ‘condense’ within the space of the drawing sheet the time required for a tree to form each of its growth rings [4]. Propagation transforms a minimal portion of skin –the most sensitive part, devoted to tactile experience– into vegetal growth rings. The artist’s presence, by propagating itself, thus assumes the form of the interior of a tree.

As Briony Fer observes, Penone’s “tactile diagrams radically expand the idea of sculpture to the point of mapping even the slightest sensory experience” [Fer 2004, p. 94]. Such diagrams may function as instructions which, if executed, would produce a three-dimensional object [Demori 2022, p. 45]. It is no coincidence that Penone defines the imprint as a ‘minimal’ image [Penone 1973, p. 85]: formally, it is a phoneme; semantically, it acts as a morpheme, the smallest unit endowed with recognizable meaning [Demori 2022, p. 45].

Penone states: “the use of the skin is therefore the minimal image one can offer; and it is what adheres most closely to my reality” [Penone 1973, p. 85]. In this sense, the imprint is configured as a “minimal space of interpretation, which

Fig. 9. Giuseppe Penone, *Palpebra* (Eyelid), 1989. Charcoal on canvas, 218 × 714 cm. Centre Pompidou, MNAM-CCI/Philippe Migeat/Dist. RMN-GP (Credit: Adagp, Paris).



no arbitrary construction could extend" [Ammann 1977, p. 139]. For an artist such as Penone, oriented towards a deculturation of the image and a more intimate contact with nature, the crisis of iconicism [5] –contemporary with his emergence on the artistic scene– opens up a radical possibility: recourse to the index [6], to the mark of contact in the form of the imprint [Demori 2022, p. 51]. The series *Propagazioni*, *Pressione*, and *Palpebre* originate in an automatic and unconscious image [7], the finger-print, and render it conscious and voluntary through the irreplaceable action of drawing, which enlarges it and re-traces it in all its parts. The artist defines the result as "a drawing without concern for style [...], where the action of drawing is the subject of the work [...]. A drawing that [...] prompts a reflection on the world and offers an unexpected vision of reality" [Penone 2009, p. 275].

As Penone observes, the "infinite compositions of lines" of fingerprints "are also found in the geological strata of mountains, in the drawings made by the wind on sand, and in the waves of the sea" [Penone 2022, p. 28]. The concentric forms of the imprint, as they propagate, recall the growth rings of trees, which in turn evoke the circles that form in water. Meaning rebounds from one form to another through analogical transmission, "producing a

chain effect that brings into contact distinct phenomena, materials, and domains, associating them within a shared legibility". Each of Penone's works seems to possess this capacity to condense meaning and to act as a vector of acceleration: "the sensible, touched by the work, awakens and becomes the intelligible" [Bailly 2008, p. 58].

This acceleration of meaning is produced through the adoption of a radical posture. Giuseppe Penone's orientation, present from the outset and already evident in his earliest interventions on trees, is not grounded in an abstract theoretical framework, nor in an illustrative dimension. His thought adheres to things and to materials [Bailly 2008, p. 60] –wood, stone, earth, water, bronze, leaves, time, skin– replacing a vertical and hierarchical conception of the world with a horizontal structure, open to connections and ramifications [Bailly 2008, p. 64]. Within this framework, touch assumes a decisive value: it is the sense through which thought propagates with the greatest intensity, since "the whole vital process is on the surface" [Penone 1999, p. 90].

Landscape of the Brain: thought as imprint

Paesaggio del cervello (Landscape of the Brain) belongs within this orientation. The work is constructed from a *frottage* [8] of the interior of the cranial cavity: Penone dusts the bony surface with charcoal powder or red pigment and applies strips of adhesive tape to it. When torn away, these capture gaps, concentrations, and networks produced over time by the contact between the soft matter of the brain and the rigidity of the skullcap. The resulting image –an "imprint of an imprint" [Lancioni 2008, p. 116]– does not merely restore the morphology of the cranial cavity, but translates into the work the action exerted by cerebral matter upon its own dwelling place, making legible the traces left, over decades, by countless biological and emotional events. The strips are then arranged in parallel on glass plates, re-composing on a plane the geometric development of the inner surface of the cranial cavity, articulated in its four main zones: occipital, right parietal, left parietal, and frontal. In *Foglie del cervello* (Brain Leaves) (fig. 12), Penone juxtaposes this imprint of the skull with that of a leaf, obtained through the same procedure [9]. "It is not through the play of metaphor, but through the pregnancy of a morphology that Penone convinces us [...] of the cerebral character of a leaf" [Didi-Huberman 2008, p. 26].

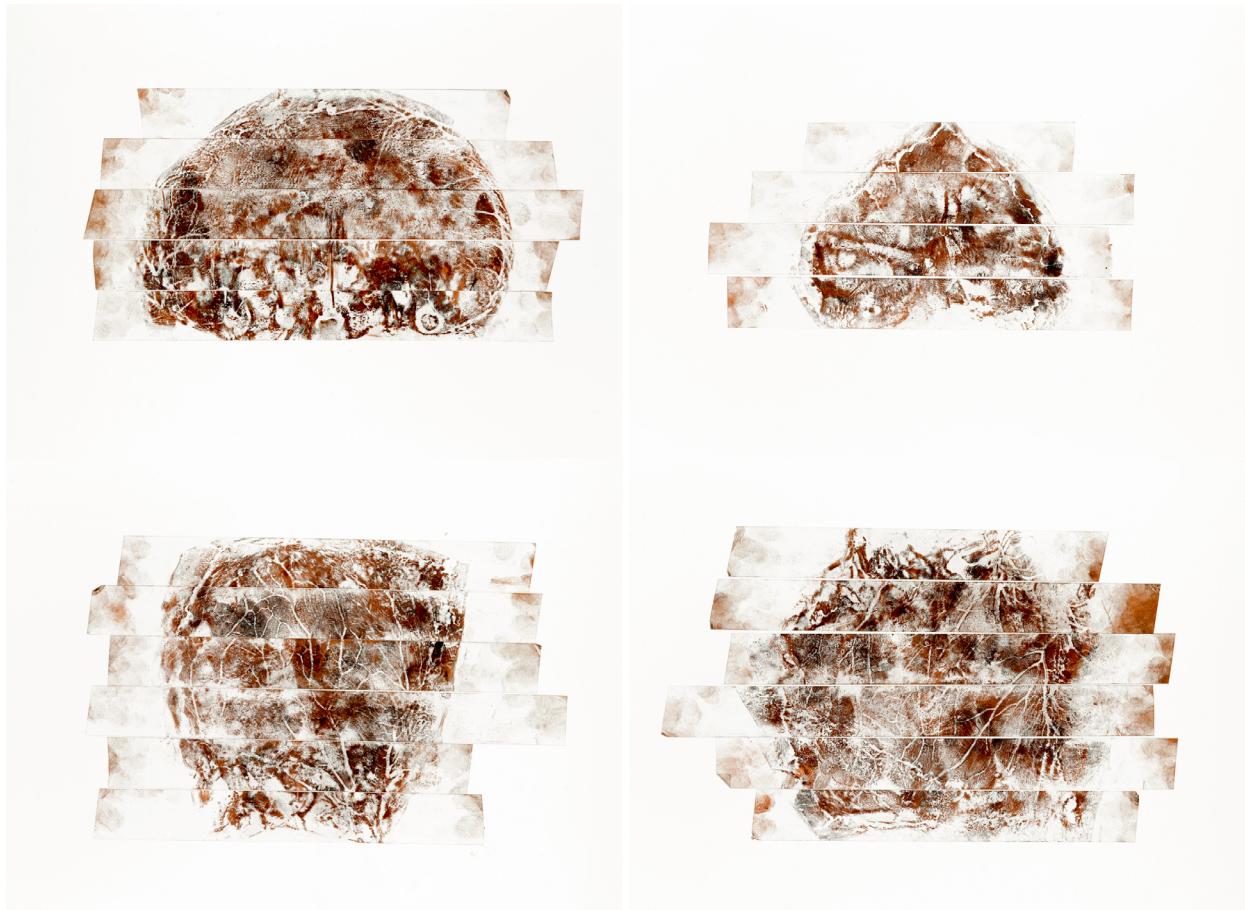
Fig. 10. Giuseppe Penone, *L'impronta del disegno* (The Imprint of Drawing), 2001. Pencil and print ink on canvas-backed paper. Documentation of the making of the work (Credit: Archivio Penone. © GIUSEPPE PENONE, by SIAE 2026).



Fig. 11. Giuseppe Penone, *L'impronta del disegno* (*The Imprint of Drawing*, detail), 2001. Pencil and printing ink on canvas-backed paper, 200 × 120 cm (Credit: Archivio Penone. © GIUSEPPE PENONE, by SIAE 2026).



Fig. 12. Giuseppe Penone, *Foglie del cervello* (Brain Leaves), 1990. Adhesive tape and charcoal on glass, 33 × 47 cm (Credit: Archivio Penone. © GIUSEPPE PENONE, by SIAE 2026).



Frottage is a relief technique also used by anthropologists and paleontologists on the inner surface of prehistoric skulls to reconstruct the encephalic development of early hominids. The archaeology of the technique employed by Penone for these drawings goes hand in hand with that of the object investigated: the brain. It is therefore unsurprising that Penone worked on these drawings while imagining a descent into the 'mines of the skull': "We lower ourselves into the brain through the vertical shaft that takes us to different depths. At each stop there are tunnels that lead us, through reasoning, to the excavation of ideas which, once quarried, are brought to the surface and... the richer the brain is in sediments of memory, the more tunnels there are, the more stops there are, the more excavation fronts there are" [Penone 2009, p. 305]. The excavation described by Penone offers an effective image of how the genesis of thought functions.

Penone takes a skull in his hands and observes its interior, recognizing a 'tactile blindness' to which we generally pay very little attention [Didi-Huberman 2008, p. 22]. Our brain is in contact with a wall of which it knows nothing, which it neither sees nor even feels. "The brain adheres to the skull, upon which it records its impulses, but it is unable to read the surface it touches. To understand and become aware of the form of the inner surface of the skull, one must touch it with the hands, see it with the eyes" [Penone 2009, p. 306]. Looking at Penone's *frottages* of meningeal networks, one has the sensation of standing before a place. "It is a true landscape, with depressions, riverbeds, mountains, plateaus, a relief similar to the earth's crust. [...] It is the landscape within which we think" [Penone 2009, p. 306].

Conclusions

Along this path, drawing has progressively revealed its nature as a synaptic device. Penone isolates and enlarges minimal fragments of the body, revealing structures invisible to

the naked eye. The close-up thus produces an oscillation between presence and absence: the object is extremely near, yet at the same time loses its habitual recognizability, entering a liminal zone akin to the threshold between waking and dream.

In works such as *Pressione* (Pressure) and *Palpebre* (Eyelids), the epidermis no longer appears as the closed boundary of identity, but as a porous and osmotic surface between inside and outside. In *Paesaggio del cervello* (Landscape of the Brain), the interior of the skull becomes a geological topography: the stratified memory of the organ is read as terrestrial sedimentation, dissolving the separation between body and matter.

Such procedures belong to a perspective that privileges tactility over vision. For Penone, 'seeing with the fingertips' means gaining access to a sensible and bodily knowledge, in which touch deprives the gaze of its perceptual primacy. The skin then becomes a site of passage and threshold: a space of uncertainty in which inside and outside interpenetrate. It is precisely this uncertainty, amplified by enlargement or by the closing of the eyes, that allows "a ridiculously small point» to expand until it opens 'to our gaze a reflection on the universe'" [Penone 2009, pp. 323, 324].

The conclusion can only return to the original gesture of drawing, questioning its ultimate meaning. Representation does not describe the world: it traverses it, and in traversing it returns the image of the one who moves through it. From this perspective, drawing is configured as a synaptic space in which sensory perception, the time of experience, and matter intertwine, to the point of rendering indistinguishable the boundary between what is seen and what is lived. Jorge Luis Borges, in one of his most striking images, expresses this memorably: "A man sets himself the task of drawing the world. Over the years, he populates a space with images of provinces, kingdoms, mountains, bays, ships, islands, fish, dwellings, instruments, stars, horses, and people. Shortly before dying, he discovers that this patient labyrinth of lines traces the image of his own face" [Borges 1999, p. 173].

Notes

[1] On the compulsion to imitate the environment, see Karatas 2019, pp. 4-9.

[2] The term is taken from Breton, who uses it in relation to Surrealist analogy; see Breton 1972, p. 303.

[3] For an embodied conception of perception, see Merleau-Ponty 1965.

[4] On the lexicon of the 'concentration' of time in space in Penone's work, for further information see Lancioni 2018.

[5] By 'crisis of iconism' is meant here the refutation of the naturalness of the iconic sign; on the 'iconoclastic suspicion' in Eco, see Polidoro 2015.

[6] On Peirce's trichotomy of 'icon, index, and symbol', for further information see Peirce 1868.

[7] On skin imprints and breathing as automatic, prelinguistic, and 'animal' sculptures generated by the body, see Penone 2012, p. 16; Karatas 2019, pp. 12-22.

[8] On Penone's early experiments with *frottage*, particularly on bark surfaces, see Chi, Primeau 2022, pp. 81-84.

[9] On the reference to the Goethean conception of form as continuous metamorphosis (from leaf to skull as morphological variations), see Penone, Guzzetti 2020, p. 528.

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Designing from Within: Sensual Design as Epistemological Ground for Territorial Social Innovation

Alessandra Cirafici, Giuseppe L. De Bona, Silvana Kuhtz, Alice Palmieri

Abstract

Traditionally understood as an eminently visual practice, drawing has been conceived as the translation of optical perception onto a surface. This paper advances a synesthetic reconceptualization, framing drawing and design as synaptic processes capable of engaging the full spectrum of sensory experience. Within this perspective, drawing assumes a performative and relational function, operating as a device for investigating and mapping the atmospheric dimension of places, understood as a constellation of immaterial yet perceptually tangible qualities. By exceeding its conventional disciplinary boundaries, drawing emerges as a multifaceted cartography that connects sound, touch, movement, and embodied memory, generating situated forms of spatial knowledge. The research is grounded in sensual design, i.e. experimental sensory and affective design practices—including blindfolded sound walks, poetic writing, acoustic mapping, and collaborative workshops conducted in both peripheral and historic urban contexts—aimed at exploring how urban representation can activate and be activated by sensory synapses. The introduction of AI further expands the field of inquiry, translating concise verbal formulations into evocative, oneiric imagery capable of resonating with the perceptual qualities of place and articulating its intangible identity. Drawing thus emerges as both an epistemic and participatory practice, fostering spatial literacy, social innovation, and processes of territorial regeneration.

Keywords: sensual design, embodied knowledge, synaptic drawing practice, participatory urban workshop, AI-mediated visualization

"Poetically dwells man upon this Earth".
[Hölderlin 1846, vv. 37, 38]

Introduction: beyond the eye

"The visible itself has an invisible inner framework, and the invisible is the secret counterpart of the visible" [Merleau-Ponty 1964, p. 216]. That line from Maurice Merleau-Ponty cuts directly against the habit of treating drawing as a neutral recording device. If the visible already contains an invisible inner framework, then drawing is never just about copying appearances—it's about engaging with structures, forces, and meanings that aren't immediately seen but are nevertheless present.

In that light, the drawing conventions—outline, shading, perspective—start to look less like objective tools and

more like interpretive filters. They privilege a certain model of vision: detached, optical, almost camera-like. But Merleau-Ponty's phenomenology, especially in works like *The Visible and the Invisible* [Merleau-Ponty 1964], suggests perception is embodied, relational, and incomplete. We don't just see the world; we are entangled in it. So drawing, too, becomes an act of participation, not transcription.

In contemporary design practice, this opens up a few tensions:

- from representation to revelation: drawing can be a way to expose latent structures—social, material, temporal—not just surfaces. Think of process drawings, diagrammatic thinking, or speculative sketches that map forces rather than forms;
- from eye to body: the hand, movement, and gesture carry knowledge. The 'invisible' might emerge through

rhythm, pressure, repetition –things that don't show up as pure visual data;

- from object to relation: instead of isolating objects, drawing can trace relationships –between elements, between user and space, between past and future states.

So, the challenge isn't just technical but epistemological: if drawing is still taught mainly as 'how to depict what you see', it risks ignoring what Merleau-Ponty insists is always already there but unseen. A more radical approach to design drawing would treat it as a thinking process –a way of probing the invisible scaffolding of experience. Not just what does it look like? But what holds it together, what moves it, what exceeds it?

As Levin [1993, p. 203] articulates: "I think it is appropriate to challenge the hegemony of vision –the ocular-centrism of our culture. We need to examine very critically the character of vision that predominates today". Design has often prioritized visual aspects while overlooking the crucial role of other senses in shaping experiences [Kuhtz 2024; Spence 2020]. This limitation is particularly acute in architectural and

landscape representation, where drawings typically remain mute documents that seldom convey the actual aural, tactile, or olfactory impact of spaces [Nixon et al. 2008]. Peter Zumthor [2006, p. 13] speaks precisely about atmosphere and says: "I enter a building, see a room, and –in the fraction of a second– have this feeling about it. We perceive atmospheres through our emotional sensibility, a form of perception that works incredibly quickly, and which we humans evidently need, to help us survive". Atmosphere is an invisible force –the essence that lingers in memory, the intangible pull that draws us into captivating experiences [Griffero 2013]. It operates as a synaptic phenomenon: instantaneous yet complex, affective yet spatial, individual yet shared. Atmospheres emerge from connections between multiple sensory channels. The sounds of a particular region can instantly transport us to that place, evoking memories and experiences [Kuhtz 2022; Di Croce 2020], and for example, historic cities are more than collections of monuments; their overall atmospheres are fragile and essential [Korkontzila et al. 2020; Wrightson 2000; Djimantoro et al. 2020].



Fig. 1. Left: workshop at Polytechnic of Bari. Drawing blindfolded. Center: participatory workshop in Arco Serra Rifusa, Matera. Emotional sensory notes. Right: workshop in Matera, notes that capture textures (photograph by the authors).

In the concept of 'soundscape' defined by Schafer [1977], sonic environments are both physical phenomena (measurable sound waves) and cultural constructs (interpreted through individual and collective frameworks of meaning). And yet the images we produce remain effectively mute [Nixon et al. 2008].

Pallasmaa [1994, p. 31] writes: "Every space has its characteristic sound of intimacy or monumentality, rejection or invitation, hospitality or hostility. [...] Sensory design slows space down, making it feel thick". How might we draw this thickness? How can drawing become a synaptic practice that connects seeing with hearing, touching, moving, and feeling? We approached this question through both theoretical reflection and exploratory practices. Working across different urban contexts, we began with the perceptual and emotional experience of each place and then moved toward constructing a process of re-semantization. Exploring a place –through walking, for instance– is not merely the collection of sensory data, but rather a process of co-construction of meaning between subject and environment. In contemporary terms, this perspective aligns with theories of embodied cognition, according to which thought and creativity emerge from the dynamic interaction between body, mind, and context. From this viewpoint, the creative process connected to exploration can be understood as a structured yet fluid sequence of interpretative and experiential actions. Walking, pausing, and deviating from planned routes become genuine investigative techniques, transforming exploration into a form of situated qualitative research, comparable to urban ethnography or psychogeography, as exemplified by the *dérives* theorized by Guy Debord [1958]. Within this framework, the place has never been for us something pre-defined, but something that gradually emerges through lived experience.

Sensual design: an epistemological framework

The concept of sensory design is now quite widespread in design thinking and has a shared critical connotation. However, in the context of our arguments, the transition from sensory design to what we call sensual design marks a crucial epistemological shift in how design engages with embodied knowledge. While sensory design emphasizes the integration of multiple senses in experiencing and interpreting spaces [Pallasmaa 1994; Spence 2020], sensual design extends this framework to encompass the



Fig. 2. Workshop for an art exhibition, Bari. Collective-collaborative experience (photograph by the authors).

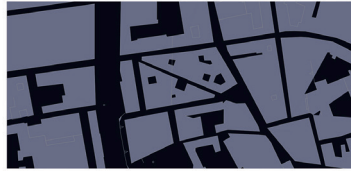
full spectrum of embodied, affective, and imaginative engagement with the world. It "goes beyond the senses: it claims the body and the senses as active instruments of knowledge and creation" [Cirafici, Kühtz, Micelisopo 2026]. Sensual design resists the dominance of the purely visual and rational approach, proposing instead an embodied and sensory practice that recognizes perception as a form of thinking [Merleau-Ponty 1965]. To design sensually means not only to listen, touch, smell, and move through space as modalities of understanding and transformation, but also to engage with the emotional and atmospheric dimensions of places, revealing layers of memory, intimacy, and collective imagination often obscured by functional or aesthetic conventions [Kühtz 2024].

This theoretical framework positions the body as the primary site of knowledge production. As Merleau-Ponty [1965] articulates, our bodies do not exist in space but inhabit space, perceiving it with all senses through intentional movement, living it, and internalizing it within mental space. Pallasmaa [2007] echoes this phenomenological insight: "I compare the city with my body [...] I discover myself in the city and the city exists through my incarnate experience. The city and my body integrate and define each other. I dwell in the city and the city dwells in me".

It is the concept of poetic inhabitation, rooted in Heidegger's reflection on dwelling and further developed in Bachelard's [1957] *Poetics of Space*, proposes a way of being in the world founded on sensibility and imagination. To

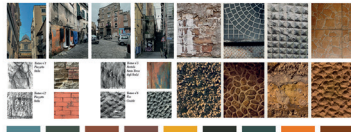
CONTEX STUDY

What are the unique features of the site?



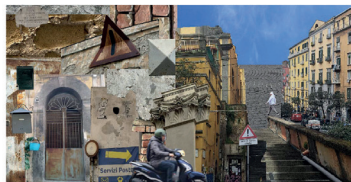
SENSORY MAPPING

What do you see?
What do you hear/feel?



MOODBOARD

What atmospheres and emotional tones do you want to evoke?



PERCEPTIONING

How do you want the neighborhood/project to be perceived?
Which values and characteristics should be immediately recognizable?

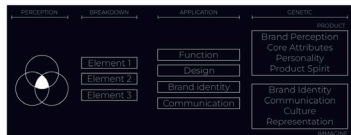


Fig. 3. The different contexts for sensual design workshops.

inhabit poetically does not mean to occupy a space, but to enter into relation with it as with a living fabric –material, emotional, and symbolic [Cirafici, Kühtz, Micelisopo 2026]. In this horizon of meaning drawing, understood through the lens of sensual design, becomes a synaptic practice that creates emergent knowledge through bodily engagement, it is not merely representational but performative –it actively constructs knowledge through the synaptic connections it creates between people and places.

The practice of drawing as poetic inhabitation thus involves:

- temporary dwelling: drawing not as a single act, but as an extended practice of attention, when students draw blindfolded [Kühtz 2024], the hand becomes an exploratory organ that translates acoustic, tactile, and proprioceptive information into graphic form. The drawing emerges not from visual observation but from a synthesis of multiple sensory inputs (fig. 1);
- collaborative dwelling: experiencing with others, comparing perceptions, negotiating meanings, co-producing

representations, becomes a shared language that transcends verbal articulation. The collective production of sensory maps, emotional diagrams, and atmospheric notations creates a synaptic commons –a shared repository of experiential knowledge (fig. 2);

- imaginative dwelling: drawing not only what is, but what could be, projecting desires, fears, and possibilities into the spatial experience;
- critical dwelling: using drawing as a form of questioning, challenging dominant representations and making visible what has been overlooked or marginalized.

We drew inspiration from these principles in developing a series of field experiences involving different places and actors in social and urban contexts. We adopted different approaches to this challenge, sometimes favoring the cumulative effect of multiple sensory inputs –sound, smell, temperature, light quality, material texture– creating a dense description of the place. Elsewhere, the experience produced maps through explorations that integrated sensory inventories, mood boards, photographs, emotional maps, and poetic performances [Cirafici, Kühtz, Micelisopo 2026]. Furthermore, in participatory workshops, participants described spaces through metaphors and *haiku*, linking sensory experiences to vivid images and evocative writing (narrow alleys as ‘a whispering stone tunnel’), evoking their physical and emotional qualities. These narratives then converged into collective atlases, capable of generating layered and polyphonic representations of atmospheres and territories.

Once again, ‘poetry was intertwined with design, allowing participants to imagine and articulate the sensory dimensions of spaces’ [Kühtz, Tizi 2023].

Sensual design workshops

Mallgrave [2013] argues that emotion is the chemical and neurological means by which we meet and perceive the world. Space can express immediate emotional, somatic, and visceral reactions [Gallese, Gattara 2015]. Drawing –understood in its expanded sense to include notation, mapping, and image generation– is therefore not merely a representational practice but a form of situated, embodied knowledge production.

Sensual design workshops articulate spatial exploration as an embodied and epistemic practice, activating corporeal perception to cultivate a nuanced understanding of the sensory qualities of place. Their primary objective is not



Fig. 4. Workshop in Matera. Through collages participants represent different atmospheres they experienced/imagined in a specific place.

the production of artifacts or formal configurations, but the development of perceptual, interpretative, and narrative capacities.

As Donald Schön [1983] argues, design knowledge develops through reflection-in-action: to learn how to design is to interrogate experience itself. Perception thus becomes a generative matrix—a synaptic field where sensing, knowing, and transforming converge.

This research investigates how sensual design practices function as synaptic connectors between:

- visual and non-visual perception: translating soundscapes, tactile qualities, and kinesthetic experiences into graphic form;
- individual and collective experience: using participatory practices to map shared atmospheres;
- memory and projection: documenting existing atmospheric conditions while imagining transformative possibilities;
- analog and digital materialities: bridging hand-drawn notation and AI-generated visualization;

- local and universal: grounding abstract sensory concepts in specific territorial contexts.

Through case studies in Naples, Matera, and Bari, this research demonstrates how sensual design training, participatory workshops, and performative practices create new synaptic pathways for understanding and transforming places and their narratives. These experiences build upon the theoretical foundation established in previous work on sensory atmospheres and design [Kühtz 2024] and extend into collaborative research on territorial regeneration through sensory narratives [Cirafici, Kühtz, Micelisopo 2026].

Our approach synthesizes multiple disciplinary perspectives, the workshops operate then in terms of outputs through two complementary modalities, each generating distinct yet interconnected forms of spatial knowledge.

Sensual embodied exploration in practice: walking, sensing, imagining

The sensual design practices include:

- blind drawing exercises: draw while blindfolded, translating acoustic, tactile, and proprioceptive information into graphic marks;
- soundscape recording and notation: develop sound environments;
- participatory atmospheric mapping: collectively draw the sensory dimensions of neighborhoods;
- performative and poetic rendering: live drawing and writing practices accompanied by music, movement, and sensory stimulation.

Each of these approaches generates knowledge that is simultaneously individual and shared, rational and affective, static and dynamic. Sensual design workshops articulate spatial exploration as an embodied and epistemic practice, activate corporeal perception in order to cultivate a nuanced understanding of the sensory qualities of place. Their primary objective is the development of perceptual, interpretative, and narrative capacities.

Students/participants are invited to walk and draw while blindfolded, relying on non-visual sensory channels to orient themselves, to register textures, distances, acoustic cues, and micro-variations of the environment, and to document emerging emotions and sensations through graphic and textual notes (figs. 1-3), that refer to workshops held in Bari and Matera. Such practices facilitate

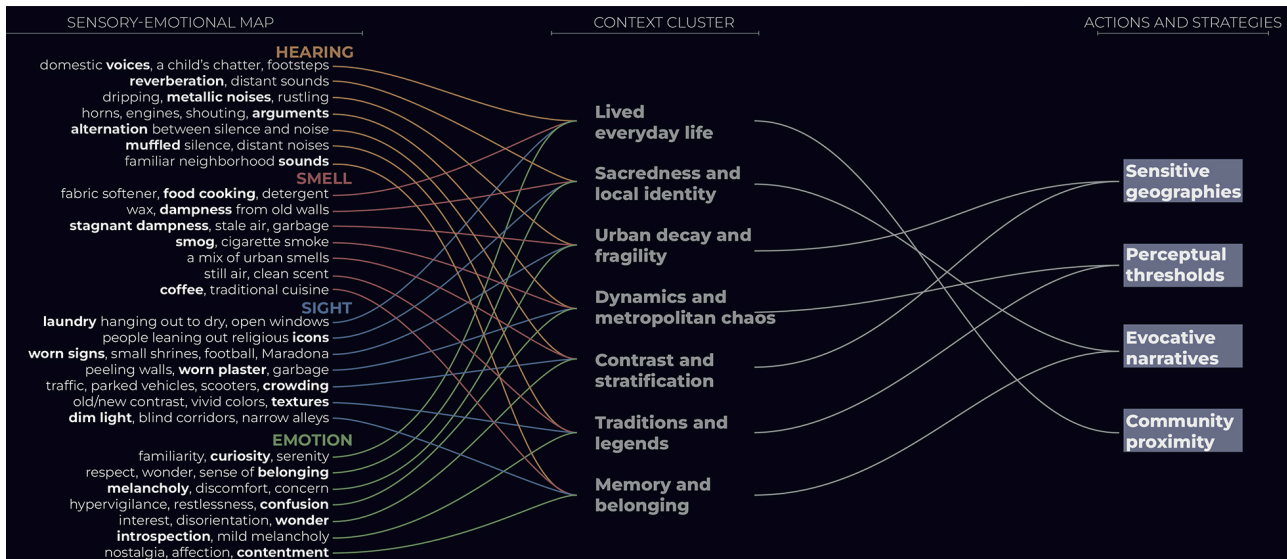


Fig. 5. Sensory mapping of context clusters: translating emotions into sensual design strategies for a deep connection between place and senses.

the transformation of immediate impressions into visual and verbal traces, fostering attentiveness, deep listening, and critical awareness of space as an active agent in everyday experience.

The process unfolds in stages. First, participants walk and perceive, then document perceptual experiences through written notes and drawings that attend to atmospheric qualities: the quality of light filtering through narrow streets, the acoustic density created by voices echoing off stone walls, the olfactory traces of religious incense mixing with street food aromas, the emotional resonance of sacred spaces repurposed for contemporary uses, the colors. Sometimes participants are encouraged to detect a detail of beauty/ugliness/sorrow. Then they deliver a rendering in the form of analog outputs.

The final outcomes are then based on these notes taken in the field and become collages, leaflets and audio materials that render perceptible what has been sensed, heard, and envisioned, that is transforming ephemeral perceptions into communicable forms. In this perspective, perception becomes a design competence –the ability to grasp intangible qualities and translate them into sensitive

and context-aware design propositions (fig. 4) [1]. The workshops cultivate a reflective design attitude. As Donald Schön [1983] argues, design knowledge develops through reflection-in-action: to learn how to design is to interrogate experience itself. Perception thus becomes a generative matrix.

Hybridizing perception and representation: AI as an interlocutor in visual communication design

The transition from direct experience to design does not occur in a linear or immediate way but rather involves a profound reworking of the meanings that emerge during exploration. In this phase, the tools of semiotics and design theory come into play, through which the place is progressively 'read', deconstructed, and recoded. What initially appears as perception or sensory impression is reinterpreted and transformed: resemantization can thus be understood as a process of intersemiotic translation, in which emotions, perceptions, and lived experiences are converted into signs, narratives, and visual or spatial

devices capable not only of representing but also of re-imagining the meaning of the place.

Within this process, narrative assumes a central role, not merely as an expressive tool but as a true cognitive structure. Through narrative strategies, experience is organized into coherent and meaningful sequences, enabling the construction of an articulated reading of the context. In this way, the project takes shape as a form of scenario building, capable of envisioning and articulating possible futures for a place, starting from its present conditions and from those invisible traces that emerge during exploration. Narrative, therefore, does not simply describe, but becomes an active instrument of design (fig. 5).

From this perspective, the entire process can be understood as a coherent sequence that moves from situated experience to embodied perception, from cognitive-affective mapping to semiotic interpretation, and finally toward narrative construction and design intervention. The exploration of places thus no longer appears as a preliminary or informal phase, but rather as a structured and fundamental component of the creative process, grounded in solid theoretical

foundations and connected to disciplines such as phenomenology, cognitive psychology, semiotics, and urban studies.

The process becomes further complicated and layered by the contemporary technological dimension. Exploration today is profoundly mediated by tools such as digital mapping systems, social media platforms, and augmented reality devices, all of which influence both how places are perceived and how their meanings are constructed. Within this framework, artificial intelligence techniques – particularly image generation systems – can no longer be understood as mere representational tools; rather, they operate as active interlocutors within the design process. AI introduces a form of computational agency that reprocesses and returns human inputs according to probabilistic and associative logics, opening a space of negotiation between intention and outcome. Consequently, the creative process assumes a hybrid and dialogic nature, in which analogue and digital dimensions intertwine within co-constructed practices of representation.

In this context, observational notes may be transformed into structured prompts – textual instructions designed to



Fig. 6. Quartiere Stella - Citytelling: evocative transcriptions from sound to image referring to palazzo dello Spagnolo.

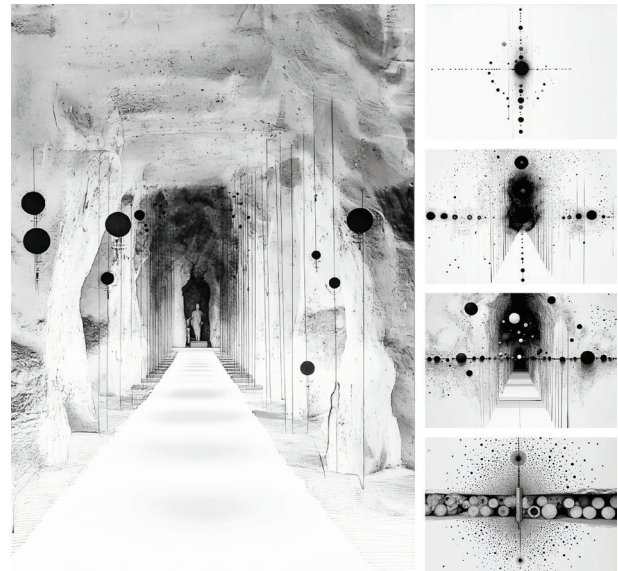
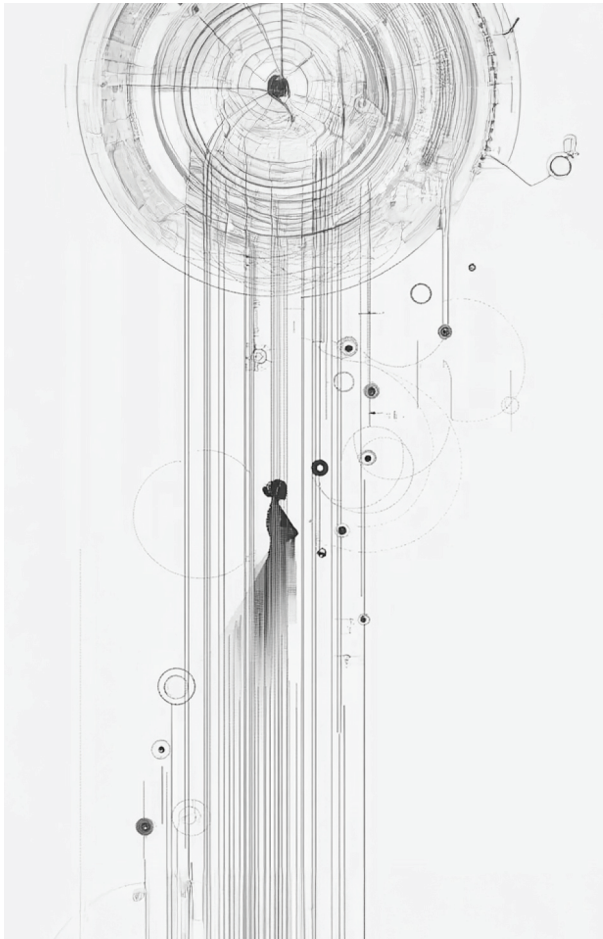


Fig. 7. Quartiere Stella - Citytelling: AI-mediated illustrative reinterpretation referring to Cimitero delle Fontanelle and the legend of the Captain.



A poetic, symbolic outline drawing using only thin, precise lines and circles. The image evokes the legend of Donna Concettina, who loved Gennarino but was locked away in a convent at Palazzo Albertini in Cimitile. The architecture is abstracted: a single balcony at the first floor is outlined with soft, geometric curves. A subtle human silhouette stands behind the railing, suggesting Concettina's presence. Above the balcony, a single small circle glows faintly; the candle she lights each evening. Thin lines curve like rain in the background, and a larger, faint circle echoes Gennarino's absence, distant but present. The whole composition is emotional, quiet, and symbolic circles and fine, graceful lines. A visual whisper of eternal love.

Fig. 8. Left. *Quartiere Stella - Citytelling*: AI-mediated illustrative reinterpretation referring to palazzo Albertini in Cimitile and the legend of Donna Concettina.

Fig. 9. Bottom. *Sacred Mile*: AI-mediated image in which the abstract representation of places becomes a narrative device conveying the symbolic value of the historic architecture.



activate AI-based generative models. The prompt becomes the starting point of a conversation: the designer formulates a visual and conceptual hypothesis that the AI reinterprets, producing an image that, in turn, informs further decisions, revisions, and deviations. The use of rhetorical figures –metaphor, analogy, ellipsis– functions as a shared language between human and machine, capable of activating complex semantic and visual fields. Prompt design thus emerges as a form of direction, in which defining linguistic register, point of view, atmosphere, and lighting establishes the conditions of dialogue and guides communicative outcomes.

It is precisely within this iterative dynamic that the process connects directly to visual communication design. Generated images are not isolated outputs but components of a broader communicative system, in which coherence, intentionality, and the construction of meaning become central. Through interaction with AI, the designer does not merely produce images but constructs a visual language: selecting, combining, and refining outputs to define a recognizable visual identity capable of conveying values, atmospheres, and narratives. The iteration between prompts and images thus becomes a process of art direction, in which AI operates as an exploratory and generative tool, while the designer retains the role of director and critical interpreter.

From this perspective, the geometry inherent in the experience of architectural reality does not constitute a formal reduction, but rather a symbolic condensation that finds in algorithmic generation a further field of elaboration. The use of simple forms –foremost among them the circle– activates an archetypal imaginary (origin, center, totality, perfection) which, when translated into prompts, directs the behavior of the generative model towards visually resonant configurations. In this sense, form is not merely an outcome but an operative threshold between the visible and the invisible: what the designer perceives intuitively is re-elaborated by AI through visual patterns that amplify or redirect its meaning. Similarly, attention to individual architectural elements – arches, staircases, openings– is integrated into the dialogue with AI as a device for semantic activation. Rather than being described mimetically, these elements are translated into instructions that guide the construction of the image: they suggest modes of viewing, directions, thresholds, and rhythms. AI reprocesses them, progressively transforming them into geometric patterns and spatial relationships that convey immaterial qualities such as the rhythm of light and shadow, and the interplay between interior and exterior, depth and surface.



Fig. 10. Sacred Mile: booklets exploring the itinerary and the symbolic and perceptual meanings of places, between the sacred realm of worship sites and the profane fabric of the city.

The result is a visual system –expressed through graphic artefacts, maps, notebooks, installations, or visual narratives– in which abstraction does not distance itself from experience but rather represents an intensified form of it. Within the field of visual communication design, these images function as narrative devices capable of condensing and conveying complex meanings: they do not merely describe space but interpret its tensions, atmospheres, and symbolic structures. In this process, the dialogue between designer and artificial intelligence does not simply generate images; it constructs a visual language capable of articulating, through form, a sensitive and shareable understanding of contemporary architectural experience.

Within this creative horizon, the visual narrative projects centered on the Stella district of Naples have taken shape, as evidenced by the images [2]. These visual accounts take the form of unconventional artefacts in which sensations, memories, traditions, and stories give rise to novel narratives of a distinctive urban itinerary. Among these, the projects *Quartiere Stella. Racconti di città* (figs. 5-8) and *Miglio Sacro* (figs. 9-11) outline a possible experience of place unfolding through catacombs and ancient basilicas in the Rione Sanità district of Naples. These works function as interpretative maps, reading the neighborhood as a stratified space in which historical memory and contemporary presence coexist within a complex fabric. Communities originating from the Global South and Eastern regions –from African to Chinese populations– have inhabited and continue to inhabit these spaces, once traversed by popes, kings, and cardinals. Today, churches are no longer solely places of worship, but hybrid spaces: art galleries, social centers, and sites of hospitality. The sacred dimension intertwines with everyday life, generating a continuity between symbolic meaning and urban practices, which these visual narratives seek to capture and evoke.

Conclusion

With the intensification of urban, social, and environmental challenges, design is increasingly required to move beyond mere functional optimization and critically interrogate how spaces are perceived, experienced, and endowed with meaning. Following Lefebvre's perspective, there emerges a need for the reappropriation of urban times and spaces, grounded in a transformation of social relations and decision-making processes. Within this framework, the right to active participation in the production of space, together with the right of use, defines a precise design responsibility.



Fig. 11. *Sacred Mile*: booklets and illustrative graphic artefacts representing the itinerary and exploring the symbolic and perceptual value of its places of interest.

Design thus assumes the role of a relational *dispositif*, in which education toward a meaningful relationship with places and the construction of the self within space become central. The experience of place, interpreted through phenomenology and environmental psychology, is not passive but embodied, situated, and imbued with memory and affect. Spaces can therefore be understood as dynamic relational fields capable of shaping behaviors and meanings, while design configures conditions that may foster or hinder attention, care, and a sense of belonging.

At the same time, the city is increasingly interpreted as a strategic locus for the construction of collective identities that are not nostalgic or regressive, but dialogical and grounded in relational exchange. In this context, the notion of 'urban vision' represents a critical appropriation of the aesthetic dimension of the city, understood as a collectively constructed mental image. Such a vision becomes meaningful insofar as citizens develop interpretative competencies that enable them to recognize not only formal qualities, but also the symbolic and poetic density of spaces.

The contemporary city thus emerges as a space to be collectively read and written, in which individuals are called upon to exercise aesthetic judgment and meaning-making capacities. Sensual design aligns with this perspective by integrating perception, affect, and narration in the co-production of spatial meaning. In resonance with ecological theories of perception, it conceives design as the orchestration of relational conditions rather than the imposition of predefined solutions. Through participatory and experience-based practices – such as sensory walks, embodied mapping, and narrative exercises – sensual design fosters the emergence of situated knowledge and recognizes citizens as competent interpreters of their environments. This approach has significant implications for territorial social innovation: communities engaged in sensory workshops do not merely produce representations, but activate new forms of citizenship, asserting an active role in knowledge production.

Credits

Although the work is the result of full sharing among all the authors, the following individual contributions can be identified: Alessandra Cirafici authored the *Introduction: beyond the eye*; Silvana Kuhtz developed the section *Sensual design: an epistemological framework*; Giuseppe L. De Bona edited sections

Experiences conducted in Naples, Matera, and Bari demonstrate how such practices can function as tools for research and transformation. Activities including guided walks, temporary sensory deprivation, attentive listening, and poetic reinterpretation enable participants to rediscover everyday spaces, transforming individual perceptions into shared knowledge and strengthening bonds with the territory [Gifford 2014; Varela et al. 1991]. The territory thus emerges as a complex construct shaped over time through memory and emotion. On this basis, visual communication practices are developed to translate spatial experience into evocative narratives capable of orienting visitors through suggestion rather than description. Overall, the project demonstrates how sensual design can serve as a cognitive and relational foundation for innovative and culturally sustainable communication strategies, contributing to context-sensitive processes of territorial transformation.

Sensual design workshops and *Sensual embodied exploration in practice: walking, sensing, imagining*; Alice Palmieri authored the paragraph *Hybridizing perception and representation: Al as an interlocutor in visual communication design*; the *Conclusion* is the joint work of Alessandra Cirafici and Silvana Kuhtz.

Notes

[1] Collages developed within the course *Aesthetics*, 3rd year Degree in Architecture (c.u.) Università della Basilicata, *Phenomenology Lab*, taught by Prof. Silvana Kuhtz, by the students Martina Addabbo: *Città desiderata: 'Poeticamente soleggiata'*, *Città dolente: 'Cielo di Parole'*; Ibtissam Noubail: *Città dolente 'Il vuoto'*, *Città desiderata 'Abitata'*; Alessandro S. Grossi: *'Metropoli_d'asfalto'*, *'Utopia_della_luce_e_dell'ascolto'*.

[2] Projects developed within the course *Representation and Digital Culture*, Master's Degree Programme in Design for Innovation, a.y. 2024/2025, taught by Prof. Alessandra Cirafici and Alice Palmieri, by the students Ferdinando Accetta, Emanuele Caci, Mariantonietta Cammarosano, Paolo Garofalo, Rosaria Panico, Clara Paolozzi, Michela Riccio.

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Drawing in the Wake of Sorolla. Synaptic Landscape and Sensitive Cartographies from Lloret de Mar

Josep Eixerés Ros

Abstract

The landscapes that Joaquín Sorolla drew and painted in the early 20th century cannot be understood solely as visual representations of an environment, but as perceptual assemblages that continue to influence the way we view the territory. This article proposes the concept of the synaptic landscape to analyze how certain drawing practices articulate relationships between representation, memory, bodily experience and the transformation of the landscape. Drawing on Sorolla's archive from the cove of Santa Cristina (Lloret de Mar) and a contemporary experience of on-site drawing carried out in the same location, a methodology is proposed that understands drawing not as a descriptive tool, but as a critical device capable of linking different temporal and perceptual layers. From this perspective, the landscape is conceived as an open relational network that is actualized through the act of drawing, allowing for a reinterpretation of inherited landscape imaginaries from a situated practice.

Keywords: landscape, on-site drawing, Joaquín Sorolla, Lloret de Mar, synapse.

Introduction. Towards a theory of the synaptic landscape

There are landscapes that survive in painting and landscapes that survive in the territory, but they rarely coincide. The places that Joaquín Sorolla depicted at the beginning of the 20th century belong to that intermediate zone where image and world overlap without ever becoming confused. His paintings do not constitute a capture of the environment, but rather a field of relationships that organizes the visible through light, matter and spatial arrangement.

More than a century later, these places continue to exist, though not in the same way. What persists is not their physical correspondence with the painting, but the relational field that those images helped to activate and which continues to operate upon the territory and upon those who traverse it.

This article takes this premise as its starting point to propose the concept of the synaptic landscape. Far from being understood as a pictorial motif, the landscape is approached here as an active assemblage in which representation, memory, ecology and bodily experience converge. The notion of synapse –in the sense proposed by *disegno*– is conceived as a structure of connection between heterogeneous times and forms of perception.

Within this framework, drawing in the places where Sorolla painted does not imply seeking a visual match, but rather activating that latent field. Drawing *in situ* allows for the articulation of temporal layers –archive, territory and experience– through a situated practice that replaces analytical distance with sensory engagement.

To explore this hypothesis, the article incorporates a case study in the cove of Santa Cristina (Lloret de Mar), developed through a series of drawings made during the summer of 2025. As will be developed throughout the text, this practice does not seek to reconstruct Sorolla's work, but rather to reopen the imaginary he activated, relating it to contemporary transformations of the territory. From this perspective, the landscape is understood as an open synaptic network that is actualized in the interaction between representation and experience. The article therefore proposes a theoretical and methodological approach that positions drawing as a critical device capable of generating knowledge through direct contact with the place.

Conceptual framework. Synapses, representation and situated gaze

In this context, it is necessary to clarify the use of the terms landscape and territory, which are not used here as equivalents. Territory refers to the material and tangible dimension of the environment: its physical, ecological and built configuration, in constant transformation. Landscape, on the other hand, is approached as a relational

Fig. 1. Joaquín Sorolla, *Coast of Santa Cristina, Lloret de Mar, September 1915*. Composite pencil and colored pencils on card, 24.2×31.5 cm (Sorolla Museum, Madrid, Inv. I 1582).



construction that emerges from the interaction between this material substrate, cultural memory and perceptual experience. It is not, therefore, a fixed image or a mere representation, but a field of meaning in which the visible, the lived and the imagined are articulated.

From this distinction, Sorolla's landscape can be understood not as a set of delimited places, but as a network of relationships that remains active beyond its materiality. As suggested in the introduction, these images do not fix an environment but rather configure a perceptual field that continues to operate in the present.

The notion of synapses helps to clarify this functioning. Knowledge is not presented here as a static repository, but as an emergent architecture generated when different bodies of knowledge come into contact. In this sense, the synapse does not denote a biological metaphor, but an operation of connection between times, perspectives and heterogeneous forms of experience. Applied to the landscape, this logic shifts the analysis from representation towards relation.

This shift finds echoes in various theoretical traditions. Gilles Deleuze y Félix Guattari [Deleuze, Guattari 1997] propose the figure of the rhizome to conceive knowledge as an open multiplicity, without a center or hierarchy. From this perspective, Sorolla's landscapes can be read as nodes within a constellation of affects, memories and territorial dynamics, rather than as closed scenes. Pictorial representation does not fix a place; it connects it with others.

Within this relational framework, the practice of drawing acquires a cognitive dimension. Following Tim Ingold [Ingold 2011; 2013], drawing and walking can be understood as forms of knowledge that establish continuity between perception and the environment. Thus, contemporary drawing is not aimed at reproducing a historical image, but at inscribing itself within the very relationships that structure the landscape: the light falling upon a wall, the spatial rhythm of an entrance, or the atmosphere emerging between architecture and vegetation.

This dimension is linked to the notion of the situated gaze developed by Donna Jeanne Haraway [Haraway 1995], which emphasizes the necessarily partial nature of all vision. Knowledge is not produced from an external position, but from the interaction between the perceiving body and the responding environment. In this sense, the synapse takes on an embodied dimension: it is not merely an intellectual operation, but also a sensory one.

From the artistic sphere, Nicolas Bourriaud [Bourriaud 2006] has described certain practices as generating relationships rather than objects. Along these lines, Sorolla's drawing in places can be understood as a form of interaction between representation, territory and experience. As noted, the landscape ceases to be a subject and becomes an interlocutor.

Finally, the ecological reading proposed by Anna Lowenhaupt Tsing [Tsing 2021] allows us to situate these relationships within a context of continuous transformation. Environments are configured as unstable assemblages in which human and non-human agents interact. From this perspective, the material, vegetal and atmospheric variations of the territory do not constitute deviations from the pictorial image but rather form part of the same relational field.

Taken together, this conceptual framework shifts the analysis towards an understanding of landscape as a dynamic system in which drawing, territory and memory co-constitute one another. As will be developed in the methodology, this approach involves understanding drawing not as representation, but as a practice of activating relationships that makes situated knowledge possible.

Methodology

The methodological approach of this research is based on the relational framework of landscape defined above, understanding the territory as a material reality in transformation and the landscape as the field of meaning that emerges from its interaction with experience. Based on

Fig. 2. Synaptic map of fieldwork in the cove of Santa Cristina, Lloret de Mar. Diagram of the route and the main observation and drawing points (drawing by the author).

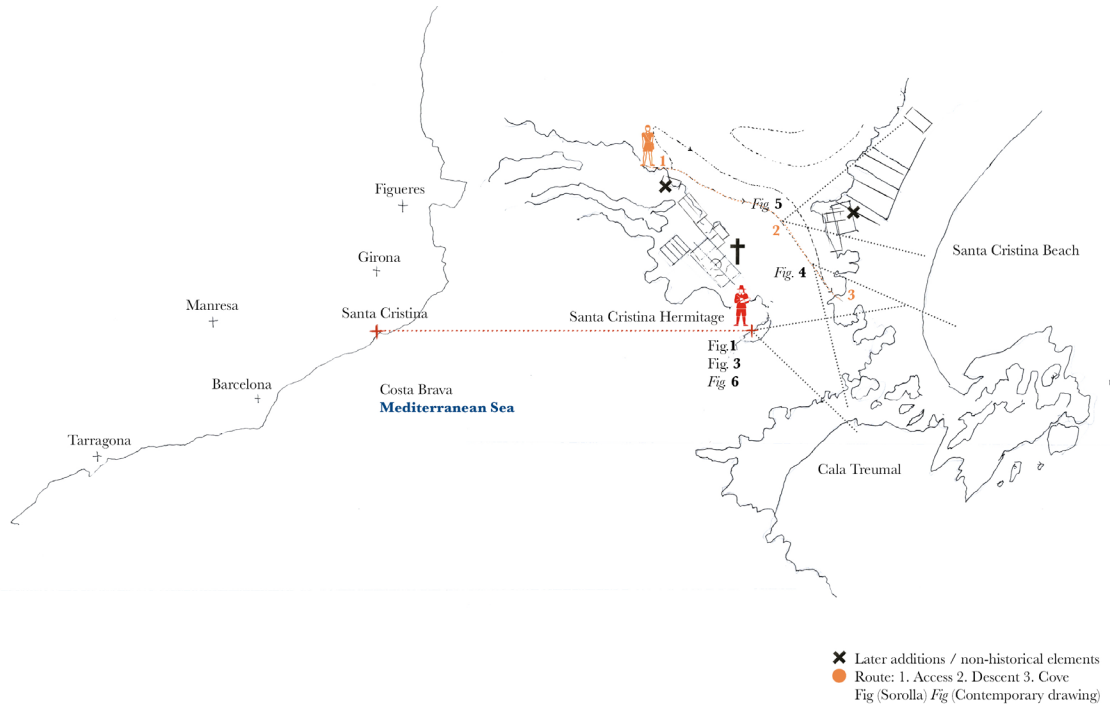


Fig. 3. Joaquín Sorolla, *Coast of Santa Cristina, Lloret de Mar*, 1915. Oil on canvas, 70×100 cm. Preparatory study for the panel 'Catalonia. The Fish' at the Hispanic Society of America (Sorolla Museum, Madrid, Inv. 01122).



this premise, a methodology is proposed that articulates three complementary dimensions: the pictorial archive, the bodily journey and drawing *in situ*. This articulation forms a synaptic cartography aimed at activating connections between times, materialities and forms of perception.

Joaquín Sorolla's own working process already suggests an approach to landscape based on the graphic exploration of the place. His drawings made in Santa Cristina do not seek to fix a definitive image, but rather establish relationships between light, vegetation, topography and atmosphere, functioning as a tool for situated knowledge (fig. 1). Firstly, the pictorial archive –Sorolla's works and the documents associated with his production– is approached as an active layer of the contemporary landscape. As noted in the conceptual framework, painting is not limited to representing, but rather organizes ways of seeing [Didi-Huberman 2011]. In this sense, the paintings function as an interpretative threshold through which the current experience of the place becomes legible.

In operational terms, the archive is not used as a model to be reproduced, but as a device for orienting the gaze. The works were analyzed prior to the fieldwork to identify spatial, luminous and compositional relationships that could be reactivated on site. These references do not determine exact drawing positions, but they do inform the selection of routes, frames and vantage points. During the on-site work, the archive acts as a latent reference that comes into tension with the present conditions of the territory, generating a discrepancy between the expected and the perceived that constitutes one of the core elements of the analysis.

Added to this dimension is the experience of the journey. As indicated, knowledge is not produced from a distance, but through movement and bodily engagement. Walking, stopping and seeking the vantage point from which to draw form part of the very process of observation. Following [Ingold 2011; 2013], movement can be understood as a cognitive practice that articulates the relationship between body and environment.

The route was structured as an open itinerary that gradually defined a series of observation and drawing positions, conceived as nodes of synaptic cartography (fig. 2). The selection of these points did not follow a pre-determined, closed route, but rather the interaction between references drawn from the pictorial archive and the conditions encountered on site –access, topography, visibility and use of space– which progressively guided the process. This mobil-

Fig. 4. Sketch made on site during the descent to Santa Cristina cove, Lloret de Mar, 2025. Pencil on paper. Records of the physical changes to the access route and the relationship between architecture, terrain and the route (drawing by the author).



ity allowed for the incorporation of unforeseen elements, such as variations in light, material transformations or human interventions, which enrich the reading of the territory. The on-site drawing constitutes the third dimension and acts as the central synaptic device. It is not used to reproduce a motif, but to establish a sustained relationship with it through sessions of prolonged observation at different points along the route. Each drawing is made from a fixed position for a set period, allowing for the recording of variations in light, spatial relationships and atmospheric conditions that are not perceptible in an immediate observation. In this sense, drawing functions as a temporal mediation that connects the historical pictorial trace, the current materiality of the territory and the draughtsman's bodily experience. As John Berger argues, the act of drawing compels the artist to look closely at the object before them [Berger 2011, p. 7]; in this context, it also entails thinking about space from within and detecting tensions between the remembered and the present.

The notion of the situated gaze allows us to integrate this embodied dimension of knowledge. All observation is conditioned by the position of the body, the circumstances of the moment and interaction with those who inhabit the place [Haraway 1995]. This condition introduces the social dimension of the landscape, in which encounters, everyday uses and dynamics of access influence the configuration of experience [Augé 1993].

As previously noted, the territory is in a state of continuous transformation. Field drawing allows us to record these variations –material, vegetal and atmospheric– as part of the very relational field that articulates the landscape, without seeking a direct correspondence with the pictorial image, but rather by attending to resonances, displacements and ruptures.

Taken together, this methodology allows us to engage with the landscape as a dynamic system in which archive, territory and experience are intertwined. Synaptic cartography does not reconstruct a past scenario, but rather activates the relationships that constitute it, generating situated knowledge through direct contact with the place.

Synapses between archive, landscape and experience

As has been suggested, Joaquín Sorolla's work can be understood as an archive capable of activating forms of relationship with the landscape beyond its representational

nature. His paintings do not fix a definitive image but rather operate as matrices of interpretation that organize light, architecture and atmosphere. In this sense, and in line with historiographical studies [Pérez Rojas 2012; Barron Abad, Justo 2007], his work shapes an experience of the environment that continues to influence contemporary perception.

Within this framework, the synapse between historical painting and the present-day landscape is situated not on the plane of comparison, but in the encounter between archive, territory and experience. Drawing in the places Sorolla depicted activates this encounter without establishing hierarchies: the painting guides the gaze, the territory introduces its transformations, and the practice of drawing articulates a situated process of reading.

A first connection occurs between the pictorial archive and present-day perception. As indicated in the methodology, the gaze cannot detach itself completely from Sorolla's composition, but the contemporary landscape introduces variations that compel a reformulation of it. This gap between expectation and perception generates a productive space in which temporal distance becomes visible. Rather than a comparison, a dialogue is established in which painting offers an interpretative framework and the territory reconfigures it.

This relationship can be observed in the spatial structure of the works created in Santa Cristina, where the light does not describe an isolated object, but rather connects it to a broader atmospheric setting (fig. 3). From this perspective, the painting functions as a node that guides ways of viewing the relationship between architecture, vegetation and the horizon, without establishing a direct correspondence with the present.

A second connection emerges in the relationship between the materiality of the territory and the pictorial atmosphere. In this sense, the environment manifests itself as a reality in constant transformation: buildings adapt, materials erode, plant species shift, and lighting conditions vary over time. Field drawing allows these variations to be recorded through bodily experience, incorporating the changing environment as an active part of the analysis. These transformations become visible in the drawing made during the descent to the cove, where the architectural access and the altered terrain play a direct part in the experience of the place (fig. 4).

A third synapse emerges when the social dimension is incorporated. As Marc Augé [Augé 1993] points out, the

Fig. 5. Drawing on site from the Santa Cristina viewpoint, Lloret de Mar, 2025. Watercolor and ink on paper (drawing by the author).



landscape is not reduced to its physical configuration but is also defined by the practices that traverse it. The places painted by Sorolla are not today neutral spaces, but settings for contemporary uses –tourist, residential or symbolic– which condition both access and perception. As drawing involves a prolonged presence in the place, it allows this dimension to be addressed indirectly. Shared routes, areas of lingering, or interaction with other bodies influence the configuration of the experience. This condition becomes visible in the drawing made from the viewpoint, where the vegetation, the opening towards the sea, and the observer's position organize the space beyond a literal description (fig. 5).

These three synapses –between archive and perception, between materiality and atmosphere, and between territory and social practice– do not operate in isolation, but simultaneously. They shape an experience of the landscape which, as noted, is not reconstructive, but relational. Drawing in these places does not seek to verify some correspondence with historical painting, but to activate the relationships that run through it.

From this perspective, Sorolla's work continues to act as an interpretative force in contemporary territory. This convergence is synthesized in a series of drawings that do not describe the landscape, but rather graphically condense the relationships activated during the fieldwork (fig. 6).

Drawing after Sorolla: activation and reinterpretation of the territory

Drawing in the places where Joaquín Sorolla painted is neither an exercise in historical reconstruction nor an imitation of his pictorial gesture. As has been suggested, the focus lies in the relational space that is activated when the contemporary gaze enters dialogue with the visual trace of the past. The knowledge that emerges from this process does not depend on formal coincidence, but on the connection between temporal, material and cultural layers. From this perspective, the landscape ceases to be understood as a representable object and is instead approached as a dynamic system of meanings in which pictorial memory, ecological transformation and social practices converge [Nogué 2007]. The practice of drawing reinforces this condition by demanding prolonged and embodied attention, transforming perception into a form of presence and presence into a tool for research.

In this context, Sorolla's work functions as an active visual memory that guides ways of seeing, imagining and traversing the territory. Drawing after Sorolla involves a constant negotiation between what the painting suggests and what the place offers. As has been developed, this relationship is not articulated as a comparison, but as an operative synapse in which archive, territory and experience come into contact.

Added to this dimension is the transformative nature of the territory. Environments cannot be understood as static units, but as systems in constant flux [Corner 1999]. Drawing allows us to attend to these variations through sustained observation, making visible processes that do not emerge in immediate perception and revealing the fragility of the landscape's memory.

The social dimension completes this reading. The places associated with Sorolla's work are today permeated by contemporary uses that condition both experience and interpretation. As Augé [Augé 1993] points out, space is also defined by the practices that sustain it. In this sense, drawing, by implying a permanence in the place, allows these dynamics to be recorded in a situated manner.

Taken together, drawing in the wake of Sorolla not only allows us to analyze the landscape, but also to reactivate it. This activation does not seek to restore a past state, but rather to generate a critical reading of the territory in which memory, perception and transformation converge. In this process, drawing operates as a synaptic device capable of producing knowledge through the interaction between what is preserved, what is transformed and what is reinterpreted.

Conclusions

The places painted by Joaquín Sorolla do not manifest themselves today as recognizable settings in their material continuity, but as territories in which memories, transformations and contemporary practices converge. As has been argued, what remains active is not the formal correspondence between the painting and the place, but the set of relationships that those images helped to articulate, and which continue to operate in the present.

The notion of the synaptic landscape allows us to understand this condition from a relational perspective, in which representation, territory and experience are intertwined. Within this framework, on-site drawing emerges as a

Fig. 6. On-site drawing of the vegetation structure in Santa Cristina cove, Lloret de Mar, 2025. Ink on paper. Graphic record of rhythms, densities and spatial relationships in the landscape (drawing by the author).



specific tool for activating these relationships, not from an external position, but through an engagement situated within the place.

The fieldwork carried out in the cove of Santa Cristina (Lloret de Mar) demonstrates how contemporary drawing can reactivate Sorolla's legacy without resorting to visual equivalence. Rather than establishing comparisons, the graphic practice allows us to detect resonances, displacements and transformations that reveal the dynamic nature of the territory.

From this perspective, the pictorial archive ceases to be understood as a closed reference point and instead operates as an active interpretative force within the contemporary

experience. The landscape thus appears as an open network that is updated each time a new gaze engages with it. The main contribution of this work lies in the formulation of an approach that articulates archive, journey and drawing as a system for activating knowledge. This synaptic cartography does not seek to reconstruct a past state, but rather to generate situated readings of the territory, integrating memory, perception and transformation.

In this sense, drawing asserts itself as a critical device capable of producing knowledge through direct interaction with the place, opening a field of research applicable to other contexts in which representation, territory and experience are in tension.

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Beyond Vision. Drawing and Design as Multisensory Synaptic Processes

Paolo Di Nardo, Alessandro Spennato, Gianpiero Alfarano

Abstract

This paper explores drawing and design as cognitive and perceptual processes grounded in multisensory dynamics. Through an interdisciplinary theoretical-critical approach, the essay proposes the metaphor of the synapse as an interpretative model capable of describing drawing as a relational device that connects perception, the body, matter and the construction of experience. The multisensory paradigm and theories of embodied cognition allow us to reinterpret representation as an active environment of simulation, anticipation and design modulation. The case study dedicated to the ceramic surfaces project, developed as part of an inter-university teaching initiative between Florence and Perugia, highlights the role of two-dimensional drawing in the generation of sensory surfaces, subsequently materialised through 3D printing. The analysis highlights how the transition from the mark to three-dimensional morphology significantly affects the interactions among vision, touch, and light, contributing to the definition of situated perceptual behaviours. Drawing thus emerges as the cognitive infrastructure of contemporary design.

Keywords: multisensory design, synaptic metaphor, embodied cognition, haptic perception, sensory surfaces, 3D printing.

Introduction

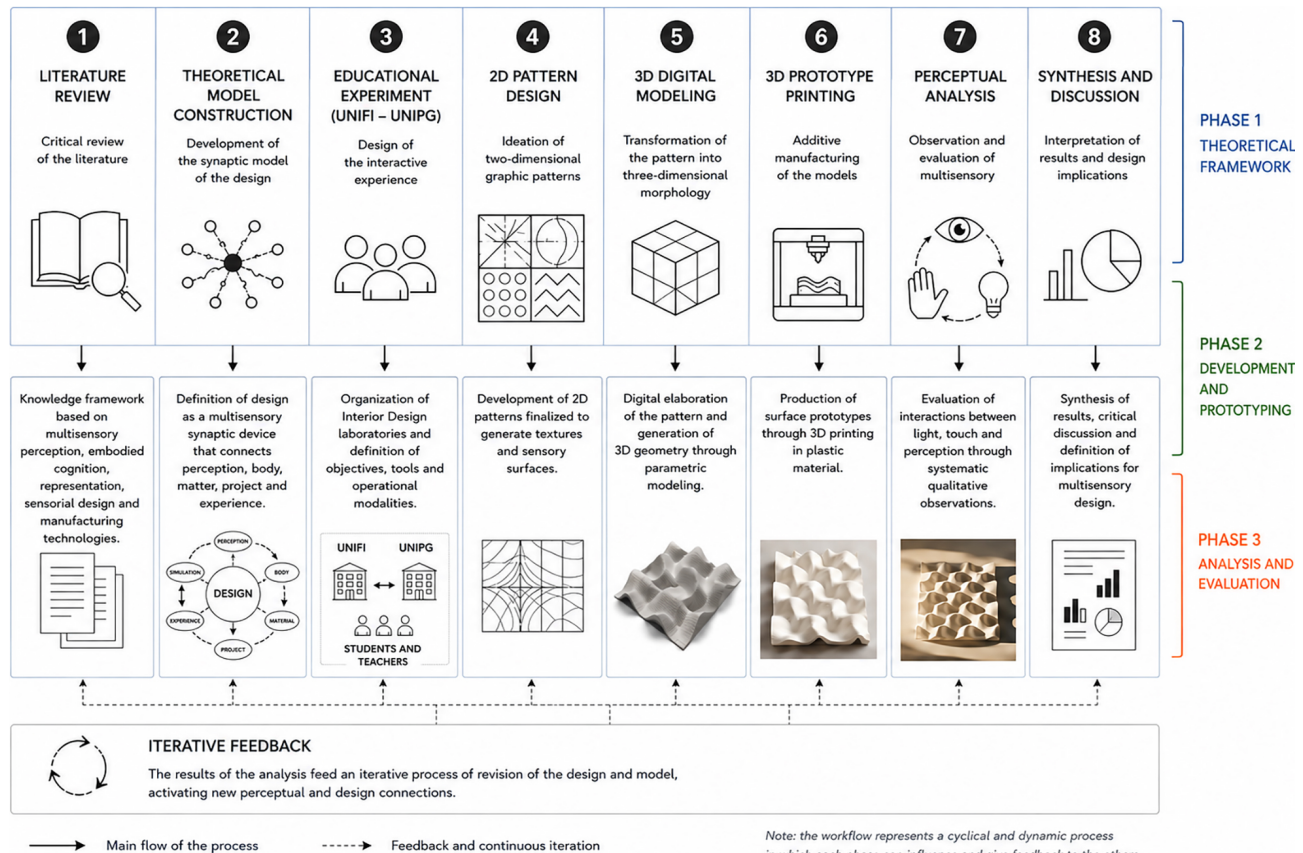
The centrality of vision has historically shaped both drawing practices and design theories, consolidating an eye-centred paradigm that has identified visual representation as the primary vehicle for knowledge, interpretation and transformation of reality. Within this framework, drawing has been predominantly understood as a means of graphically translating the visible, whilst design has often prioritised the formal and iconic dimensions of experience. However, recent developments in cognitive science, phenomenology and sensory studies have progressively challenged this approach, highlighting how perception emerges from integrated, dynamic and multisensory processes, in which the body, action and environment jointly participate in the construction of knowledge [Gibson 1979; Noë 2004].

From this perspective, seeing no longer amounts to receiving images, but to activating sensorimotor relations, perceptual memories and situated interactions. Perception thus takes shape as an embodied phenomenon, in which the subject knows the world through their own being-in-the-world, according to a continuity between sensation, movement and intentionality [Merleau-Ponty 2012]. This theoretical shift implies a substantial redefinition of the role of drawing: no longer a mere practice of description or formal prefiguration, but a cognitive process capable of activating perceptual simulations, experiential anticipations and connections between different sensory dimensions. Within this framework, this paper proposes to interpret the relationship between drawing and design through the

metaphor of the synapse, taken as an epistemological and operational model. The synapse, understood as a space of relation, transmission and transformation, becomes here a conceptual figure for describing the processes through which drawing connects perception, body, matter and experience. The aim is to investigate how drawing can be understood as a multisensory synaptic process, capable of overcoming the traditional hegemony of the visual and of configuring itself as a cognitive interface between subject and designed environment.

This reinterpretation allows drawing to be situated within an expanded dimension, in which representation, perception and action are no longer separate, but mutually constitutive. In this sense, the essay forms part of the contemporary debate that recognises design as having an experiential and relational nature, and drawing as having a generative, rather than merely descriptive, function [Pallasmaa 2005]. Through a theoretical-critical approach, supported by interdisciplinary references, this contribution aims to outline an interpretative framework in which

Fig. 1. Research methodology workflow: outline of the theoretical, experimental and evaluative phases of the research process, from the development of the theoretical framework to the perceptual evaluation of the prototypes developed (elaboration by the authors).



drawing and design operate as synaptic practices for the construction of knowledge and multisensory experience. From a methodological perspective, the research adopts a qualitative theoretical-applied approach structured in three integrated phases. The first phase consists of constructing an interdisciplinary theoretical framework through a critical review of the literature on multisensory perception, embodied cognition and sensory design. The second phase involves developing an interpretative model of drawing as a multisensory relational device, employing the synaptic metaphor as an epistemological tool to describe the dynamics of interaction between perception, representation and design. The third phase consists of the applied verification of the model through the analysis of an educational-experimental case study developed in the Interior Design Laboratories of the Universities of Florence and Perugia, aimed at observing the transition from two-dimensional drawing to three-dimensional prototyping of ceramic surfaces in relation to the perceptual behaviours generated (fig. 1).

Drawing and perception beyond the visual paradigm: a synaptic interpretation

The gradual expansion of theories of perception and cognition has redefined the role of vision within experience, situating it within an integrated system of multisensory relationships. Contemporary perception is understood as a dynamic process in which different modalities –visual, tactile, kinesthetic and proprioceptive– cooperate in the construction of meaning. In this context, drawing assumes a function that goes beyond the traditional representational dimension, emerging as a cognitive practice capable of activating perceptual simulations and experiential anticipations. Recent research shows how perception operates through predictive mechanisms, in which the brain integrates sensory stimuli and internal models [Clark 2016]. Drawing thus becomes an act that structures and modulates these dynamics, constructing configurations that guide future experience. The graphic mark is not limited to describing forms, but participates in the construction of perceptual scenarios in which gesture, memory and imagination operate jointly. Within this perspective, the metaphor of the synapse offers an effective interpretative model for understanding drawing as a space of relation, transmission and transformation. In the field of neurobiology, the synapse represents the dynamic site where signals and connections produce

modulations and learning. Transposed into the field of design, it allows us to interpret drawing as a cognitive interface in which perception, the body and design anticipation enter into an active relationship.

From the mark to the construction of experience, drawing emerges as a process capable of activating complex perceptual fields. Lines, densities and rhythmic articulations evoke tactile qualities, luminous dynamics and perceptions of movement. The sheet of paper or digital space becomes an environment for cognitive interaction in which the design unfolds as a circuit of connections and modulations. The mark operates as a synaptic event that coordinates the sensory dimension and formal configuration.

Research on multisensory perception reinforces this interpretation, highlighting how cross-modal integrations directly influence the perception of form and matter [Spence 2020]. Drawing participates in these dynamics by constructing structures of perceptual prediction, through which the designer explores possibilities, verifies consistencies and articulates relationships between evoked experience and emerging form.

Interpreted in synaptic terms, drawing thus assumes a relational function that connects heterogeneous domains: perception and concept, gesture and space, material and imagination. This approach allows us to understand design as a dynamic process of constructing experience, in which representation and perception are mutually constitutive.

Multisensory perception and embodied cognition

The contemporary understanding of perception as a multisensory and embodied phenomenon profoundly redefines the relationship between the body, the environment and design. Cognitive neuroscience shows how sensory systems operate through continuous integration, in which sight, touch, hearing and proprioception work together to construct experience (fig. 2).

Perception emerges from processes of dynamic coordination that link diverse stimuli, expectations and situated action [Stein 2012]. Within this framework, the body serves as an active platform for knowledge.

Embodied cognition describes cognition as a process that develops through the interaction between sensorimotor systems and context. Thinking, perceiving, and acting are intertwined dimensions in which meaning takes shape in the dialogue between organism and environment [Shapiro

Fig. 2. Multisensory experience: Kobe Port Museum/Taisei Design Planners Architects & Engineers (© Katsumasa Tanaka) [Gattupalli 2023].



2019]. Viewed from this perspective, the project qualifies as the construction of experiential conditions that engage the body as a whole. Matter, space, light and interaction become variables within a relational perceptual field.

Contemporary experience-oriented design values this approach, viewing artefacts as generators of sensory states, affective dynamics and modes of presence. The designed experience unfolds through tactile qualities, light gradients, acoustic resonances and perceptions of balance and movement [Hassenzahl 2018]. In this scenario, design serves as a tool for anticipating and modulating multisensory configurations, translating perceptual relationships into design structures.

Research on haptic perception and sensorimotor cognition highlights how touch and movement contribute decisively to spatial understanding [Gallace, Spence 2014]. Hand, gesture, and posture influence the formation of mental images and the evaluation of design. Drawing, therefore, involves an activity that integrates perception and action, in which the body explores, verifies and stabilises hypotheses. In this sense, drawing can be interpreted as a practice capable of structuring perceptual configurations and formal relationships that emerge from sensory experience, contributing to the construction of meaning through the dynamics of interaction between form and perception [Alfarano 2015].

The multisensory dimension also introduces a temporal perspective. The experience unfolds as a sequence of perceptual events in which the subject experiences variations in light, texture, temperature and sound. Consequently, the project takes the form of an orchestration of sensory dynamics over time. Drawing allows these modulations to be explored, functioning as an environment for experiential prefiguration and a tool for coordinating perception and intention.

This approach opens up the possibility of reinterpreting drawing as a practice that integrates cognitive, sensory, and motor processes. The graphic construction activates bodily memories, evokes tactile qualities and simulates spatial interactions. Through the mark, the designer articulates scenarios in which the body becomes an implicit parameter of the design. Drawing thus serves as a device that connects sensory experience and design configuration.

The convergence of multisensory perception and embodied cognition thus offers a theoretical framework that can place drawing at the centre of complex relational processes. The project emerges as an embodied experience,

whilst drawing functions as a cognitive and sensory infrastructure that renders the relationships between body, perception and environment visible, tangible and adaptable.

Drawing as a multisensory process

Interpreting drawing as a multisensory process means recognising its ability to engage multiple modes of perception simultaneously. Drawing functions as a cognitive space in which visual, tactile and kinesthetic qualities intertwine to construct experiential scenarios. Lines, fields of colour, density, and rhythmic modulations do not act exclusively on the visual plane, but evoke material textures, gradients of light, perceptions of weight, and the dynamics of movement. From this perspective, drawing becomes an environment of sensory simulation, capable of anticipating relationships between body, matter and space (fig. 3).

Recent research on multisensory perception highlights how perception arises from cross-modal integration that directly influences the assessment of form, surfaces and spatiality [Spence 2020]. Graphic representation plays a part in these dynamics by triggering processes of anticipation and perceptual imagination. Drawing is equivalent to constructing configurations that shape future experience, setting the stage for interaction and sensory response. The mark thus takes on a performative function: it does not merely describe, but foreshadows perceptual behaviours. At the same time, studies on sensory-enabled design show how materials and surfaces are understood through integrated relationships between sight and touch. Drawing occupies this dimension as a device that translates sensory qualities into visual-spatial structures, allowing us to explore the continuity between perception and design. Through variations in scale, rhythm and graphic articulation, the designer constructs perceptual maps that organise sensory experience.

The multisensory nature of drawing emerges with particular clarity in the representation of matter. Textures, patterns, and tonal gradients can suggest temperature, roughness, elasticity, and reflectance. These qualities do not merely evoke physical properties; they also contribute to the construction of perceptual atmospheres. Drawn surfaces become anticipations of experiential states in which light and tactility collaborate to define perceived space. In this sense, drawing functions as a synaptic interface between the sensory dimension and the design configuration.

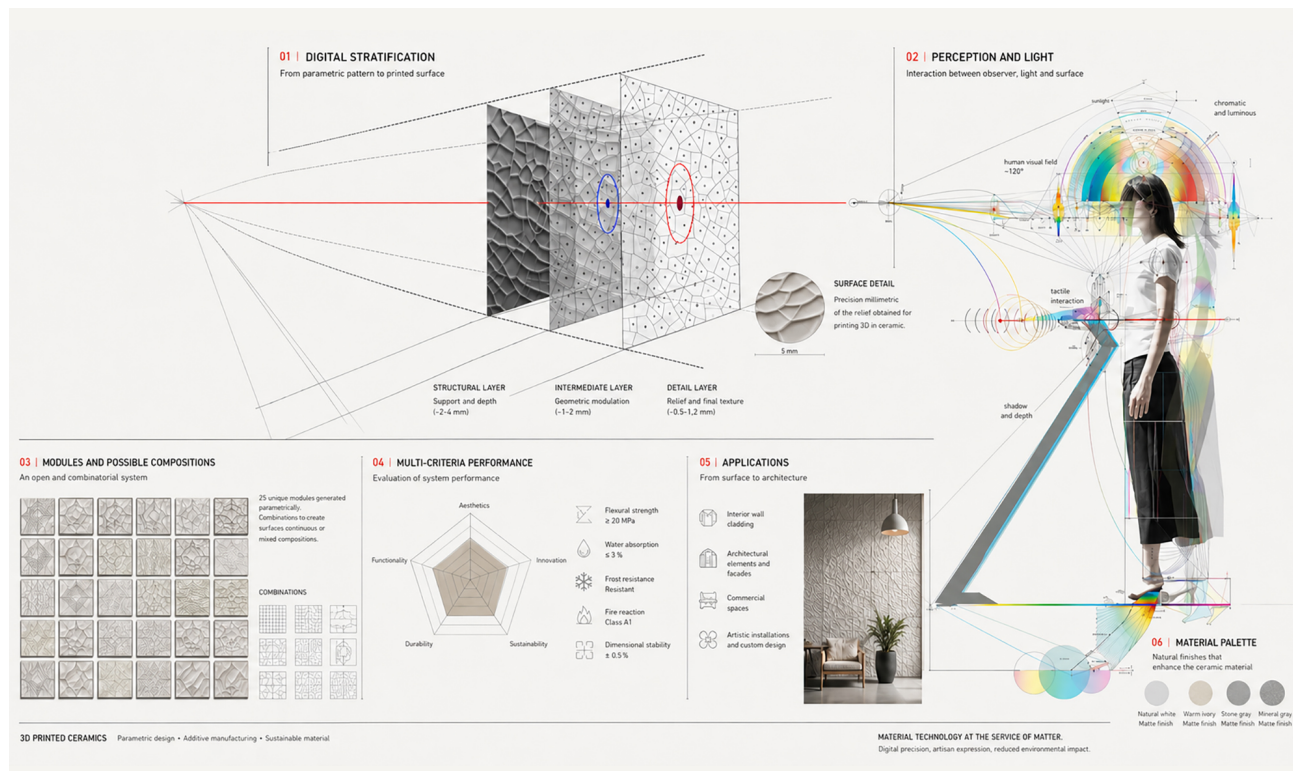
Contemporary theories of sensory design increasingly emphasise this anticipatory function. Experience-oriented design regards the project as an orchestration of integrated stimuli, in which perception, emotion and cognition operate jointly [Velasco, Obrist 2021]. Drawing contributes to this orchestration by constructing structures of perceptual anticipation that enable the assessment of coherence, intensity and relationships between sensory components. It is not a matter of representing an isolated object, but of simulating a field of experience.

In this sense, drawing takes on an expanded dimension that involves the body, gesture and sensory imagination. The act of drawing integrates haptic memory, visual anticipation and motor simulation, taking the form

of embodied knowledge. The design unfolds through continuous exchanges between perception and representation, between evoked experience and formal structure. This dynamic is particularly evident in design approaches that adopt multisensory perception as the structuring principle of spatial and luminous experience [Alfarano 2023].

Drawing, as a multisensory process, thus emerges as a tool for constructing experience, capable of coordinating sensory qualities, design intentions and perceptual behaviours. Through the mark, the designer articulates relationships between the visible and the tangible, between anticipation and presence, defining scenarios in which perception becomes the very substance of the design.

Fig. 3. Perceptual-visual process of light on surfaces (elaboration by the authors).



Case study: surface design and drawing

Surfaces as a multisensory device for perceptual mediation

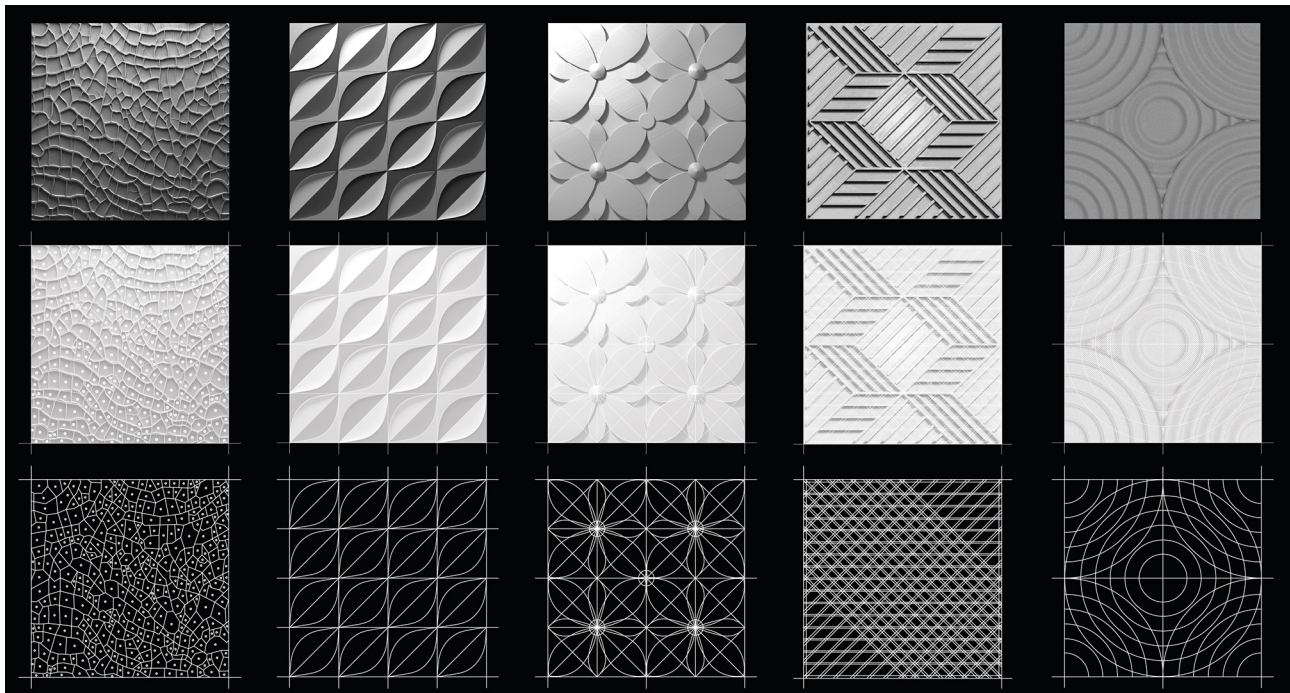
The design of ceramic surfaces provides an ideal context for observing drawing as a synaptic process, understood as a space of connection between perception, material and the construction of experience. The surface is not merely a technical-functional element, but a sensory interface capable of mediating relationships between the body, the environment and the dynamics of light. From this perspective, drawing functions as a cognitive infrastructure through which integrated perceptual qualities are anticipated, simulated and verified (fig. 4).

The synaptic dimension of the process is evident in the design's ability to activate connections between diverse domains: geometric configurations, surface textures, light reflections and tactile expectations. Recent studies

demonstrate that the perception of surfaces is guided by predictive multisensory integrations, in which vision constantly interacts with haptic memory and bodily simulations. The tile design thus becomes a field of perceptual experimentation in which the graphic mark translates design intentions into experiential potentials.

This approach finds concrete application in a joint controlled experimental verification developed within the design degree programmes at the University of Florence and the University of Perugia. Students from the Interior Design Laboratory in Florence (around 150) and the Interior Design Laboratory in Perugia (around 200) explored the role of two-dimensional drawing as a generative matrix for sensory surfaces, subsequently materialised through 3D printing technologies (fig. 5). The transition from 2D to 3D has made it clear that design does not merely describe form, but also creates conditions for interaction among light, tactility, and dynamic perception.

Fig. 4. Drawings and diagrams of the graphic design development (elaboration by the authors).



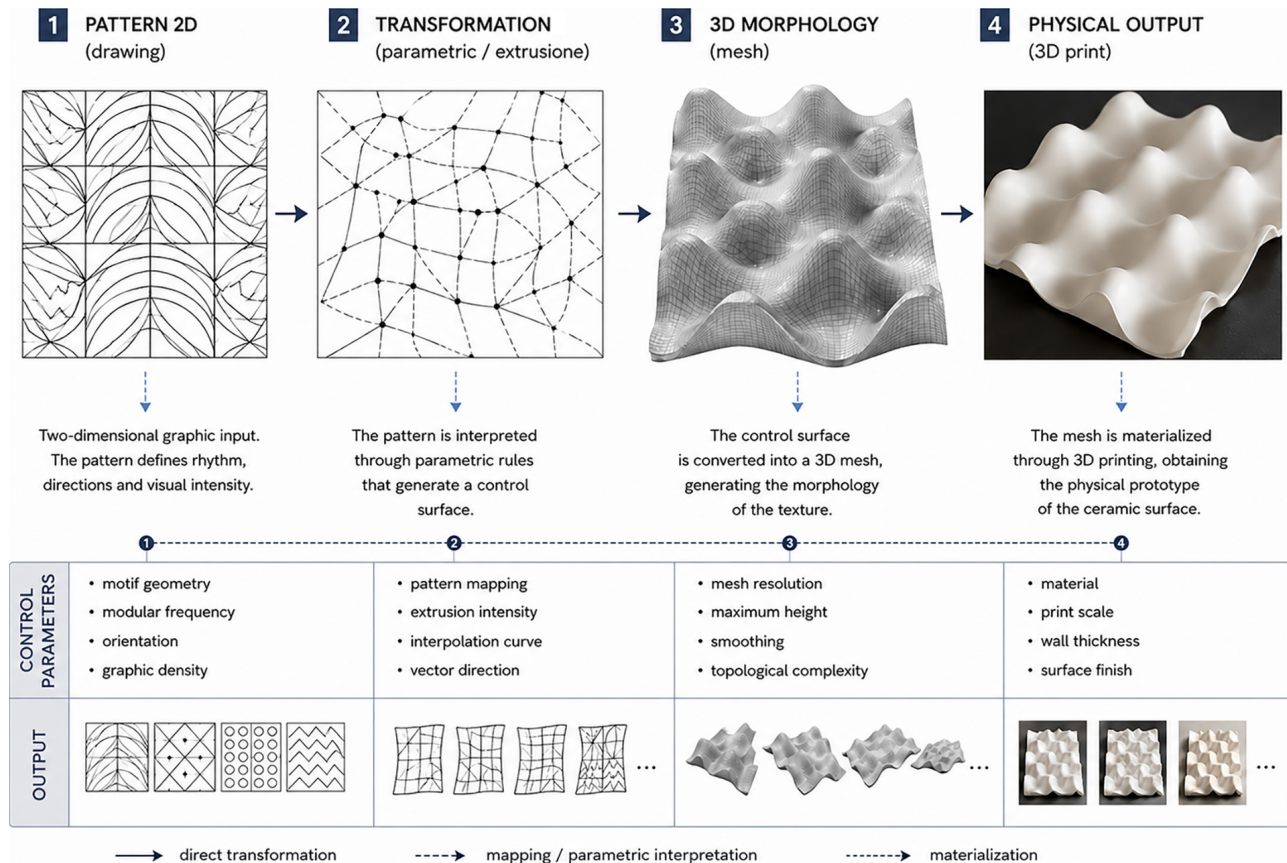
The case study was examined through a qualitative comparative analysis of the prototypes developed, taking into account the different morphological configurations generated from two-dimensional graphic patterns (fig. 6). In particular, the evaluation focused on four main parameters: (a) surface light response in relation to variations in light incidence; (b) perceptual legibility of textures under static and dynamic conditions; (c) haptic perception of surface morphologies; (d) variation in the perceptual effect depending on the observer's movement relative to the surface.

This observation enabled verification of the role of design in shaping complex sensory behaviours.

The interplay between sight, touch and light

The interaction between sight, touch and light is one of the central themes in the design of contemporary ceramic surfaces. The latest research in the neuroscience of perception shows that the assessment of texture arises from cross-modal integration, in which visual information directly influences tactile expectations and bodily responses [Chen

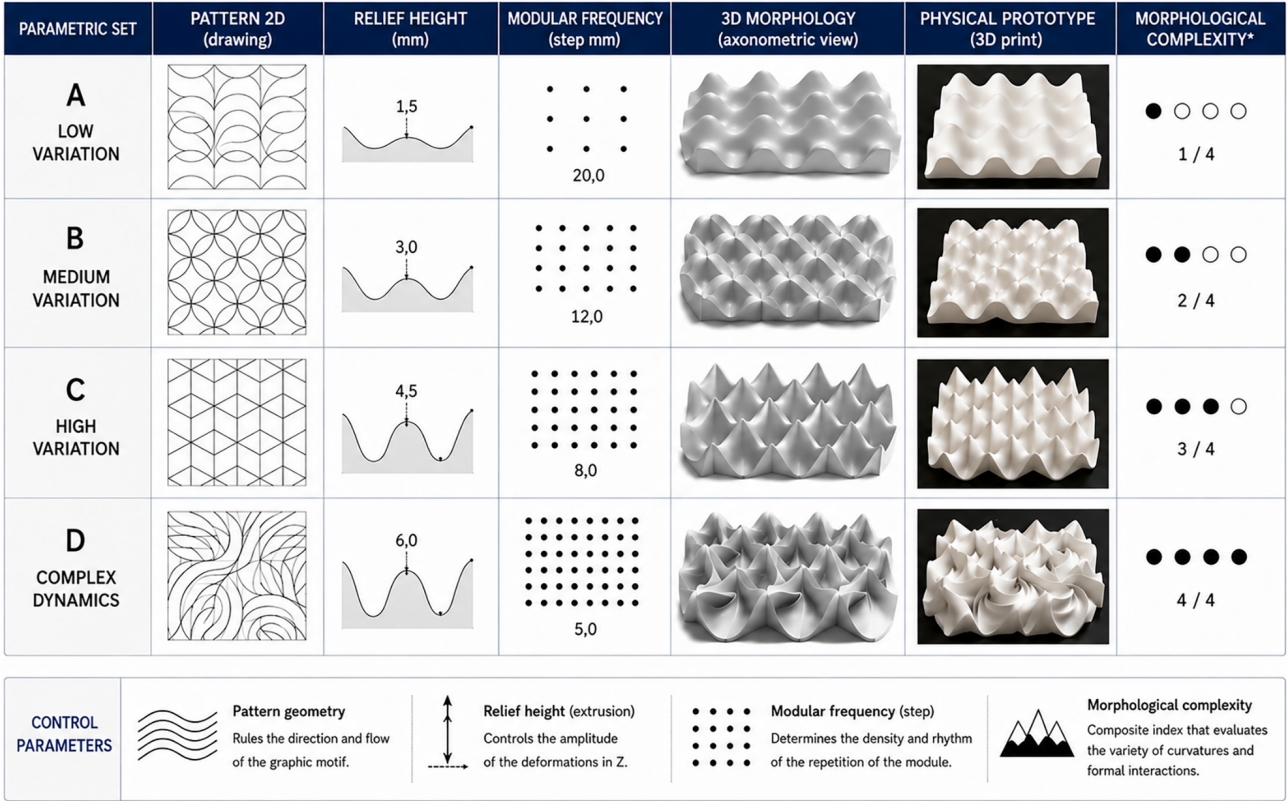
Fig. 5. From two-dimensional pattern to three-dimensional morphology: transformative workflow of the design process from graphic configuration to physical prototyping of the surface via parametric modelling and 3D printing (elaboration by the authors).



et al. 2021]. The ceramic surface, thanks to its ability to articulate reliefs, microstructures and reflectance gradients, becomes a device capable of simultaneously modulating multiple sensory registers. Light plays a decisive role in this process. Variations in incidence, diffusion and reflection transform the perception of surface geometry, generating dynamic effects that depend on the observer's movement and environmental conditions [Lee, Kim 2020] (figs. 7, 8). In this context, the design anticipates luminous and perceptual behaviours,

functioning as a tool for experiential simulation. Within the Florence-Perugia workshop context, these dynamics were explored through exercises that combined graphic design, digital modelling and additive prototyping. The designed surfaces demonstrated how micro-variations in morphology can produce significant differences in light response and haptic perception. The experience demonstrated how surface design unfolds as an iterative process of synaptic adjustment between gesture, form and perceptual feedback.

Fig. 6. Comparative matrix of morphological variations generated through the parametric modulation of two-dimensional patterns: relationship between graphic configuration, geometric parameters and the complexity of the resulting three-dimensional morphology (elaboration by the authors).

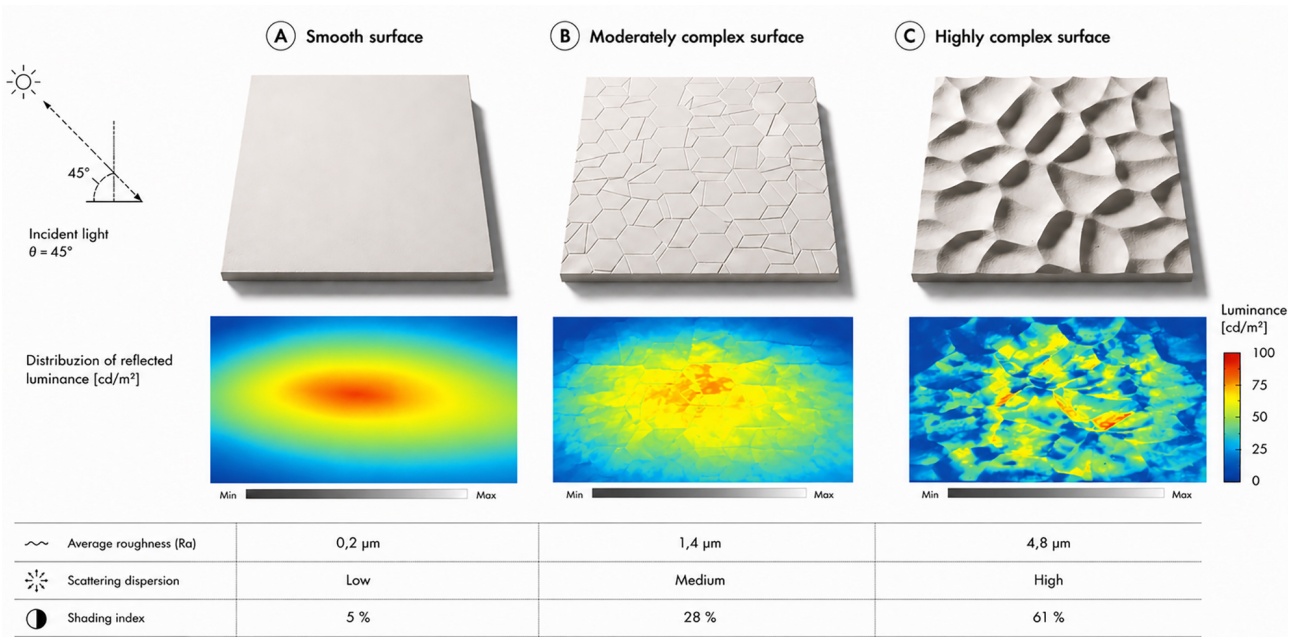


Drawing, matter and perceptual behaviour

The relationship between design, material and perceptual behaviour is central to the definition of sensory surfaces. Design does not function solely as a tool for formal representation, but as a mechanism capable of structuring modes of interaction and experiential responses. Ceramic material, through its reflective properties, porosity and tactility, contributes to the creation of scenarios in which perception emerges as a relational phenomenon. At the same time, the digital transformation of production processes in the ceramics sector introduces new possibilities for controlling, simulating and optimising sensory and environmental performance. The integration of Industry 4.0 technologies enables the correlation of design parameters, surface qualities, and sustainability indicators, facilitating a systemic interpretation of surface design [Contini et al. 2023].

Contemporary theories of material engagement highlight how material qualities directly influence cognitive and emotional processes [Malafouris 2021]. From this perspective, design becomes a practice that connects design intention and perceptual behaviour, translating sensory qualities into operational structures. The surfaces generated via 3D printing in the inter-university laboratory have made this dynamic visible, demonstrating how the transition from representation to materialisation produces a qualitative transformation of experience. Theoretical reflection on the design of sensitive surfaces is further explored in recent research described in the volume Sensibility Surface Design, which interprets the surface as a field of cognitive and sensory activation [Alfarano 2025]. In parallel, studies on the role of multisensory design in surface design highlight how morphological configurations and luminous qualities contribute to the construction

Fig. 7. Comparison of the luminous response based on the morphological complexity of the ceramic surface (elaboration by the authors).



Measurement conditions: LED directional source - $\theta = 45^\circ$ (incidence) / orientation of the horizontal surface
The luminance maps show the distribution of reflected light on the observation plane (zenith view).

of situated perceptual behaviours [Spennato 2025]. The case study thus demonstrates how design functions as a relational device capable of coordinating perception, matter and light. The tile emerges as a sensory device through which the design becomes an experience, whilst design itself takes the form of a cognitive infrastructure for the relationship between body and environment.

Discussion

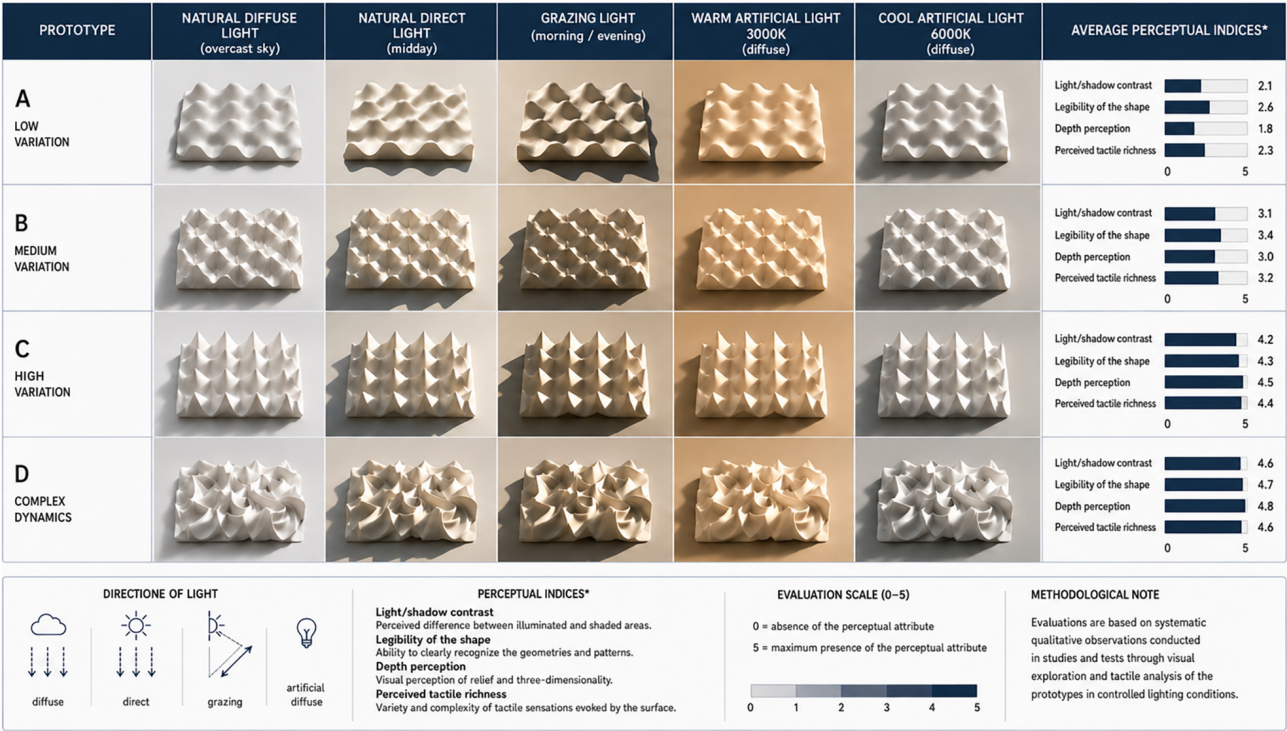
Interpreting drawing as a multisensory synaptic process allows us to view representation as a relational practice capable of connecting perception, body and matter. The metaphor of the synapse effectively describes the dynamic

nature of drawing: a mechanism that coordinates sensory simulations, experiential anticipations and formal configurations. From this perspective, drawing emerges as the cognitive infrastructure of the project.

Contemporary research on perception highlights the integrated and predictive nature of sensory experience [Clark 2016]. Drawing participates in these dynamics by activating processes of exploration and modulation through which the designer constructs scenarios of interaction.

The graphic mark operates as a simulation environment in which form and experience are continuously correlated. The case study on ceramic surfaces concretely demonstrates this condition. The relationship between graphic

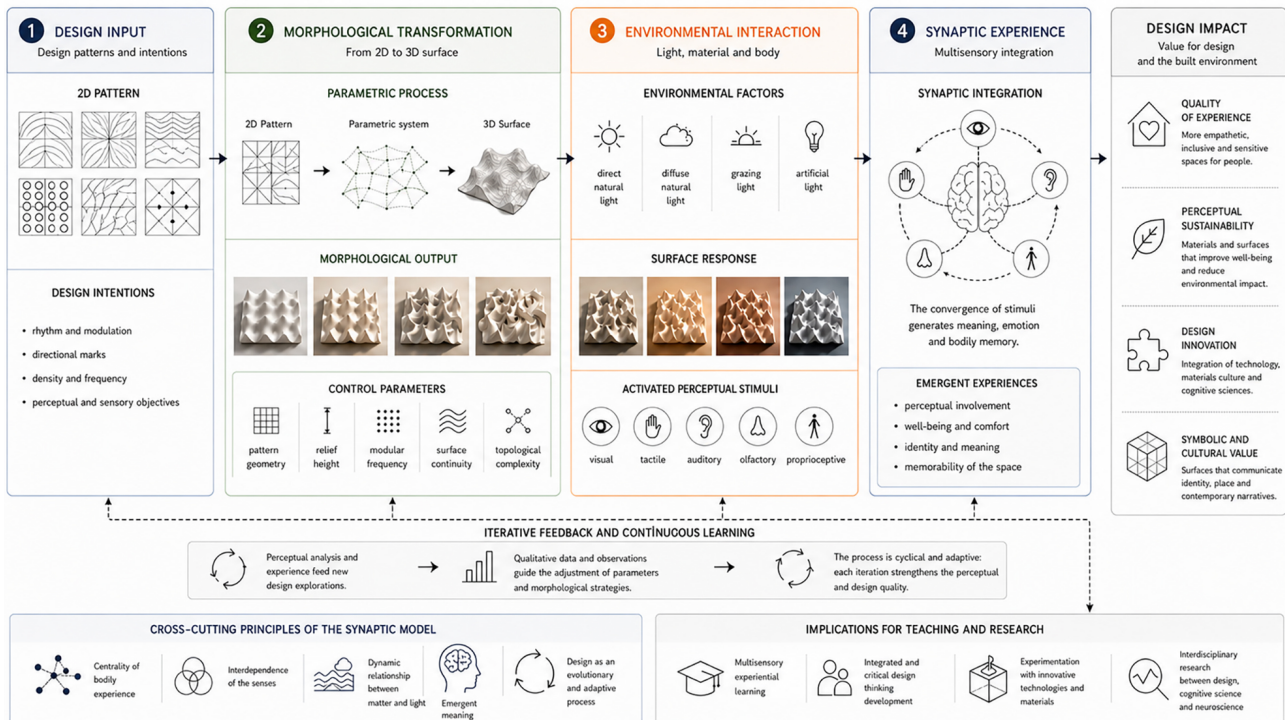
Fig. 8. Comparative analysis of the interaction between light and surface morphology: variation in the perceptual response of the prototypes depending on different lighting conditions and the geometric complexity of the textures (elaboration by the authors).



configuration, three-dimensional morphology and luminous behaviour highlights drawing's capacity to orchestrate complex perceptual qualities. Recent studies confirm how micro-variations in surface texture influence spatial and sensory perception [Kwon et al. 2022], reinforcing the role of drawing as a tool for regulating experience. This approach suggests a disciplinary redefinition of drawing, emerging as a practice capable of integrating contributions from perception theory, cognitive science, and material design. The project unfolds as an iterative process in which representation, simulation and perceptual verification are closely interlinked. The methodological and pedagogical implications appear significant. The Florence-Perugia teaching experience highlights

how the transition from 2D drawing to 3D printing fosters a broader understanding of the relationship between gesture, material and perceptual behaviour. Additive technologies amplify the synaptic dimension of the process, enabling a direct translation between graphic configurations and experiential prototypes. Overall, the synaptic model helps to recognise drawing as a practice capable of coordinating sensory, cognitive and design dimensions, thereby consolidating its centrality in contemporary design (fig. 9). It should be noted that the proposed validation is qualitative and exploratory, based on comparative observation and design verification of the developed prototypes. The contribution, therefore, does not aim to formulate

Fig. 9. Synaptic model of multisensory design: summary diagram of the relationships between graphic configuration, morphological transformation, environmental interaction and the construction of perceptual experience in the multisensory design process (elaboration by the authors).



a quantitative measurement of perceptual responses, but rather to outline an interpretative and operational framework useful for understanding the relationships between graphic configuration, three-dimensional materialisation and sensory behaviour.

Conclusions

The paper proposed a reinterpretation of drawing and design through the paradigm of multisensory perception and the synaptic model. From this perspective, drawing emerges as an embodied cognitive practice capable of connecting perception, the body, matter and the construction of experience. Representation takes the form of a relational process that triggers sensory simulations and guides design dynamics.

The metaphor of the synapse has enabled the description of drawing as a space of activation and modulation. The mark becomes an interface through which different sensory and cognitive registers enter into a dynamic relationship, contributing to the construction of perceptual scenarios. Drawing thus assumes a generative function, participating in the definition of the project's experiential conditions (fig. 10).

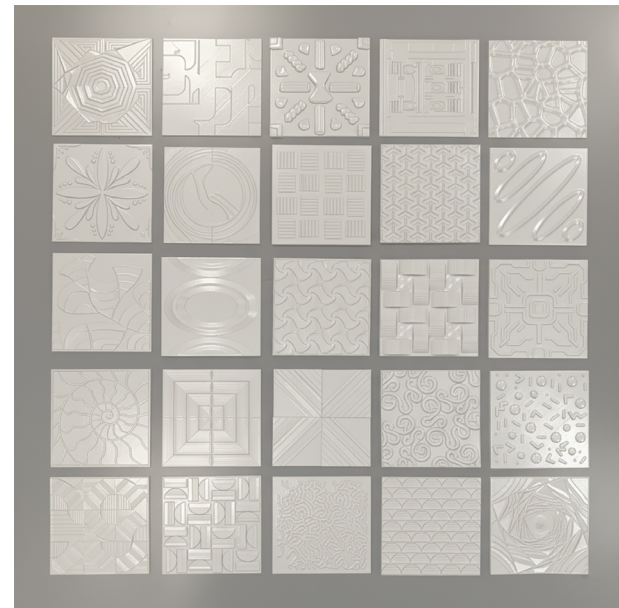
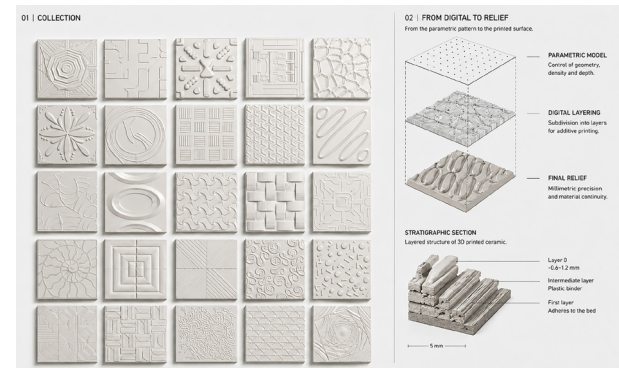
The case study on surfaces provided a practical test of this theoretical framework. The integration of 2D design and 3D printing demonstrated the continuity between graphic configuration, three-dimensional morphology, and perceptual response (fig. 11). The ceramic surface emerges as a multisensory device that mediates interactions among sight, touch, and light.

The disciplinary and methodological implications are significant. Design functions as the cognitive infrastructure of contemporary projects, capable of integrating sensory, material and behavioural dimensions. Digital and additive technologies amplify this dynamic, facilitating iterative processes of simulation, prototyping and experiential verification.

Among the limitations of the research is the qualitative nature of the experimentation, which does not include standardised empirical protocols for measuring users' perceptual responses. Future developments may integrate quantitative methodologies and neuroscientific assessment tools to systematically verify the correlation between graphic configurations, surface morphologies and multisensory behaviour, thereby broadening the transferability of the proposed model.

Fig. 10. Morphological chart of the 3D-printed modules developed in the research: comparative catalogue of parametric patterns designed to explore geometric variations, relief depth, surface continuity and compositional potential of the modular system (elaboration by the authors).

Fig. 11. Photographs of 3D-printed surfaces (elaboration by the authors).



From a pedagogical perspective, the inter-university collaboration between Florence and Perugia highlights how integrating drawing, modelling, and additive manufacturing fosters a broader understanding of design as a multisensory process. Students directly experience the relationship between gesture, material and perceptual behaviour.

Overall, the proposed perspective helps position drawing beyond mere vision, recognising it as a synaptic practice capable of coordinating perception, materiality, and experience. This approach opens the way for further research aimed at exploring the relationships between representation, neuroscience, and multisensory design.

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Social Synapses

Social Synapses: Situated Knowledge and the Deconstruction of Privilege between Law, Drawing, and Practice-Based Inquiry

Barbara Pasa

Neural metaphor and processes of knowledge

The aim of this essay is to map a number of study and research trajectories through which 'social synapses' may be activated as practices of resistance, with the aim of interrogating the conditions of possibility of a form of knowledge –specifically that related to the field of Drawing– that is capable not of reproducing discrimination and privilege, but of deconstructing them from within. The analysis is based on a complementary external perspective –that of Law– and takes a transdisciplinary approach, integrating theories and practices of drawing, critical legal theories and practice-based studies applied to gender issues. In neuroscientific biology, the synapse represents the point of contact and transmission between neurons,

the site where the electrical impulse is transformed into a chemical signal and vice versa, enabling the circulation of information within the nervous system. Transferred to the social and cultural sphere, this metaphor makes it possible to conceive knowledge production as a set of dynamic, non-linear connections that are always situated within specific contexts [Latour 2005]. Proposing the social synapse as an analytical category therefore means emphasizing that knowledge is also –and above all– a relational practice: not a neutral and universal datum that signifies the same thing for everyone, but the outcome of practices that articulate bodies, technical diapositives, languages, institutions, and power relations. This premise gives

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rise to a number of methodological considerations that inform the present reflection. Firstly, knowledge is always situated and embodied; no standpoint can guarantee absolute objectivity. Questions, responses, implications and responsibilities are all generated by specific proxemic and communicative relations, and every process of knowledge emerges from these. Secondly, these relations concern disciplinary forms of knowledge, but above all, they concern 'border crossings'. To function as emancipatory devices, social synapses need methodologies that can cross disciplinary boundaries. These include the boundaries between drawing, law and gender performance studies, as well as the divide between theory and practice. All of these are part of a whole ecosystem of embodied knowledges. From a transdisciplinary perspective, Drawing is significant because it can be understood as a critical –or 'political' (in the sense that it participates in public life)– dispositive. This means it can contribute either to the maintenance or the destabilization of consolidated hierarchies of power. The way in which a body, a space, or an identity is represented is never neutral: it entails a responsible design choice concerning what is rendered visible or concealed, normalized or marginalized [Rancière 2004].

Languages and the deconstruction of structural privileges

Social synapses manifest themselves powerfully within the dimension of language.

The author of this essay is a legal scholar, and the present observation is therefore situated: it originates in legal language, traverses the language of drawing –on which the author has engaged in dialogue for over a decade with scholars of drawing (among them Massimiliano Ciammaichella), design, and gender performance studies at the Università Ca' Foscari di Venezia– and reflects on gender issues from an anti-discriminatory and rights-based perspective. These themes have subsequently been extended to the languages of generative Artificial Intelligence, namely so-called Large Language Models, which model the statistical distribution of human language rather than its understanding.

Languages, as is well known, may function both as vehicles of emancipation and as instruments of symbolic violence. Visual and verbal language can operate

socially to normalize dissident subjectivities through processes that are often invisible even to the agents themselves. Symbolic violence does not consist in the exercise of direct force, but in the incorporation of classificatory categories and schemes that render only certain forms of existence intelligible, while making others appear impossible or absurd [Bourdieu 1991; 1998]. Bringing into focus phenomena such as systemic gender violence, the invisibilization of trans and intersex persons, the recognition of women's condition as subordinate, and the naming of gender stereotypes and roles necessarily passes through a critique of the universal subject and of the language that defines it. The universal subject of modernity –male, white, European, rational, and economically privileged– is not a neutral fact, but a construct of power that has systematically excluded other subjectivities, rendering them subordinate [Foucault 1978; Young 1990; Appadurai 1996; Puar 2007].

Opening a space for discussing the so-called "mandate of masculinity" [Segato 2016] –a symbolic and material device that promises access to power, social legitimacy, and a form of normality, provided that the subject adheres to a socially recognized model of virility– means creating the conditions for the recognition of other 'narratable subjects' and adopting a critical perspective according to which the multiple subjectivities that today seek to speak and narrate themselves are the result of historical and political processes, rather than natural destiny. Gender rights and policies adopted within legal systems therefore play a central role either in reproducing or dismantling the destiny inscribed in the biological sphere as a foundational requirement of personal identity, and in constructing/deconstructing the privilege of masculinity grounded in biological sex assigned at birth.

Within the Italian legal system, alongside the so-called rights to name and image, sexual identity guarantees the protection of the individual in both personal and social projection. The law equates sexual identity with biological sex, namely the anatomical, genetic, and physiological characteristics with which one is born, and coagulates the very notion of family around this 'natural order', while recognizing as exceptions both the procedure for the "rectification of sex assignment" (Law no. 164/1982) and civil unions between persons of the same sex (Law no. 76/2016). These normative

measures operate as devices of privilege: they establish criteria of recognition, access, and legitimacy that favor certain subjectivities at the expense of others. This is neither accidental nor marginal: the modern legal order has grounded its authority on the claim to express universal principles through the recognition of the 'natural' distinction between man and woman, founded upon the ascertainment of biological sex at birth. In other words, legal rules do not describe an objective pre-judicial reality but rather legitimize a social order through a binary choice.

From a diachronic perspective, it is possible to observe how this overlap between biological sex and gender has produced systemic advantages for some subjects while creating conditions of dependency or coercion for others. Those who benefit from binary categorization will have no interest in deconstructing, criticizing, or abandoning it, since rights, privileges, and social position are constructed precisely upon the category that should instead be called into question.

It may nevertheless be argued that the transformative capacity of law resides in the redefinition of its disciplinary boundaries through dialogue with other forms of knowledge. Such a capacity also manifests itself through a practice-based reconceptualization of legal knowledge, according to which interpretative practice itself produces new legal knowledge. This perspective makes a paradigm shift possible. The law is no longer viewed as a closed system based on the categorization of specific cases under broader, more abstract principles. Instead, it can be seen as an open framework for recognizing relationships and lived experiences. Within this framework, legal interpretation plays a generative role rather than a merely applicative one. Consequently, judges can recognize dissident subjectivities and non-binary identities. They may also recognize new forms of parenthood and polyfamilial relationships. This is in fact occurring through the valorization of a dual dimension, namely the relational and the intentional.

Practice-based studies and the recognition of practice as an autonomous epistemic dispositive

Practice-based studies investigate an epistemological paradigm in which practice itself –design practice as

well as legal practice, in the case under discussion– functions as the primary method of inquiry and knowledge production. Unlike traditional approaches, which establish an instrumental relationship between theory and practice, whereby practice merely applies pre-existing knowledge generated within theoretical domains, practice-based studies maintain that knowledge emerges from practice itself through the hybridization of making and critical reflection on making.

This approach is fundamentally characterized by the recognition of practice as an autonomous epistemic device capable of generating a form of knowledge that cannot be reduced to traditional propositional formulation. The knowledge produced is embodied, situated and tacit, and manifests itself through gesture, the materiality of artifacts and the design and operational choices undertaken. Practice-based studies and research are not exclusively textual; they necessarily include material artifacts, which are perhaps easier to identify within graphic representation, drawing and design cultures insofar as 'projective' and/or creative practice is constitutive of knowledge, and non-propositional forms of knowing are recognized as legitimate and relevant. Examples include design projects, prototypes, artistic practices, installations, performances, drawings and illustrations. In the legal domain, however, artifacts produced by legal practice, such as judgments, procedural acts, innovative legal reasoning, contracts and draft legislation, remain closely embedded within textuality. Nonetheless, they activate the space of implicit legal knowledge produced through practice [Morra, Pasa 2015; Pasa, Morra 2018]. Case law and evolutionary judicial interpretation, the argumentative construction of legal defenses, the drafting of legislative acts by parliamentary commissions, and the writing of contracts by legal professionals all generate legal knowledge that did not exist prior to the operational and practical moment. In particular, when a judge interprets a constitutional principle in relation to a specific case, when a lawyer develops a defense that reveals new interpretative possibilities, or when a parliamentary group proposes draft legislation that redefines established legal categories, they are creating knowledge through legal practice rather than simply applying abstract theories. So-called 'living law', or law as it is applied and interpreted in practice rather than formally codified, constitutes knowledge embodied within the

legal practices of epistemic communities. This knowledge cannot be fully expressed in abstract or textual form, but emerges from the interaction between normative texts, judicial interpretations and their application to specific cases. This knowledge is situated within forensic practices, courtrooms, registries and judicial decision-making processes. It is also embodied in the strategies employed by lawyers when presenting arguments. This knowledge cannot be entirely reduced to disembodied theoretical formulas. All of the aforementioned material artifacts constitute an integral part of the generated knowledge. They do not merely illustrate propositions formulated discursively; they convey forms of reflective and critical knowledge that would otherwise remain inaccessible through textual or verbal language alone.

The specificity of practice-based legal knowledge

As anticipated in the previous section, Law may also be situated within the practice-based paradigm, albeit with specific characteristics distinguishing it from disciplines associated with project cultures. A specific tension indeed characterizes practice-based law. Legal practice –unless one imagines radically revolutionary practices– cannot act *contra legem* and completely break with existing norms; rather, it must operate from within the existing legal order, using available interpretative resources to open them toward new possibilities –constitutional principles, general clauses, evolutionary interpretation of norms, and so forth. In other words, legal practitioners have limited autonomy, as they are constrained by formal procedures, hierarchies of legal sources, obligations to justify their actions, and, of course, the rule of law and the principle of legality. Nevertheless, legal practices can be a source of knowledge production inherent in legal action itself rather than merely the technical application of existing norms.

To provide some examples: whenever legal actors – and first and foremost the Constitutional Court, the Republic's guarantor institution whose principal aim is to verify the conformity of laws with the Constitution– draw attention to the “non-binary condition” as requiring legislative intervention and specify that “in the absence of legislative action, unequal treatment or

impairment of the psychophysical well-being of non-binary persons may occur” (Judgment no. 143/2024); whenever the Constitutional Court declares unconstitutional a norm discriminating on the basis of ‘sexual orientation’ –as has occurred regarding parenthood (Judgment no. 221/2019), adoption (Judgment no. 33/2021), pensions and social security rights (Judgment no. 91/2026), or the recognition of children born abroad through assisted reproductive technology (Judgment no. 68/2025); whenever lower courts recognize the right of trans persons to gender affirmation; or whenever they apply principles of due process and equal protection to cases of intersectional discrimination– in all such cases judicial practice produces knowledge that directly affects the protection of individual rights.

In summary, law functions as an ‘institutional synapse’ when it mediates between normative data and social transformations, producing knowledge that connects abstract norms to embodied subjectivities. This mediation is not a mechanical application but the production of legal knowledge capable of recognizing the materiality of experiences of discrimination and the necessity of transforming legal categories in order to accommodate them [Rodotà 2006; 2012]. It is upon this epistemological reconceptualization of the spaces and temporalities of the juridical domain –as an immanent practice of knowledge production in which theory does not stand above practice, but emerges with and through it– that the deconstruction of privilege and the recognition of so-called “discarded subjectivities” [Ciammaichella, Catinella 2025] may be grounded. It is here that the languages of law and drawing may expand the space of inclusion through recognition of the multiplicity of embodied subjectivities.

Drawing within the space of inclusion: embodied identities, bodies, and discarded subjectivities

From an external perspective with respect to the field of Drawing, it may be observed that it can contribute decisively to the contemporary transdisciplinary debate surrounding gender issues, stimulating processes of social inclusion able to accommodate “discarded subjectivities” [Ciammaichella, Farroni 2022]. In a context in which the body is subjected to judgment,

control, and marginalization, drawing emerges not merely as a technical instrument of representation, but as an ethical-political device capable of recognizing and valorizing difference.

Skin color, bodily forms, age, ability, or clothing become within dominant social systems criteria of distinction and inequality, producing hierarchies that assign privilege to certain bodies while relegating others to the peripheries of invisibility. To speak of the body therefore means recognizing the discriminatory power of gazes and systems that define it as other, inferior, or different, while identifying in drawing and graphic representation an instrument of counter-narration capable of restoring dignity and visibility to marginalized subjectivities.

Inclusion necessarily passes through the recognition of the body as a subject of rights, experiences, and sensitivities. Any inclusive policy or reform project cannot dispense with listening to embodied subjectivities—their differences, needs, and experiences—to construct communities that do not erase diversity but transform it into a resource. From this perspective, Drawing is a practice of consciously 'giving form' to information which, recalling the Latin etymology of *informatio*, does not merely document reality but actively participates in constructing new imaginaries [Ciammaichella, Catinella 2025].

This value-oriented approach radically departs from a neutral or purely aesthetic conception of representation, affirming instead the ethical responsibility of Drawing in shaping the conditions of social intelligibility of embodied identities. Gender stereotypes are not representational errors to be corrected through more accurate images, but symbolic structures producing material effects of exclusion and discrimination. Deconstructing them requires a process of 'informing' the image that does not merely replace one stereotype with another, but destabilizes the binary categories upon which gender normativity itself is founded. In this process, Drawing may function as a device of deconstruction, revealing the historical and cultural contingency of gender categories [Pasa 2026] and opening space for subjectivities irreducible to the male/female binary. Therefore, 'to inform' an image means to consciously and responsibly attribute meaning to it. Within the contemporary context, characterized by global flows, migrations, and transformations

of subjectivity, the theme of the clothed body and practices of dress assumes particular significance. Digital nomadism and clothing practices for traveling subjectivities [Ciammaichella 2025] sheds light on the interplay between clothing practices and the evolving identities of traveling individuals. It reveals how the 'clothed body' becomes a space where identity is negotiated, where the ways in which we represent ourselves become intertwined with mobility, transition, and self-transformation. Traveling subjectivities are not merely bearers of garments; they act through clothing as a device of self-narration and of relating to different worlds. The theme of the measure/dismeasure of the clothed body [Ciammaichella 2024] opens up a crucial reflection on the relationships between rule, excess, and disproportion in bodily representation. Fashion, often accused of imposing restrictive normative standards, is here reread as a field of antinomic tension in which measure and excess coexist and contest the space of representation. The clothed body is neither fully regulated nor fully unregulated; it is a battleground where norms that seek to define it clash with subjectivities that resist being reduced to parameters. From this perspective, drawing can serve as a tool for deconstructing stereotypes by demonstrating that disproportion is not an imperfection to be corrected, but rather an existential possibility that should be recognized. The investigation into 'drawn skins' and the indelible decorations of the body [Ciammaichella, Farroni 2022] likewise demonstrates how Drawing operates upon the bodily surface not as superficial application, but as a practice of identity inscription that leaves permanent traces. Tattoos, scarifications, and other bodily practices are interpreted as graphic languages interrogating the boundaries between nature and culture, biological datum and symbolic construction. These practices demonstrate that the body is not a pre-existing datum prior to representation, but is itself the product of practices of Drawing that model, decorate, and render it visible. Recognizing the inclusive value of these practices means accepting that marginalized subjectivities are not deviant with respect to the "norm," but bearers of alternative forms of bodily knowledge that Drawing may valorize. The analysis of identity representations within the design universe of Lee Alexander McQueen [Ciammaichella, Pasa 2025] demonstrates how

drawing in fashion can render visible non-conforming subjectivities while reflecting upon the non-existence of a universal body and of a 'natural' femininity from a trans-species perspective [Muñoz 1999]. Within his creative process –from sketch to runway– the fashion project becomes an instrument capable of giving form to what often remains marginal or unspeakable. McQueen's collections, fashion shows, and sartorial objects are not merely commercial products, but critical devices interrogating representations of the body, vulnerability, violence, and beauty: gender emerges as a cultural and performative construction open to continuous reinterpretation [Butler 1990; 1993]. Particularly emblematic is the collection *Plato's Atlantis* (2010), which imagines a post-biological future characterized by hybridization between human and non-human, natural and artificial [Haraway 1991]. Technical drawing and 3D modeling do not reproduce dominant aesthetic canons but rather explore embodied identities. By employing grotesque imagery, parody and the uncanny, McQueen celebrates the diversity of gender and identity, transforming clothing into a form of self-expression and a platform for critical reflection. Like other contemporary creatives, from Iris van Herpen to *Matières Fécales*, McQueen demonstrates that drawing is not merely a technically refined design practice, but also a fundamental analytical tool for reinterpreting spaces, narratives, and identities [Davis 1992]. It is an epistemic practice that produces knowledge, giving form to worldviews and alternative ways of existing.

Another particularly relevant aspect of the contemporary debate on plural subjectivities is the question of the face and its representation in the age of artificial intelligence [Ciammaichella 2023]. *This Person Does Not Exist* explores the theories and practices surrounding the creation of an idealized face using algorithms. The investigation reveals how digital technology is reshaping the conditions for visual identity. Although AI-generated faces are not real, they are nevertheless perceived as such, producing concrete symbolic and affective effects. In this context, drawing must interrogate which faces are represented and excluded, and which aesthetic and identity norms are reinforced or destabilized through digital representations. Thus, the question 'Who exists?' posed within the transdisciplinary debate on identity and gender becomes a

political question concerning the social recognizability of subjectivities.

In conclusion, the value of practice-based studies lies in their ability to operate on the ethical-political level [Eagleton 1996]. They don't just reflect and document the world, but they actively shape it, making some viewpoints visible while others remain hidden or marginal.

Conclusions

The metaphor of social synapses offers an original interpretative key for understanding how the connections between practice-based studies, legal structures, and languages of representation may transform knowledge production and the construction of forms of knowing. In particular, drawing within fashion emerges as a projective practice capable of challenging the positivist claim that knowledge is disembodied, abstract, and universal, devoid of relational memory and detached from situated contexts. Here, drawing is not merely representation, but a critical device that produces knowledge. The body, in its needs and experiences, thus becomes the privileged site in which drawing may exercise an inclusive function, recognizing that identity is a relation and an ongoing narration rather than a neutral natural datum. Crucial in this regard is the awareness of the responsibility accompanying every projective practice of representation: for example, the conscious use of 3D modeling and generative Artificial Intelligence must be accompanied by reflection on the limitations and distortions these and other digital technologies may convey. Generative AI systems, in particular, incorporate the biases of their developers and training datasets, tend to reduce symbolic complexities to statistical data, and risk flattening differences into "average models". Consequently, a conscious use of such technologies requires responsible valorization of fragments of other forms of knowledge.

Legal practices –and judicial practice in particular– may function as 'institutional synapses' mediating between normative data and social transformations, deconstructing privilege, transforming diversity into a resource, and preventing the marginalization of 'discarded subjectivities' to imagine more inclusive

communities. The integration of practice-based studies and research may foster anti-discriminatory gender perspectives, anti-speciesism and non-ableist approaches. This could nurture an embodied and relational legal knowledge that recognizes the materiality of experiences of discrimination. It requires overcoming the separation between formal law and social reality, since legal norms always operate within specific contexts of power and their interpretation cannot be

abstracted from their material implications. Whether reconstructing in 3D the legacy of a visionary designer such as McQueen, mapping the complexity of bodies and faces through generative AI, or challenging binary categories within courtrooms, the objective remains the same: to open new spaces of inclusion while recognizing that even those who critique privilege are always implicated within networks of power that must be continuously interrogated.

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Women and the Railways: The History of the Uniform Design

Roberta Ena

Abstract

As part of a research project, in collaboration with the Fondazione FS Italiane, issues relating to the development of the visual identity of Ferrovie dello Stato (FS) are being addressed for the first time. Among the company's representative elements is the FS uniform, an expression of railway culture, whose design intertwines and connects stories and contexts of a cultural, social, fashion and corporate nature. Moving away from the military-style uniform, the early 1970s saw the launch of the 'new uniform' initiative, which introduced new styles, a new colour –powder blue– and marked the arrival of female railway workers. This contribution initiates an early reconstruction, from a historical, iconographic and design perspective, drawing on primary and unpublished sources, of the FS uniform project, highlighting its social and cultural function. It is a pivotal element in comprehending the spirit of the era, aiding in the delineation of a collective identity, not solely of the railway but of the nation as a whole, and unveiling a past that remains unfinished to the present day, yet serves as a compass for the future.

Keywords: Ferrovie dello Stato, uniform design, project, female personnel, corporation.

Introduction

The history of the Italian railway network, which originated in the 1830s, has played a decisive role in the country's cultural, social and economic transformation. Following its nationalisation in 1905, the three primary networks –the Adriatic, Mediterranean and Sicilian networks– were consolidated into a unified system. The original autonomous administration established its image through a variety of tools relating to architecture, product design and visual communication. Corporate identity is manifested through its image, which is the result of various elements that are often difficult to manage and control. These elements include external and internal opinions, all messages issued, and all actions taken [Anceschi et al. 1993]. A corporation is configured, in the

words of designers Frederick Henri Kay Henrion and Alan Parkin, as an “artificial person” [Henrion, Parkin 1967, p. 7], endowed with a personality and character capable of generating a reputation. The visual heritage of Ferrovie dello Stato (FS) has played a significant role in shaping the company's identity and, consequently, the national identity of Italy, due to its pervasive presence throughout the country.

The historiography of visual elements has not yet been addressed in a systematic and comprehensive manner [1]. The creation of an image is the result of the work of technical departments, a network of specialists, and anonymous contributors within a highly unified context, in which the individual's contribution was subsumed

by the collective endeavour. Historical reconstruction therefore requires a multidisciplinary approach, attentive to the various crafts, and an investigation contextualised in cultural, social, economic and political terms, which allows us to outline what the art historian George Kubler defines as the 'history of things', meaning "to reunite ideas and objects under the rubric of 'visual forms': the term includes both artifacts and works of art, both replicas and unique examples, both tools and expressions-in short all materials worked by human hands under the guidance of connected ideas developed in temporal sequence. From all these things a shape in time emerges. A visible portrait of the collective identity, whether tribe, class, or nation, comes into being" [Kubler 1976, p. 17]. The uniform, a defining element of an organisation's identity, assumes varied roles and meanings. It serves not only as a representation of the company, but also as a delineator of employment roles and internal hierarchies. Drawing on a range of primary and unpublished sources, this research undertakes a historiographical and iconographical reconstruction of the design of the railway uniform. The study explores how the uniform design touched upon social issues, constituted an early element of gender equality within a traditionally male-dominated context, and was shaped by the evolution of clothing production, triggering a synapse of novel connections yet to be explored.

The uniform as a symbol of identity at the origins of ready-to-wear clothing

Clothing has always held social significance, serving both as a means of individual self-promotion and as a tool of control employed by public and private organisations [Mora 2004, p.93]. Fashion, as a "social phenomenon consisting in the establishment [...] of aesthetic and behavioural models, and in their spread as groups, large or small, conform to them, for whom such models constitute, at the same time, an element of internal cohesion and of distinguishability from other groups" [2], plays a prominent role in reflections on "the concept of identity, personifying it in the features of an imagined body, desired and therefore designed" [Ciammaichella 2019, p.1139].

The uniform has historically demonstrated its communicative power, defining values, order and hierarchy, for example in the military sphere; as a tool of identification and

belonging, this is the case of the fascist squads' uniform, which involved children and young people, later including the *Piccole* and *Giovani Italiane*, for whom the Opera Nazionale Balilla (ONB) adopted the military model as an educational formula [Lupano, Vaccari 2009, p. 200].

The origins of ready-to-wear clothing, understood as clothing that is ready to wear, as opposed to made-to-measure, bespoke and handcrafted garments, can be traced back to the 13th century, even before the advent of the first sewing machines between the late 18th and early 19th centuries. The production of military, ecclesiastical, prison and school uniforms led to the spread of ready-made garments, particularly in the 18th century across the European and Italian markets. This development required the organisation of workshops and labour for 'mass' production, and became a testing ground for standardisation within a sizing system [Paris 2006, pp. 25-27].

The Italian ready-to-wear clothing industry first began to develop in the 1870s, with Milan and Turin serving as its driving forces for economic and social reasons [Paris 2006, p. 42].

The foundations for this industrial transformation and the development of mass-produced clothing in the post-war period can be traced back to the interwar years [Paris 2006, p. 44; Frisa, Monti, Tonchi, 2018, p. 246], thanks to companies such as Caesar in Turin (1934), Tescosa (1937), Abital (1938) and, even earlier in 1932, the launch of the Facis (*Fabbrica abiti confezionati in serie*), dedicated to the mass production of clothing by the Turin-based Gruppo Finanziario Tessile (GFT, 1930), which arose from the merger of the Biella-based Lanificio Rivetti with the raincoat manufacturer Donato Levi & Figli (1884), which produced men's suits and workwear.

In 1954, the Rivetti family divested their shares in the old wool mills in order to invest in full ownership of the Group, thereby making a decisive contribution to the development of ready-to-wear clothing in Italy. A seminal innovation was the 'size revolution'. The system functioned as a multiplier, commencing from three heights –short, regular, tall– and five body types –slim, normal, medium-strong, strong, pot-bellied– and developing into a total of forty sizes, thereby establishing the '120-size system' [3]. These were not theoretical measurements, but the result of the company's first anthropometric studies carried out on a sample of 25,000 customers across the country [Paris 2006, p. 28].

The innovation introduced by GFT, which rather than moving towards greater standardisation was characterised

by a proliferation of models, was well suited to meeting the needs of the Ferrovie dello Stato, with a workforce of at least seventy thousand railway workers for whom the service uniform was compulsory.

The uniform in the railway sector

As in the military context, the railway uniform signifies status, both externally and internally, by identifying the ranks and duties of personnel within a rigid hierarchical organisation.

In Italy, the garment that characterised the uniform, from the Naples-Portici line (1839) to the Second World War, was the frock coat, the *stiffelius*, which particularly distinguished the figure of the station master, with its double-breasted cut, black silk lapels and gold-embroidered monograms on the collar, conferring upon the wearer a solemn and austere air.

Following the nationalisation of the railways in 1905, new Uniform Regulations were drawn up in 1907, which marked the triumph of black and iron-grey. The presence of colour was indicated by the oval patch on the cap bearing the FS monogram, which served to identify the department to which the wearer belonged: green for

the Offices department, black for the *Movimento* department, yellow for the *Trazione* department and crimson for the *Lavori* department. The stationmaster's red cap was a distinctive and iconic feature, adopted in the second half of the nineteenth century by the Union of German Railways and later adopted by the Adriatic Railway Network [Pocaterra 1989].

The hat, an item which, being less expensive than jackets and overcoats, has historically served to signal social status whilst blurring and eroding traditional class boundaries [Mora 2004, p. 110], was adorned with emblems and badges, making it the most communicative element of the uniform.

During the 1950s, the adoption of tall caps adorned with braids to denote rank and, by extension, officer authority was superseded by styles and badges that drew inspiration from those worn by the army. In the subsequent decade, with the nationwide development of industrially manufactured ready-to-wear clothing that had commenced between the two world wars, discourse emerged on the possibility of “equipping staff with ready-made uniforms” [Ministero dei Trasporti e dell’Aviazione Civile. *Ferrovie dello Stato* 1967, 2, p. 21], coinciding with a transformation within the railway sector: the entry of female staff.

Fig. 1. Uniform for female personnel in 1968. Biblioteca della Fondazione FS Italiane (Ministero dei Trasporti e dell'Aviazione Civile. Ferrovie dello Stato 1968, pp. 995-1008-1010).



Women in the railways and the first uniform

Women appeared among the ranks of railway workers as 'temporary staff'—a category not provided for in the Staff Regulations— or as 'contract workers' in the offices. Women's work was reduced to filling the gaps created by the war [Buzzoli 1973, p. 4]. Every form of employment was designed to thwart any possible future legal claims. Women, in the overused image of the angel of the hearth, were left out in the cold in the immediate post-war period as railway workers returned from the front, but began to gain some recognition in the second post-war period. First and foremost, they appeared in law with Decree-Law No. 667 of 1947, which established the permanent employment of 'contract workers'. However, the railway feared the possibility of committing to a stable employment relationship with female staff, employing them on a piecework basis as typists from outside the company.

With the approval of the new legal status of FS employees (Law No. 425 of 1958), women were granted access to public competitive examinations, but only for clerical and executive roles within the offices. Following Law No. 66 of 1963, which put an end to restrictions on positions and roles, including in the judiciary, the FS adapted by allowing access to management careers and operational roles, leading in 1967

(Law No. 668 of 1967) to the recruitment of women into the roles of station manager and station master. Provisions were adopted to facilitate the role of a figure whose human capital was no longer automatically assumed to be devoted to domestic duties, leading to some social gains, albeit far from the actual equality of the two sexes, through the introduction of *crèches* or paid maternity leave.

However, the path was rife with difficulties, particularly due to the prevailing view that women were, without justification, considered to be particularly emotional and, consequently, less responsive and physically inferior to men [Buzzoli 1973]. In any case, in 1973, out of a total workforce of over 213,000 railway workers, the number of female staff was less than 6,000 [Ufficio Relazioni Aziendali FS 1973, p.96; Buzzoli 1973, p.5]. Female personnel were provided with their first uniform under the 1968 Uniform Dress Regulations. The design, as stated in the minutes of the Board of Directors (BoD) meeting of 18 January 1966, "was chosen after consulting other major organisations (the Ministry of the Interior and Alitalia) which employ female staff required to wear a uniform" [Ministero dei Trasporti e dell'Aviazione Civile. Ferrovie dello Stato 1966, 2, p. 64].

The uniform for female station masters involved a single-breasted jacket made of heavy dark blue or light grey fabric, with two lower side pockets and metal FS

Fig. 2. Uniform for female personnel in 1972. Biblioteca della Fondazione FS Italiane (Ministero dei Trasporti e dell'Aviazione Civile. Ferrovie dello Stato 1972, panels 1/F, 2/F, 3/F, 4/F).



monograms on the lapel, and a skirt of the same material as the jacket, no longer than knee-length, worn with tan tights and flat shoes with a low heel. The outfit was completed by a double-breasted dark blue cloth overcoat and the same soft cap worn by male staff (fig. 1). In the 1960s, against a backdrop of general modernisation of the network following post-war reconstruction, first with a five-year plan in 1958, then with a ten-year plan in 1962 [Maggi 2003, p. 222], a renewal was also initiated in terms of image, redesigning one of the company's most representative elements in its relationship with the public: the railway uniform, the design of which incorporated recent changes in staffing.

The design of the new uniform and the GFT system

In 1971, an article published in the company magazine *Voci della rotaia* announced the launch of the 'new uniform' initiative, which would introduce the company's new style across the network [Zanev 1971, p. 6]. The following stipulation is made in Resolution No. 23 of 8 June 1971: "The new uniforms, which have already been manufactured, are supplied to eligible staff in accordance with the Uniform Dress Regulations, at the Company's full expense. This provision applies to the following new types of garments or items of clothing: caps, in both winter and summer versions; uniforms (consisting of a jacket and two pairs of trousers), with badge, or trousers only, in both winter and summer versions; coats complete with badge; uniforms (consisting of a jacket and two skirts), coats, complete with badge, and hats for female personnel" [Ministero dei Trasporti e dell'Aviazione Civile. Ferrovie dello Stato 1971, p. 677].

This was a revolution in many respects: in addition to the adoption of a uniform designed specifically for women, a novel system of management, production and supply was implemented, encompassing garment manufacturers throughout the nation.

The FS uniform, as well as enabling staff to carry out their varied duties, was intended to represent the company in its dealings with the public, whilst also helping to foster a sense of belonging to the close-knit community of railway workers, distinct from other uniformed professions. In the era of iron-grey, a new colour emerged: powder blue. This shade, derived from the traditional blue tint of the paper used to wrap precious items such as sugar, had already appeared in the national transport sector. Specifically, it had been used in

the uniforms of Alitalia hostesses from 1964 to 1966. These uniforms were designed by Delia Biagiotti [Falessi, Lazzeri 2000, pp. 31, 32].

The fabric for the new uniforms, manufactured by GFT, was produced at the Marlane factories in Maratea, in different colours and weights for the summer and winter versions. The men's uniforms were characterised by a single-breasted jacket, featuring two horizontal front pockets and a breast pocket, above which was sewn a badge featuring the 'television' logo, which had appeared on rolling stock and in print media towards the end of the 1960s, creating a cohesive visual identity. For the first time, the emblem became non-removable, a requirement arising from the need for the uniform to be worn only whilst on duty and to prevent the frequent occurrence of officers forgetting to reattach it [4]. The trousers had two side pockets, two back pockets and a watch pocket, without a cuff for safety reasons.

The uniform was completed by a coat produced by the Arezzo-based firm Lebole and a cap made from the same fabric as the uniform, except for those worn by the station master, which were red. The women's uniform was initially provided free of charge, like the men's, and consisted of the uniform – a double-breasted suit jacket in the winter version and a single-breasted one in the summer version, two skirts, two light blue blouses, a burgundy tie and a coat complete with the FS emblem.

Resolution No. 1 of 18 January 1972 introduced the trouser skirt and reinstated the practice of staff having their own uniforms made to measure, with the company providing fabric, badges and accessories free of charge. The attached table to the resolution contained the designs and descriptions of the style (fig. 2). Train crew were issued with a balloon hat, whilst station crew were issued with a cap, as were male staff, in red or powder blue depending on their role, with corresponding emblems and badges indicating rank: from the highest in gold for the position of superintendent and senior, down to the lowest for auxiliary staff with a red badge (fig. 3).

In 1974, in a letter published in *Voci della rotaia*, a group of female train drivers from the Deposito Personale Viaggiante of Alessandria [Ferraris 1974], highlighted the unsuitability of skirts and skirt-trouser for their duties, which involved frequently getting on and off locomotives in all weather conditions, calling for the introduction of trousers, which took place in 1975 under Resolution No. 2 of 21 May. Further changes were formalised in the 1985

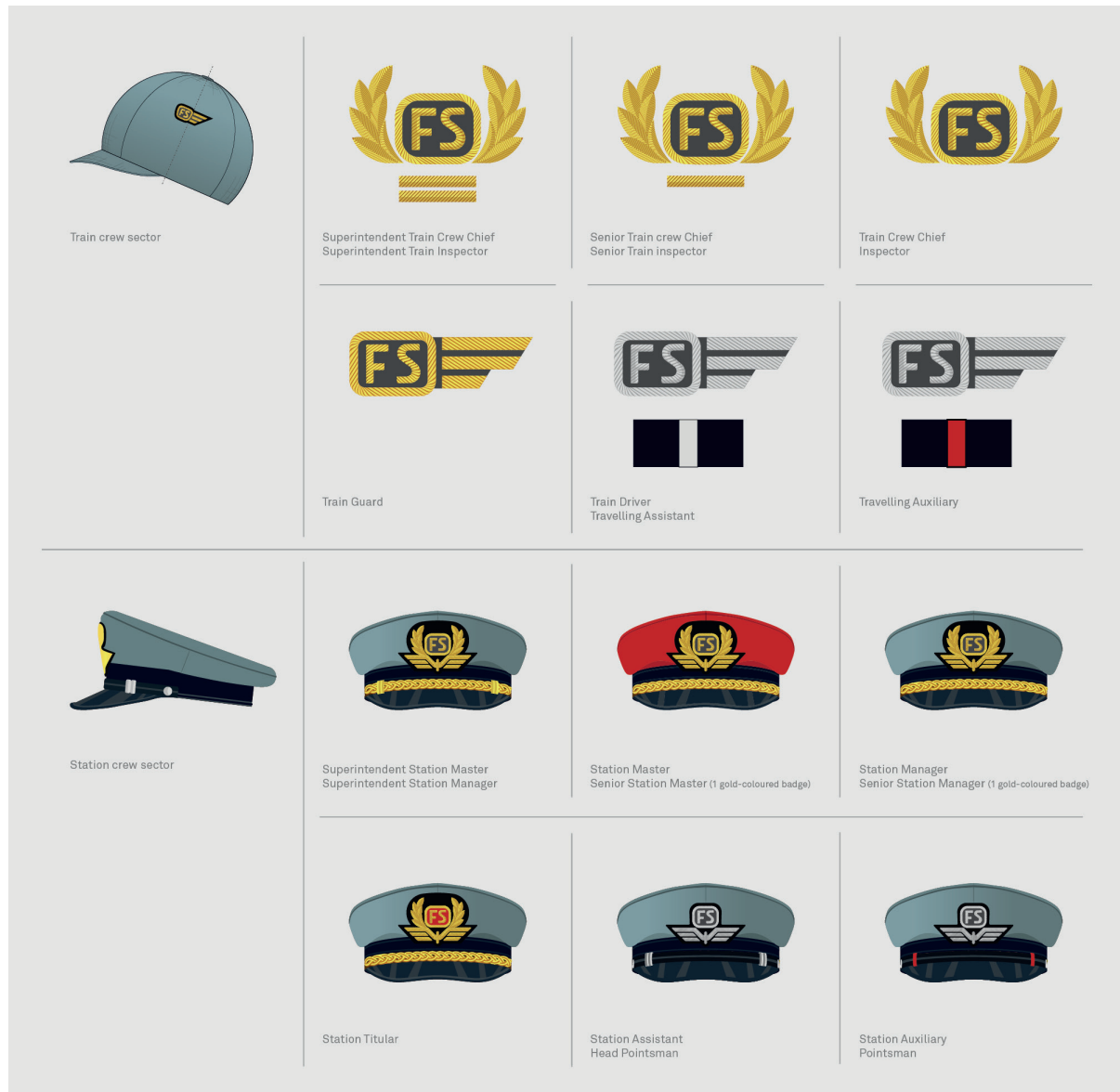


Fig. 3. Overview of the types of hats with badges and railway caps worn by female personnel, based on the 1985 Uniform Regulations (graphic elaboration by the author).



Fig. 4. GFT, sketches of the women's uniform sourced from the *Relazione tecnica per fornitura di vestiario per il personale di FS*, 1979, pp. 167-172 (ASTo, Corte, Archivi industriali e di società, Gruppo Finanziario Tessile (GFT), bundle 1721, fascicolo 2).

Fig. 5. GFT, photographic documentation of the models proposed in the *Relazione tecnica per fornitura di vestiario per il personale di FS*, 1979, pp. 195-197 (ASTo, Corte, Archivi industriali e di società, Gruppo Finanziario Tessile (GFT), bundle 1721, fascicolo 2).



Uniform Regulations, which provided for a single-breasted suit jacket with two pockets and three variations: skirt, skirt-trousers and trousers. The visual appearance of these variations can be observed in the sketches and photographs included in the technical report drawn up by the GFT for the new contract in 1979 (figs. 4, 5).

The requirements to be met concerned some 70,000 railway workers with specific anthropometric measurements that called for a system halfway between bespoke tailoring and a mechanised, industrial approach: one that would reduce production times, cope with manufacturing for a large workforce, and guarantee quality in both cut and fabrics.

A document drawn up by GFT, for the design of a new uniform for the Ministry of Posts and Telecommunications [5], describes the supply project for the Ferrovie dello Stato, which made use of a network of, mobile and fixed, Centri Rilevamento Taglie (CRT) across the country. Each employee would go to their local CRT with special forms for taking

measurements, which were sent to GFT for the production of the clothing. The garments were then dispatched to the CRT, which invited the FS employee for a fitting to make any necessary alterations. Following the establishment of the joint-stock company in 1992, requirements changed, leading both to a reduction in the use of badges and visual symbols, and to the discontinuation of the powder blue uniforms in anticipation of the new corporate identity designed by the London-based firm Xmpr International.

Conclusion

The image of a railway administration is the result of coordination between departments, staff, and partnerships with external companies, drawing on expertise across various disciplines: architecture, design, engineering, fashion, and much more. Every element of

Ferrovie dello Stato's visual identity is the outcome of a network of knowledge and expertise closely linked to the historical, social, and economic context in which it is situated. The evolution of the uniform design intersects with a multitude of stories, recording collective identities and social and cultural changes, and triggering a network of new connections to be further explored and developed, with the aim of gaining a deeper historical awareness that can serve as a guiding and mentoring portrait for the future.

This research proposes to undertake a historiographical and iconographical reconstruction of the design of the FS uniform, which served as an indispensable tool, a standardised element and a guide for its manufacture –first by tailors and later on an industrial scale– and which, in the 1960s and 1970s, marked the entry of female personnel, revealing latent social identities undergoing slow

transformation and the acquisition of rights within a rigid and hostile context such as that of the railways. This contribution is part of a broader framework of research into the history of the visual identity design of the Ferrovie dello Stato, a history which is yet to be written and explored in depth. A comprehensive design process requiring an approach attentive to diverse expertise, utilising the specific tools of historical research based on sources [Bassi 2018, p. 120] which, in a corporate context spread across the territory, are scattered and heterogeneous: artefacts, information reported in company magazines, Official Bulletins, numerous regulations, minutes of Board of Directors' meetings and much more.

The interpretation of the 'form of time' that characterises FS reflects social, cultural and economic contexts, offering a snapshot that helps to reveal a portrait of collective identity, not only of the railway but also of the country.

Acknowledgements

Special thanks go to the Fondazione FS Italiane for its help in identifying new avenues of research for locating sources, and to Franco Lucia, curator

of the Museo Ferroviario di Torino Porta Nuova, for his extensive experience and historical knowledge of the Ferrovie dello Stato.

Notes

[1] An initial overview of visual communication tools is provided in the volume *Rassegna. Ferrovie dello Stato 1900/1940* [Anselmi, 1980]

[2] Definition taken from the Treccani Online Encyclopaedic Dictionary. <<https://www.treccani.it/vocabolario/moda/>> (accessed 26 April 2026).

[3] ASTo, *Archivi industriali e di società Gruppo Finanziario Tessile (GFT)*,

bundle 1518, fasc. 1.

[4] As recorded in the minutes of the Board of Directors' 18th meeting of 1969 and in the technical report drawn up by the GFT in 1979 [ASTo, bundle 1721, fasc. 2].

[5] ASTo, *Archivi industriali e di società Gruppo Finanziario Tessile (GFT)*, bundle 1715, fasc. 1.

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Geological Drawing and the Artistic (Re)interpretation of Rurality During the Spanish Avant-garde

Eugenio Santos-Aranaz

Abstract

The aim of this research is to analyse the presence of the geological imagery in the context of the Spanish artistic avant-garde, and its role in the aesthetic-ideological (re)interpretation of the rural Castilian landscape. Specifically, we refer to the creative process led by the so-called Vallecas School (1927-1933) and its two most prominent artists: Alberto Sánchez and Benjamín Palencia. To this end, an exhaustive review has been carried out of all geological publications from the period (1912-1936) in order to document the visual relationships between scientific drawings and those produced by both artists; in some cases, for the first time in the study of this phenomenon of convergence between scientific and aesthetic landscape. We shall also examine how this synapse was not limited to the visual representation of the rural nature; for, in tune with the political climate of the time, it also involved a political commitment to a shared area of action (the rural territory) which geologists and artists from Vallecas School –each from their respective disciplines– perceived as a symbolic space for an alternative form of social progress through rural nature, dissident to the dominant urban-technological-bourgeois modernity.

Keywords: Vallecas School, geology, territory, landscape, rural.

Introduction

During the Spanish New Art period (1914-1936), knowledge networks emerged between scientific and artistic practice [Sainz, Pérez, Osma 2025], which explains the development of a shared imagery in the process of aesthetic interpretation of rurality conducted by the *Vallecas School*. This new, idiosyncratic avant-garde poetics emerged within the context of Spanish *Surrealism*; and, between 1927 and 1933, brought together various creators around a common objective that Eugenio Carmona [Carmona 2001, p. 128] defined as: “the encounter [...] with nature as an artistic theme and with the capture of the telluric as a link between the need to recover the vernacular and the understanding of the modern”. In this creative process, the *Vallecas* poetics were defined in part by the art-science synapse [1], revolving around two

areas of interest: the earth (geology) and the primitive (paleontology/archaeology) [García, Gil 2025]; as argued by Carmen Pena in her studies on landscape and territory [Pena 2010; Pena 2012] and by Josefina Alix in relation to Spanish *Surrealism* [Alix, García 1994]. In any case, the interest in the earth and the telluric explains the influence that geology had on the creators of this artistic movement –especially its leaders [2]: the sculptor Alberto Sánchez (known as ‘Alberto’, Toledo 1895-1962) and Benjamín Palencia (1894-1980)– as a theoretical and visual tool for interpreting the rural landscape and the Castilian territory of their childhood (fig. 1): from Vallecas (a village situated 9 km south-east of Madrid) to Toledo, passing through Guadalajara, Valdemoro and Alcalá de Henares. As a result, there was a convergence

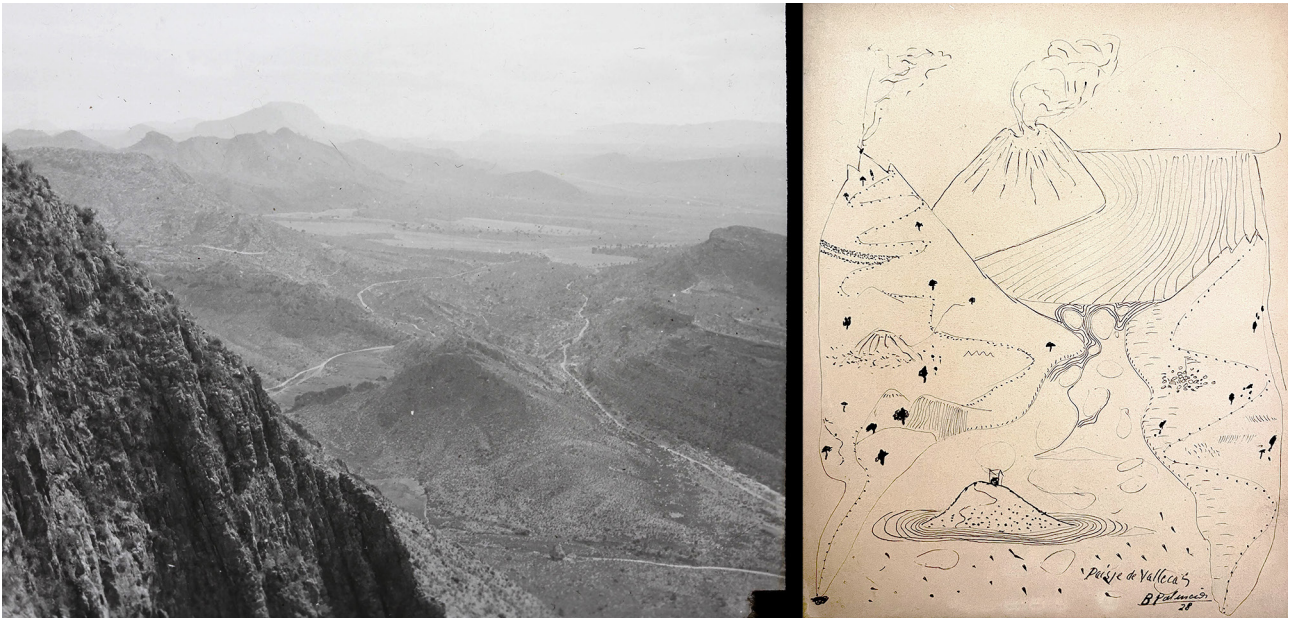


Fig. 1. Left, E. Hernández-Pacheco, Agramón, c. 1926, Patrimonio Digital Complutense archive. Right, B. Palencia, Vallecas Landscape, 1928, [Esteban 2007, p. 67].

between the scientific and aesthetic landscapes—a phenomenon very common in the work of poets and artists of the so-called *Generation of '27* [Jiménez-Alcalá 2022]—; which is revealed through the numerous visual and formal connections we detect between the drawings dedicated to the study of the land by naturalists—such as Eduardo Hernández-Pacheco, Joaquín Gómez de Llarena, Hugo Obermaier, José Pérez de Barradas and Juan Dantín Cereceda, amongst others—and those produced by Alberto and Palencia (some of which have not survived to this day).

Influence of geological knowledge and imagery on the *Vallecas School*

These networks of shared knowledge and imagery emerged at a time when geology was experiencing a golden age in Spain [Martínez de Pisón 2000; Ortega 2001]. Between 23 and 31 May 1926—shortly before the *Vallecas School* began its work—the 14th

International Geological Congress was held in Madrid, which had a major social impact [Ayala-Carcedo et al. 2005]. Furthermore, the synthetic approach adopted by some Spanish naturalists during this period fostered a holistic view of the study of nature, in which “biogeographical, landscaping and anthropological aspects were integrated” [Casado 2002, p. 32]. All this was made possible by the process of scientific renewal and the knowledge network promoted in Spain by the *Junta para la Ampliación de Estudios* (J.A.E.) from 1907 onwards, under the auspices of the *Institución Libre de Enseñanza* (I.L.E.), a progressive, reformist and cosmopolitan educational project implemented in Spain between 1876 and 1939, following other European models. Both institutions, together with the work of the *Residencia de Estudiantes* and its promotion of “a fruitful dialogue between the arts and the sciences” [López-Ocón Cabrera 2008, p. 272], had a profound impact on how the creators of the time interpreted and represented reality.

Specifically, the *Vallecas School* proposed a surrealist drift that prompted its artists –as Alberto proclaimed in the second issue of *ARTE* magazine [Sánchez 1933]– to leave the city and rediscover the countryside; questioning the hegemony of the technological imagery of urban-bourgeois modernity and embracing a different one: that of the popular. This creative drift –made possible by the paradigm shift brought about by the 1925 exhibition of the *Sociedad de Artistas Ibéricos* (S.A.I.) in the process of renewing Spanish art [Brihuega 1981]– allowed them to redefine the landscape imagery from a new conception of the sublime; for, as Jaime Brihuega notes [Brihuega 2001, p. 68], “what *Vallecas*’s poetics elevates to the marvellous is a miserable and fundamentally marginal ground”. A ground which, nevertheless, Spanish and international scientists recognised for its ancestral beauty, geological richness and even its significance in the development of Western civilisation. Indeed, following his attendance at the 1926 congress, the renowned American geologist Charles Keyes [Keyes 1926, p. 1] published an article in *The Pan-American Geologist* (August 1926) entitled *Geology in Spain*, in which he acknowledged that “To geologist Spain is almost hallowed ground. For upwards of fifty centuries, she is the chief supply of all those mineral products which make the advance of civilization possible”.

This kind of scientific discourse fostered a mythical conception of the Spanish ground and was embodied in drawings such as those produced by the prehistorian and palaeontologist Hugo Obermaier to illustrate the glaciations of the Peñalara massif (fig. 2, right) in his guidebook *Los glaciares cuaternarios de la Sierra de Guadarrama* [Obermaier, Carandell 1917], which he published together with the geologist Juan Carandell Pericay. These drawings, beyond their scientific value, captured the strange beauty and mystery of an evoked time and space –in keeping with Keyes’s vision and the geological photographs taken by E. Hernández-Pacheco (fig. 2, left)– and were significant for the conception of the *Vallecas* telluric and its not only physical but also spiritual understanding of the Castilian territory. Furthermore, in the drawings by Alberto and Palencia, various organic forms emerge from the ground and seem to respond to the artist’s whim. However, in these organic forms, such as those seen in Alberto’s 1931 work *Untitled* (fig. 3, right), we detect visual references to the scientific representation of nature’s erosion processes; such as those in *The enchanted city* (fig. 3, left), a geological drawing included in the *Resumen fisiográfico de la Península Ibérica* [Dantín 1912] by the geographer Juan Dantín Cereceda, which Alberto appears to have practically imitated. We also recognise these forms in Palencia’s drawings, such as in *Composition* (1930) (fig. 4, right). The artist

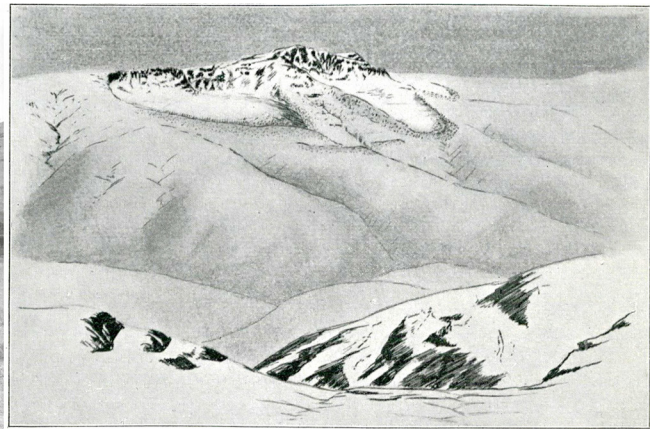
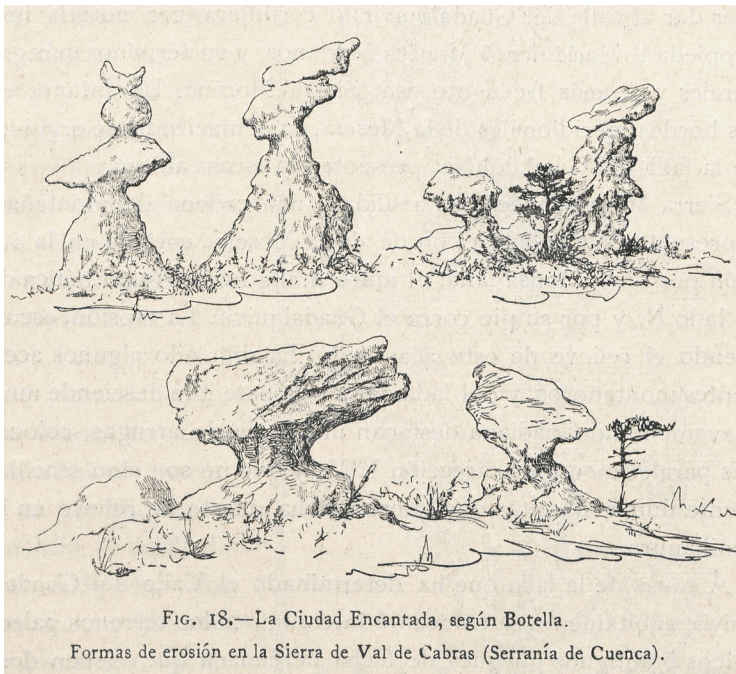


Fig. 2. Left, E. Hernández Pacheco, *Poblete*, c. 1926, Patrimonio Digital Complutense archive. Right, H. Obermaier, *Glaciation of the Peñalara massif*, 1917, [Obermaier, Carandell 1917, p. print 1].

composes the scene around a central element, a faceted lithic form, which stands out against the vast landscape like a totem emerging from the earth beneath a sky crowned by three celestial bodies, and which aesthetically recalls the surrealist cosmogonies of Max Ernst. In any case, its visual relationship with certain geological drawings of the period—including palaeontological ones—is striking; especially if we compare Palencia's drawing with the engravings that the archaeologist José Pérez de Barradas devoted to palaeolithic axes (fig. 4, left) in his guide *Estudios sobre el terreno cuaternario del Valle del Manzanares* [Pérez de Barradas 1926], which he presented at the 1926 congress. In this study, alongside geological issues, the author addressed the palaeontological analysis of the remains found in the field; establishing a synthetic corpus in the study of nature that the artists of the *Vallecas School* also adopted in their artistic experimentation with the territory and its landscapes.

Decades later when Alberto Sánchez [Sánchez 1971, p. 54] recalled the *Vallecas School* and his lack of knowledge about certain natural phenomena, he acknowledged that: "A German geologist explained to me the origin of those stones, formed over thousands of years" [3]. We therefore know that Alberto and Palencia gained access to all this scientific knowledge through conversations with naturalists and, possibly, as Josefina Alix [Alix, García 1994, p. 105] explains, by attending the lectures held regularly at the *Residencia de Estudiantes* in Madrid [4]. Furthermore, as we have seen so far, both artists drew inspiration from the geological imagery disseminated during those years in numerous publications—the vast majority published by the J.A.E. and some of which Palencia owned—; these included not only scientific guides and journals, such as the *Boletín del Instituto Geológico y Minero de España*, but also avant-garde magazines such as *Residencia* [5].

Fig. 3. Left, J. Dantín, *The enchanted city*, 1912, [Dantín 1912, p. 65]. Right, Alberto, *Untitled*, c. 1931, ABC journal archive.



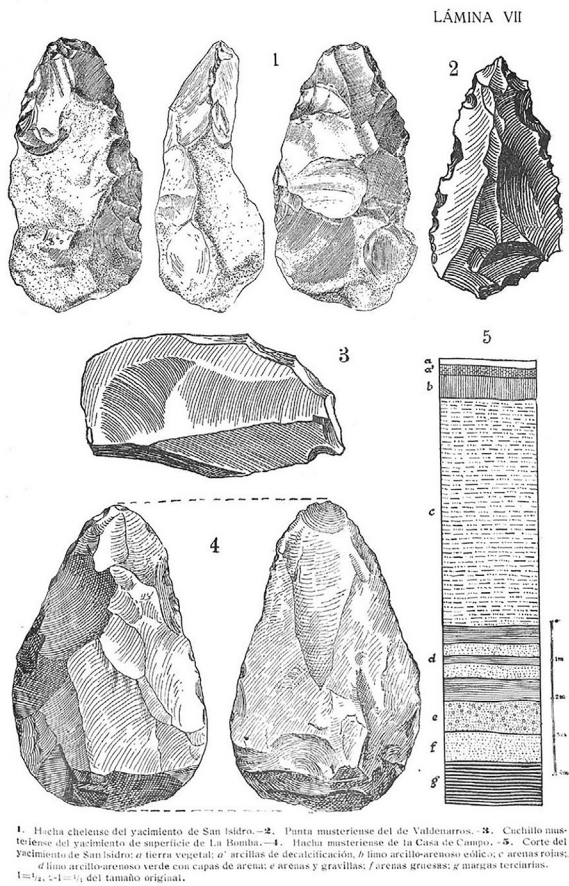


Fig. 4. Left, J. Pérez de Barradas, Chelense axe from the San Isidro site, 1926, [Pérez de Barradas 1926, p. 162, print VII]. Right, B. Palencia, Composition, c. 1930, Reina Sofía Museum (Madrid).

However, among all these publications, one stands out as key to understanding the poetics of the Vallecas School [Pena 2012]: the *Guía geológica de los alrededores de Toledo* [Gómez de Llarena 1923], published by the geologist Joaquín Gómez de Llarena, which forms part –like other essays cited in this article– of the series *Trabajos del Museo de Ciencias Naturales*, of which as many as 129 monographs were published between 1912 and 1939. The author devoted part of this work to the study of what he himself termed witness hills –to which Alberto referred on numerous occasions–; that is, “isolated elevations of the terrain, in the middle of a plain, which stand out from their surroundings” [I.G.N. 2025] and which provide important geological information.

The *Vallecas School* transformed these natural landforms into geodesic points within their poetics; among them, the witness hill known as Cerro Almodóvar or Cerro de Vallecas, near this town, stands out. This hill was symbolically chosen by Alberto and Palencia to encompass from it “a complete circle, a panorama of the earth, an image of its roundness”, and to lay upon it the foundations of a new poetics from which “the new vision of Spanish art was to emerge” [Sánchez 1971, p. 49]. Indeed, in some of Alberto’s landscapes, such as *Rural monument* from 1931 (fig. 5, below), we find visual evocations of these witness hills, whose forms recall the drawings that Gómez de Llarena dedicated to them in his 1923 guide (fig. 5, above). Despite the process of synthesis and figurative abstraction undertaken by Alberto, we recognise isolated reliefs on the flat terrain that refer directly to the concept of the witness hill described above. Furthermore, his graphic expression through concentric lines and dots –which gradually reduce their perimeter as they reach the summit and define strata– is directly related to the technique used by Gómez de Llarena in his representation of the geological cross-sections of these hills.

Rurality as a symbolic space for a dissident modernity

The (re)interpretation of rurality carried out by the *Vallecas School* was not merely aesthetic but also ideological; this can be understood within the context of the political polarisation in Spain at the time, following the collapse of modernity in 1929 and the proclamation of the Second Spanish Republic (1931-1939). Furthermore, currents of anarchist and communist thought emerged which

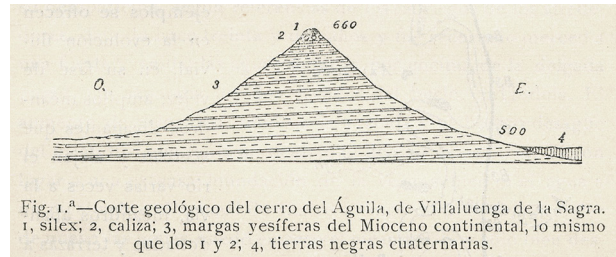


Fig. 1.ª—Corte geológico del cerro del Águila, de Villaluenga de la Sagra. 1, silix; 2, caliza; 3, margas yesíferas del Mioceno continental, lo mismo que los 1 y 2; 4, tierras negras cuaternarias.



Fig. 5. Above, J. Gómez de Llarena, Geological cross-section, 1926, [Gómez de Llarena 1926, p. 17]. Below, Alberto, Rural monument, c. 1931, ABC journal archive.

—drawing on the process of artistic renewal brought about by the 1925 S.A.I. Exhibition— altered the vision of the rurality and, by extension, its artistic representation through landscapes that elevated its physical and anthropological elements to the sublime [Pena 2012]. In this sense, Alberto and Palencia shared with geology their field of study, their aim of cultural and scientific modernisation of the country, and their commitment to the rural nature and its forms; for “in that cultural and political climate, those fields of earth and stones were symbols of freedom, a place of action, celebrated by the revolutionary spirit of the times” [Pena 2010, p. 530]. Furthermore, *Surrealism* played a key role in this process, since the surrealist *dérive* was not limited to the urban space—even though this was its natural context—as

André Breton [Breton 1969, p. 6] himself came to state under the famous phrase “*Lâchez tout... Partez sur les routes*” (Drop everything... Hit the road). In their drift through other spatial realities, the Surrealists challenged the bourgeois logic, rationalism and authoritarianism of the era; which, ultimately, is what Alberto and Palencia sought to do through their rejection of the city and their celebration of rural life [Alix, García 1994]; especially in the case of Alberto, who held communist ideals and was particularly conscious of his humble origins. With this aim in mind, both artists turned to the geological imagery, whose scope of action and representation of forms found in the rural landscape stimulated their creative imagination through processes of decontextualization and estrangement.

In this regard, Alberto and Palencia adopted the practice of a “vitalising materialism of the natural” which led to a convergence with geological representation; for, as Carmona [Carmona 1994, p. 132] points out, they did not wish “to speak of their souls through nature; on the contrary, they wanted nature to speak of itself through its ‘forms’”. A poetry of forms which they were able to appreciate thanks to their access, at the time, to geological

graphic references that revealed to them new modes of interpretation and aesthetic celebration of the rural landscape and its elements. In Gómez de Llarena’s 1916 drawing entitled *Peña de la Cuña* (fig. 6, left), the poetry present in the fragility of the encounter between the stones—united by chance after millennia of erosion—stands out. A poetry of geological and rural nature that could now be revealed through abstraction [Carmona 1994, p. 145], as in *Stones creating a landscape* (1930) (fig. 6, right). In this work, Palencia draws inspiration from lithic forms such as those seen in the geologist’s drawing, which are connected to one another by subtle touches. However, the artist goes further and subjects them to a process of abstraction through formal and chromatic rhythms which, in any case, reflect his Parisian training and surrealist intent.

Specifically, both artists rediscovered the landscape of their childhood on excursions undertaken alongside other artists, poets and young architects, following in the footsteps of geologists and emulating the approach adopted by the I.L.E.—and defended, in particular, by one of its founders, the educator Francisco Giner de los Ríos—as part of Spain’s cultural and scientific modernisation during that period. First-hand knowledge of nature was one of

Fig. 6. Left, J. Gómez de Llarena, *Peña de la cuña*, 1916, [Gómez de Llarena 1916, p. 33]. Right, B. Palencia, *Stones creating a landscape*, 1930, Reina Sofía Museum (Madrid).

de la meseta.—Hasta ahora se venía figu-
en los mapas geológicos, toda la extensa

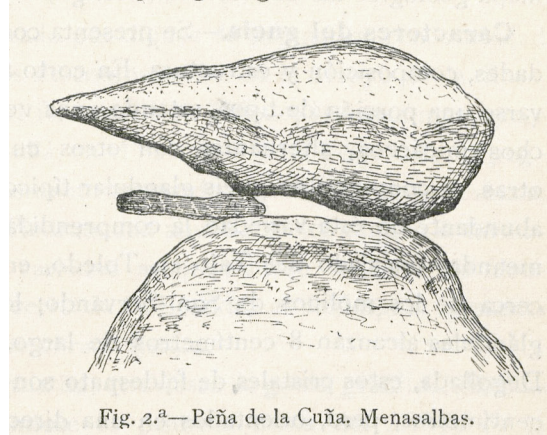


Fig. 2.^a—Peña de la Cuña. Menasalbas.





Fig. 7. Above, Alberto, stage designs for *Numancia* (1936) and *Fuenteovejuna* (1932), CERES. Below, E. Hernández-Pacheco, *La Pedriza*, c. 1926, Patrimonio Digital Complutense archive.

the cornerstones of the progressive reformist project promoted by the I.L.E. [Ortega Cantero 2015], in line with *Krausism*, with the aim of “carving paths of regeneration and progress into the depths of the spirit” through the organisation of “excursions” [Giner de los Ríos 1915, p. 370], which proved highly successful among the country’s scientific and cultural elites.

This is the case of the geologist and palaeontologist Eduardo Hernández-Pacheco, who, during his field trips, took photographs and produced drawings in which he blurred the boundary between the scientific and aesthetic landscape. We see it, for example, in *La Pedriza* from 1926 (fig. 7, below), a geological landscape that could pass for one of the sketches –despite the absence of watercolour and certain surrealist elements– that make up the series of landscapes Alberto produced for avant-garde stage designs during these years; as in *Fuenteovejuna* (1932) or *Numancia* (1936) (fig. 7, above), works from the Spanish Golden Age. In both cases, we observe an inert, desert-like, lunar landscape that evokes a sense of alienation. Alberto places us, like the geologist, at a geodesic point from which we see, from a bird’s-eye view, the vast territory through which the artist believed Spanish society and New Art should pass. A vast plain formed by meanders, hills and organic shapes –geological elements– which the artist creates through fine, agile lines that gradually reveal the serene softness and sinuosity of the Castilian landscape, with a great poetry that converges with the scientist’s vision.

During their artistic drift through the Castilian countryside, Alberto and Palencia also discovered marks imprinted on the earth caused by erosion and sedimentation or, quite simply, by ploughs or the tracks of animals and people. Both artists were drawn to the visual poetry of these geological and anthropological marks –silent traces of nature and the life it contains, of the suffering and earth’s processes– which they transformed into symbols of civilisation, progress and political commitment [Palencia 1932; Sánchez 1933]. They reproduced these marks in their works using dots, lines, curves and patterns (fig. 8, right) which, at a certain point, Alberto would lift from the ground –perhaps influenced by the sight of prints reproducing vertical geological cross-sections adapted to the format of scientific publications (fig. 8, left)– as a kind of politic proclamation through sculptures such as *The Spanish people have a path that leads to a star* (fig. 10). The sculpture was exhibited in front of the Spanish Republic

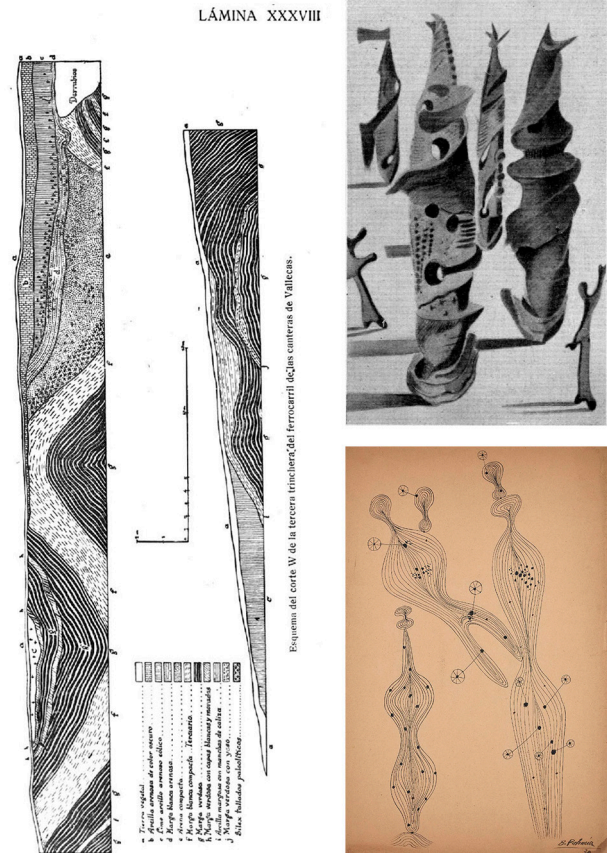


Fig. 8. Left, J. Pérez de Barradas, *Cross-section*, 1926, [Pérez de Barradas 1926, p. 224, print 38]. Right, Above, Alberto, *Drawing*, c. 1931, ABC journal archive. Below, B. Palencia, *Drawing*, 1930, Leandro Navarro art gallery (Madrid).



Fig. 9. J. Renau, *The fruit of the laborer's work is as sacred for everyone as the worker's wages*, 1937, Reina Sofia Museum (Madrid).

Pavilion at the 1937 *Paris World's Fair*, through which he "brings to life a popular and historical world" [Bozal 1986, p. 760] and reveals his commitment to the Republic and the agrarian way of life as the only path to progress in the face of the fascist threat.

We also see this political commitment reflected in Spanish geological practice from the early 20th century onwards, based on the processes of scientific and cultural modernisation promoted by the J.A.E. and the contributions of renowned international scientists [Solé 1966], such as the French geographer and anarchist Elisée Reclus, who studied the Spanish territory and advocated the practice of science as an instrument of social revolution. Decades later, geologists such as the aforementioned Gómez de Llarena and José Rojo Gómez, directly embraced this political commitment in the study and institutional organisation of geology in Spain, going so far as to disseminate particularly radical ideas on the subject amongst their colleagues and students [Durán 2022]; which ultimately reflect their support for the Republican reformist project, with the aim of promoting scientific and cultural renewal and, consequently, the modernisation of the country through their discipline.

Likewise, following the proclamation of the Second Spanish Republic, artists, poets and intellectuals urged their peers to adopt a clear political commitment in their works; however, Alberto and Palencia's ode to the Castilian countryside raised serious doubts on this point. Whilst publications such as *Nueva Cultura* –a communist-affiliated magazine founded, amongst others, by the artist Josep Renau– recognised "Alberto's ideological unity [...] in that mystical ruralism of the barren fields of Castile" [Renau, Carreño 1935, p. 11], they also urged him not to turn his back on the city and to embrace an art of clear ideological content, such as that practised by Renau himself in his posters and visions of the countryside (fig. 9). *Nueva Cultura* accused Alberto of excessive individualism which, consequently, served the interests of the bourgeoisie and hindered the conception of a truly revolutionary art. For, as the critic Manuel Abril [Abril 1931, p. 42] noted in the pages of the magazine *Blanco y Negro* regarding the landscapes by Alberto and Palencia exhibited at the Ateneo of Madrid in June 1931, "all are artistic forms, figurative language; [...] which the artist [...] constructs in accordance with his inner law". Consequently, as Adolfo Gómez Cedillo [Gómez Cedillo 1992, p. 142] explains, the "interpretation" of these landscapes "becomes more complex,

and their reception and popularity are declining, in an increasingly stifling and dogmatic social environment”, such as that experienced in Spain during those years. However, for Alberto, this purely aesthetic interpretation of his work was unfounded, since neither he nor Palencia “ever sought to explain the idiosyncrasies of an entire people or culture through the aesthetic constants inherent in that landscape” [Carmona 2001, p. 124]; on the contrary, they sought to transform it into a symbolic setting for a dissident and alternative form of modernity, in contrast to the bourgeois urban model and the traditional approach to Castilian landscape. In a letter addressed to the architect Luis Lacasa in 1958, Alberto recalled the supposed lack of commitment then attributed to his landscapes; which, for him, made no sense because, as the artist himself acknowledges: “it was my habit not to separate art from social life, and you know very well that all social life is inseparably linked to political life” [Sánchez 1975, p. 20]; as he sought to demonstrate in sculptural landscapes with a clear ideological message, such as the aforementioned *The Spanish people have a path that leads to a star* (fig. 10).

The aim of these artists, as well as that of the JAE's naturalists, was to build cultural and emotional bridges among “all the people of the earth” [Sánchez 1971, p. 56], through the rural nature and each of its elements, in a process that brought together research, education, political commitment, conservation and a love of nature. A goal which, as Alberto proclaimed [Sánchez 1971, p. 56], he expressed through a “revolutionary art, which seeks life” in “the clays, the sands and the quartz; the Alcalá's red ochre lands” [Sánchez 1933, p. 18]. An art that breaks with tradition and the dominant bourgeois discourses through the countryside, when Palencia [Palencia 1932, p. 13] states that “the furrow opened by the plough in the earth is, in my view, more plastic, more eternal and contains more poetry than anything the museums and academies can teach me”. Or, when the aforementioned José Royo, in his closing address at the 17th *International Geological Congress* in Moscow in 1937, states that for them, Spanish geologists and Republicans, “the ideological nature of the congress is as important as its scientific nature” [Julié 2014, p. 200].

The geologist's statement reveals the commitment of his scientific work to the principles of the Republic, and situates his sphere of political activity in the rural environment, just as Alberto did: “I wanted to create a revolutionary



Fig. 10. Alberto, *The Spanish people have a path that leads to a star* (Spanish Republic Pavilion), 1937, Reina Sofía Museum (Madrid).



Fig. 7. Above, Alberto, stage designs for *Numancia* (1936) and *Fuenteovejuna* (1932), CERES. Below, E. Hernández-Pacheco, *La Pedriza*, c. 1926, Patrimonio Digital Complutense archive.

art that would reflect a new social life, one that I did not see reflected in the art of previous historical periods. [...] And I no longer had any qualms about seeking out these forms in the countryside" [Sánchez 1971, pp. 47, 48]. A countryside which, for Alberto –as Valeriano Bozal [Bozal 1986, p. 759] points out– is no longer a mere landscape intended for contemplation or exploitation; "it is a medium and an extension [...], a presence and a non-rhetorical testimony to that struggle" for life (fig. 11). A life that is not individual but collective and, therefore, according to

the sculptor, political; that life –also geological– which the *Vallecas School* sought to represent in its ode to the Castilian countryside, and which the poet Miguel Hernández so beautifully expressed in a conversation he had with Alberto himself [Sánchez 1975, p. 58] during those years: "The lives of men are often as twisted as the roots of thyme in their struggle to survive, but there are very few who, at the end of this struggle, smell as deep and pure as this one– and he handed me one of the several sprigs of thyme he was holding in his hand".

Conclusions

In this article, we have demonstrated that the *Vallecas School* was an avant-garde artistic movement which, amongst other things, gave concrete form to the geology-art synapse in its process of (re)interpreting the rural Castilian territory and (re)defining the landscape imagery in Spain between 1927 and 1933. Furthermore, this research has enriched our understanding of this synaptic phenomenon through the search for, analysis and comparison of new graphic documents which, until now, had not been studied for this purpose and which prove particularly revealing. In their works, Alberto and Palencia mapped the territory –its physical and anthropological elements– blurring the boundary between scientific and aesthetic landscape, and imbuing it with new cultural, social and ideological meanings. Furthermore, we

have been able to verify that this scientific-aesthetic synapse served, for some artists, to redefine the landscape perception of Spanish rurality, transforming it into a symbolic space of dissident social progress, and challenging, at least poetically, the dominant narratives of urban modernity. This process was made possible within a context of the promotion of geology in Spain and thanks to the extensive visual material disseminated by geologists, artists, institutions and journals during those years. In this regard, this investigation lays the groundwork for future research analysing the dissemination, through new mass media, of other landscape imageries that diverged from urban modernity during the avant-garde period in Spain; this led to the development of a visual culture of space that was not confined to the margins of the metropolis, its bourgeois discourses, or its architectural and technological elements.

Notes

[1] The art-science synapse also occurred in other artistic cases; for example, the influence of Santiago Ramón y Cajal's histological and physiological drawings on Spanish surrealism [Brihuega 2015].

[2] They were joined by other creators, artists, writers, photographers, and architects, such as Maruja Mallo, Díaz Caneja, Moreno Villa, Vivanco, Rivaud, Alberti, Bergamín and even the poet Miguel Hernández.

[3] Between 1926 and 1936, up to 24 German geologists are

documented working in Spain [Julivert 2014].

[4] Among others: by Eduardo Hernández-Pacheco, *Geology and Landscape*, March 1926; by Charles Depéret, *Les hommes fósiles de Solutré*, May 21, 1926; and by Hugo Obermaier, *The Caves of Altamira*, March 16, 1929.

[5] In the second issue of *Residencia magazine* (May-August 1926, p. 145), alongside poems and drawings by artists of the Generation of '27, there is an article titled *Geological Excursion to Colmenar de Oreja*.

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Digital Modeling and Social Connections for Heritage Management: the Case of the Palazzo del Governatore in Parma

Virginia Droghetti

Abstract

The knowledge and management of architectural heritage can no longer be considered merely technical or conservation-oriented operations. In this perspective, drawing, modeling, and representation become critical acts capable of generating new social connections among subjects, institutions, architectures, and data. This contribution explores this perspective through the case study of the palazzo del Governatore in Parma, where the construction of the digital model –from survey activities to information management, including cloud-based and immersive environment experimentation– is configured as a process of knowledge co-production rather than mere digitization. Parametric modeling, BIM, and collaborative platforms were used to integrate management, maintenance, and exhibition-related needs within a shared information environment. The model supports different forms of consultation and building management by the actors involved, enabling more inclusive approaches to management, maintenance, and design. Through this approach, representation goes beyond its descriptive function and emerges as a space in which knowledge, the role of the architect, and forms of participation in the construction of contemporary cultural heritage are ethically redefined.

Keywords: social connections, digital modeling, BIM, existing built heritage, palazzo del Governatore.

Introduction

In the contemporary debate on built heritage management, attention is progressively shifting from the idea of the building as a static entity toward the awareness that every architecture exists within a social and informational ecosystem [Mazzetto 2024]. Built heritage can be interpreted as a relational system, defined by the interactions between actors, management practices, and representation tools. Survey technologies, BIM, and parametric modeling directly influence the management, consultation, and updating of heritage information [Bianchini, Inglese, Ippolito 2016; Sacks et al. 2018].

From this perspective, knowledge of built heritage depends on the interaction between management practices, decision-making processes, and representation tools.

The value of historical heritage is also defined in relation to community needs, conservation policies, and the digital tools adopted for its management [Deng, Menassa, Kamat 2021]. Digital representation involves interpretative, organizational, and managerial choices. It therefore becomes a space of critical mediation in which maintenance needs, functional uses, cultural expectations, and public responsibilities intersect [Paparella, Zanchetta 2022]. BIM applied to existing heritage enables the organization of relationships between geometric data, technical information, and management practices [Aheleroff et al. 2021].

In this sense, modeling a historical building means participating in a process of knowledge co-production involving different actors, professionals with heterogeneous skills,

administrations with governance responsibilities, and users engaged in everyday practices. Representation thus becomes the space where these pluralities meet, interact, and generate new perspectives for the care and enhancement of heritage.

In recent years, numerous studies have explored the use of HBIM, CDE, and digital twins for built heritage management, focusing mainly on the integration of survey activities, parametric modeling, and digital maintenance [Deng, Menassa, Kamat 2021; Paparella, Zanchetta 2022]. More recent experiments have also introduced immersive environments and collaborative platforms to support shared management and user engagement activities [Ćosović, Maksimović 2022; Mazzetto 2024]. Within this framework, the present contribution proposes an interpretation focused not only on the informational efficiency of the model, but also on its capacity to establish operational relationships among the different actors involved in heritage management.

Heritage as a system of relationships

Every process of heritage knowledge originates from a question. In the case of the palazzo del Governatore (fig. 1), this question did not arise solely from the building itself, but also from the institutional and social relationships that shape its daily use. The Public Administration of Parma, responsible for its preservation and operation, identified the need for a system capable of integrating information currently fragmented or obscured by management practices stratified over time. Requesting a digital model therefore meant seeking a new way to distribute knowledge and make accessible information previously stored in heterogeneous physical archives or entrusted to individual operational memory [Osello, Ugliotti 2022].

The request of the Public Administration was not limited to the creation of a BIM model, but also concerned the definition of a replicable method capable of enabling the city to organize, interpret, and share its architectural heritage coherently. Beyond integrating heterogeneous data, this method aimed to establish an operational framework capable of supporting transparency, management continuity, and shared responsibilities [Paparella, Zanchetta 2022].

The adoption of BIM was therefore defined according to the operational needs of the Public Administration, with the aim of organizing heterogeneous data within a shared and

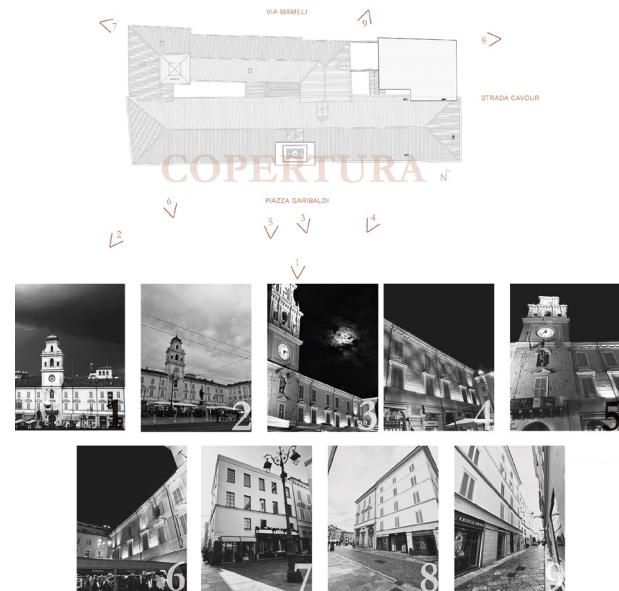


Fig. 1. Navigator plan with camera positions and view cones (top), and exterior photographs of the palazzo del Governatore (elaborated by the author).

continuously updatable system. The definition of common information schemes, priority criteria, accessibility levels, and updating processes was not merely procedural, but responded to the need to establish a shared language among different actors, capable of translating heritage into a readable and accessible system [Sacks et al. 2018].

During the preliminary phase, different information needs related to maintenance management, exhibition space organization, and technical consultation of the model were identified. This led to the definition of specific information categories and differentiated access modes according to the roles involved. In this sense, the initial phase of the research was not limited to the collection of requirements, but also acted as a collaborative process in which operational needs, regulatory constraints, functional uses, and cultural sensitivities were brought together to define a shared strategy. This approach is consistent with contemporary integrated heritage management practices, which interpret digital processes as spaces of negotiation between actors and competencies [Deng, Menassa, Kamat 2021].

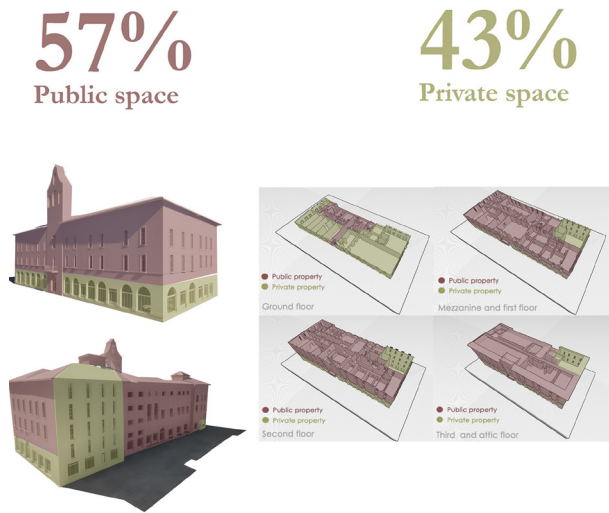


Fig. 2. Analysis of property typologies within the palazzo del Governatore (elaborated by the author).

The digital modeling of the palazzo del Governatore therefore emerged as the result of this collaborative process rather than as the mere application of a predefined protocol.

The case study: palazzo del Governatore as a node of social connections

The palazzo del Governatore, located in the historic center of Parma, represents not only a significant historical building of architectural relevance, but also a point of intersection between functions, communities, and management systems (fig. 2). Its selection as a case study was not determined solely by its typological complexity or its status as public heritage, but also by its ability to reveal the relational nature of heritage knowledge processes. This perspective is consistent with recent studies interpreting heritage as a dynamic system of relationships rather than as a collection of isolated objects [Mazzetto 2024].

Within the building coexist maintenance requirements, cultural activities, administrative dynamics, exhibition practices, public flows, and working spaces, each generating different

information needs, behavioral patterns, constraints, and opportunities. This coexistence of functions required the development of an information model capable of supporting different activities, ranging from ordinary maintenance to the temporary management of exhibition layouts.

The development of the digital model made these relationships more visible, not because BIM provides an exhaustive representation of them, but because the modeling process itself requires critical decisions: which information should be made visible? Which relationships should be considered essential? Which elements deserve continuous monitoring? Which functions truly define the identity of the building? [Inzerillo et al. 2016]. Each modeling choice generated discussion among different actors, contributing to the construction of a model that is not only technical, but also narrative in nature.

The organization of the building—including exhibition spaces, offices, privately leased areas, and service zones—also highlighted the need for a multifaceted approach in which representation supports decisions related both to conservation and spatial organization. This dynamic reflects what the literature defines as 'interpretive modeling', namely the capacity of the model to incorporate different perspectives and needs [Aheleroff et al. 2021].

In this sense, the palazzo del Governatore is not merely the object of digitization, but the driving force of the process itself: the element that prompts reflection on the relationship between technology and heritage, between data and responsibility, and between measurement tools and forms of participation [Deng, Menassa, Kamat 2021].

Towards a socio-technical methodology of representation

The methodological approach adopted for the palazzo del Governatore in Parma originates from the awareness that heritage representation cannot be reduced to a set of standardized procedures. Instead, it requires a socio-technical methodology capable of integrating material, informational, and relational dimensions. This perspective is consistent with studies that recognize heritage digitization as a complex process shaped by negotiations and interpretative choices [Inzerillo et al. 2016; Paparella, Zanchetta 2022].

The process was structured into phases (fig. 3), not intended as a simple operational sequence, but rather as a system of actions, verifications, adaptations, and negotiations.

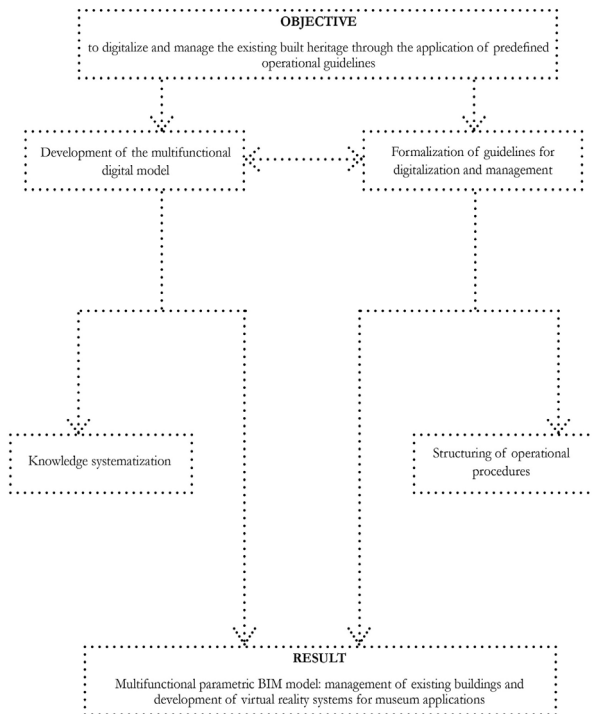


Fig. 3. Diagram of the workflow between the definition of objectives and the achievement of the intended results (elaborated by the author).

The first phase involved the identification, collection, and comparison of available information [Vernizzi, Droghetti 2025b]: existing surveys, historical and design documentation, maintenance data, operational requests from the Public Administration [1], and requirements related to cultural activities and exhibition setups. This initial complexity is widely acknowledged in the literature on BIM for existing heritage, which highlights how historical data are often heterogeneous and incomplete [Deng, Menassa, Kamat 2021]. This phase was not limited to data collection, but also required a critical evaluation of the quality, reliability, and consistency of the information, activating dialogue among the involved actors and verification procedures. This process reflects what several studies define as 'data lineage' in heritage management, namely the reconstruction of the origin and meaning of data [Aheleroff et al. 2021].

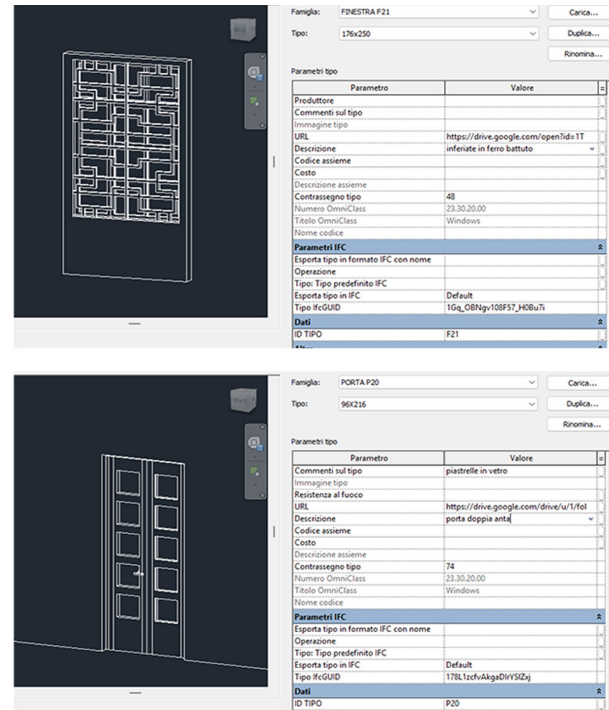


Fig. 4. Extracts from the BIM model of the palazzo del Governatore developed in Revit (elaborated by the author).

Before starting the modeling phase, a shared framework of the model's operational objectives was established. In the specific case of the palazzo del Governatore, the integration between technical and managerial dimensions was translated into specific operational choices. For example, during the definition of information parameters, exhibition spaces were organized not only according to geometric and material characteristics, but also in relation to temporary installation and maintenance requirements identified by exhibition curators. Similarly, the organization of data related to building systems and access management was defined according to the operational needs of municipal technicians responsible for the daily management of the building. The definition of accessibility levels within the CDE was also structured according to the different roles of the actors involved, distinguishing

between consultation, updating, and data management activities. In this sense, the model was not conceived as a static archive of information, but as a shared environment capable of supporting different practices of heritage use and interpretation. These choices directly influenced both the modeling workflow and the progressive organization of information within the model.

This process involved identifying the informational priorities of the Public Administration, selecting categories of elements relevant to maintenance activities, evaluating exhibition-space requirements, and defining data accessibility and updating levels. This methodological phase represented a central moment of the process because it enabled

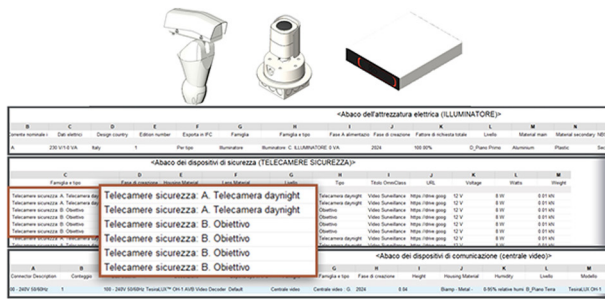


Fig. 5. Extract from the BIM model of the palazzo del Governatore developed in Revit (elaborated by the author).

the transformation of heterogeneous needs into coherent information structures, avoiding models that were either excessively complex or overly simplified. The definition of informational 'use cases' is also recognized in major BIM guidelines and manuals [Sacks et al. 2018].

The modeling process was carried out according to criteria balancing geometric accuracy and informational functionality. The model was developed through clearly defined steps, including on-site verification of the existing survey, definition of the level of detail most suitable for management purposes, parameterization of significant objects (fixtures, systems, furniture, safety devices), and organization of metadata according to the intended uses. This approach reflects the literature on BIM applied to heritage, which emphasizes the importance of balancing accuracy and management sustainability [Bianchini, Inglese, Ippolito 2016].

Once completed, the model was transferred into a CDE (Common Data Environment), organized according to principles of information traceability, version management, and continuous updating. The environment also included differentiated role-based access and integration with maintenance records and external documentation (figs. 4, 5). Exporting the model in IFC format ensured future portability and independence from proprietary software, a condition considered crucial for the long-term preservation of digital heritage [Osello, Ugliotti 2022].

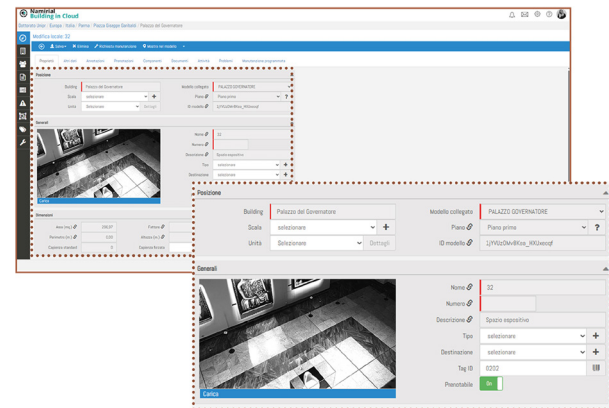


Fig. 6. Extract from the BIM model of the palazzo del Governatore developed in BiC (elaborated by the author).

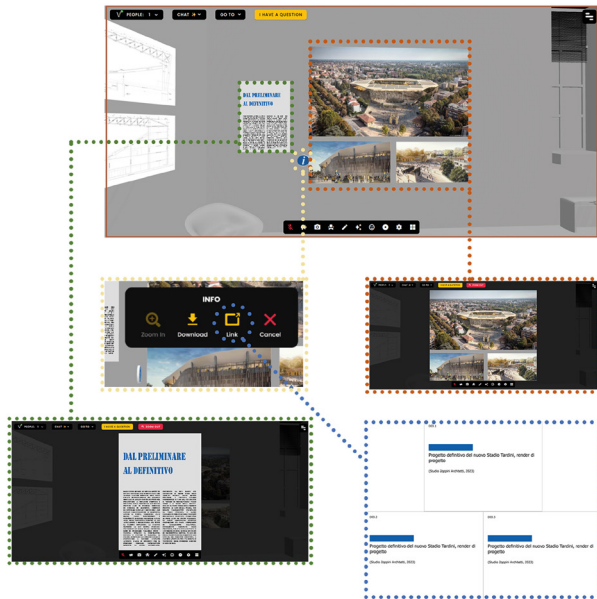


Fig. 7. Extract from the BIM model of the palazzo del Governatore developed in FrameVR (elaborated by the author).

This methodological phase addressed the need to establish a stable information ecosystem capable of supporting long-term management (fig. 6), as discussed in studies exploring the transition from BIM to digital twins [Ahleroff et al. 2021].

Alongside the modeling activities, experimentation with VR environments was conducted to test exhibition configurations, facilitate dialogue between technicians and curators, create inclusive heritage consultation tools, and support more accessible spatial understanding (fig. 7). VR was adopted as a methodological tool not for aesthetic purposes, but to open new scenarios of co-design, making the building explorable and interpretable by a wider audience. This use is consistent with the evolution of immersive technologies in cultural heritage studies [Ćosović, Maksimović 2022; Mazzetto 2024].

The process does not conclude with the creation of the model. Instead, the methodology includes a continuous updating system that allows the model to evolve in relation to the physical and functional transformations of the building.

This perspective considers digital heritage as a living structure closely connected to real management practices – a central concept in digital twin models [Deng, Menassa, Kamat 2021]. The proposed methodology is not a rigid protocol, but a flexible approach that recognizes the complexity of heritage management processes. It is based on three central principles: interdisciplinarity – each phase requires different competencies capable of communicating with one another; knowledge co-production – representation emerges through dialogue among actors rather than from a single authority; and adaptability – the model must be capable of evolving over time alongside the life of the building. This methodology therefore proposes an integrated approach to heritage management based on the coordination between data, digital tools, and involved stakeholders.

Modeling and the negotiation of knowledge

Digital heritage modeling constitutes a space of mediation between operational needs, regulatory constraints, and management practices. This perspective is consistent

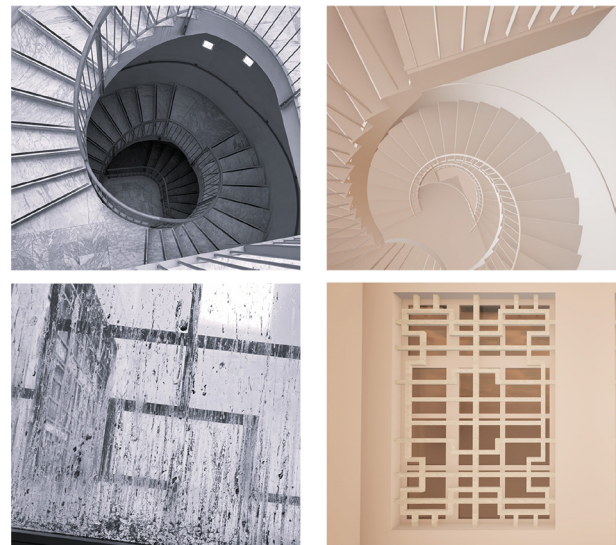


Fig. 8. Comparison between photographs and modeled elements of the palazzo del Governatore (elaborated by the author).

with the literature interpreting information models as interpretative tools rather than neutral copies of reality [Deng, Menassa, Kamat 2021].

Within existing heritage contexts, the BIM model organizes information useful for the management, maintenance, and shared consultation of the building. Choices related to the level of detail, information categories, and parameter structures directly influence the ways in which the model is used and updated (fig. 8). This interpretative dimension is recognized as an integral part of HBIM processes [Bianchini, Inglese, Ippolito 2016].

Modeling defines which information should be shared, updated, and made accessible over time. The introduction of shared information criteria also contributes to the construction of a common language among actors with different skills and responsibilities [Sacks et al. 2018].

The management of existing heritage also requires addressing recurring issues such as irregular geometries, subsequent transformations, and incomplete documentation [Inzerillo et al. 2016]. In the case of the palazzo del Governatore, the model was developed with particular attention to ordinary maintenance, building systems management, exhibition space organization, and the planning of public activities (fig. 9).

In this context, levels of detail become tools for defining different informational responsibilities and modes of data access. The model therefore takes the form of a shared platform capable of supporting different operational needs [Deng, Menassa, Kamat 2021].

Modeling existing heritage thus assumes the role of a coordination tool among actors with different competencies, fostering more transparent and shared forms of access to information. Ultimately, modeling does not simply mean constructing a 'digital twin', but organizing knowledge and practices related to built heritage management [Settis 2017] (fig. 10).

Digital management ecosystems

When a digital model enters a management environment, it transforms the ways in which heritage information is accessed, updated, and shared. Cloud platforms, interoperable formats, and immersive consultation tools influence decision-making processes, responsibilities, and modes of interaction among the actors involved [Osello, Ugliotti 2022].

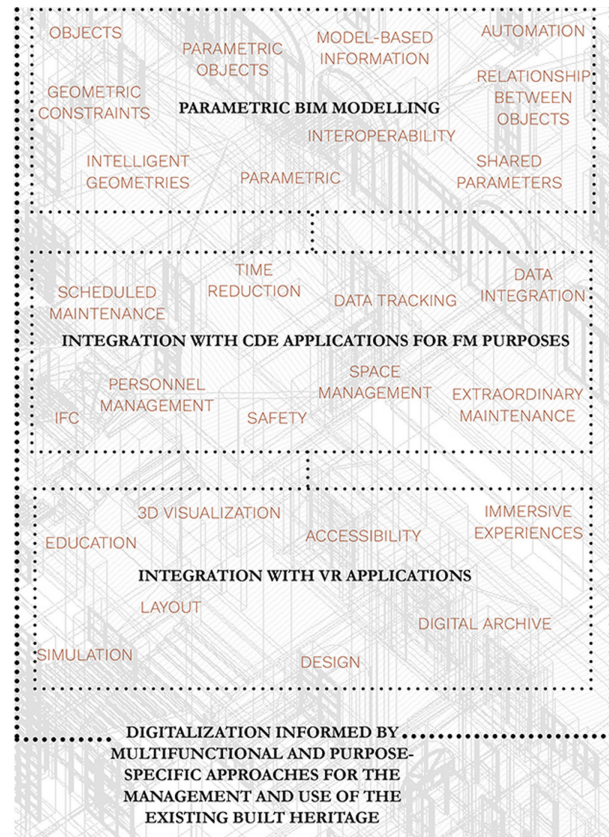


Fig. 9. Three key elements defining multifunctional BIM modeling for existing built heritage (elaborated by the author).

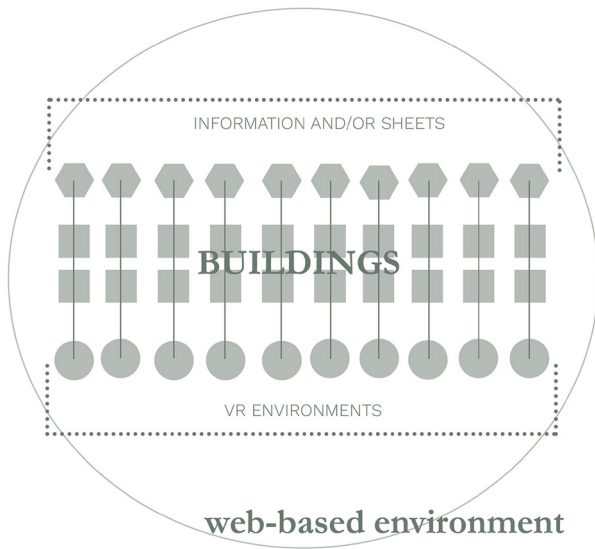


Fig. 10. Diagram of a possible web platform dedicated to the centralization and dissemination of digitized buildings (elaborated by the author).

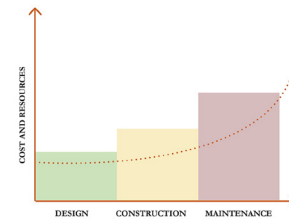
In the case of the palazzo del Governatore, the adoption of a CDE (Common Data Environment) enabled the centralization of historical, technical, maintenance, and operational information within a shared and continuously updatable system. Within this environment, different actors –technicians, administrators, maintenance operators, and cultural professionals (fig. 11)– can access information according to their specific roles [Paparella, Zanchetta 2022]. At the same time, the adoption of the IFC format ensured interoperability and continuity in data management [Sacks et al. 2018].

Consultation through lightweight applications, mobile devices, and immersive environments also facilitated communication among actors with different competencies. Virtual reality was used to simulate exhibition configurations and support collaborative activities involving curators, technicians, and decision-makers [Ćosović, Maksimović 2022; Mazzetto 2024].

The experimentation conducted through the case study provided an initial qualitative verification of the proposed approach. The centralization of information within the

Fig. 11. Top. Diagram of the relationship between design and maintenance processes, alongside extracts from the BIM model of the palace (elaborated by the author).

Fig. 12. Bottom. Architectural plan of the second floor of the palazzo del Governatore and rendering visualization (elaborated by the author).



CDE facilitated shared model consultation and access to technical documentation, while immersive environments improved spatial understanding even for non-specialist users. Although these results do not yet constitute an extensive quantitative validation, they highlight the potential of the approach in supporting collaborative processes and integrated management practices.

Conclusions

The study conducted on the palazzo del Governatore (fig. 12) demonstrates how heritage digitization can become a process capable of expanding forms of architectural knowledge and care [Vernizzi, Droghetti 2025a]. Representation emerges as a space in which knowledge is not only collected and organized, but continuously reactivated through shared relationships and interpretations. In this sense, the digital model gains value not merely through the quantity or precision of data, but through its ability to generate connections between people, technologies, and institutions, configuring itself as a space where responsibilities and decisions emerge in a more transparent and negotiated way [Settis 2017].

The originality of the research lies in the adoption of a methodology integrating technical and social dimensions, overcoming the distinction between informational content and management processes. The model is not conceived as a purely descriptive tool, but as a narrative infrastructure capable of supporting multiple interpretations of the building and connecting maintenance activities, exhibition practices, and decision-making processes, in line with recent studies on the relationship between modeling, governance, and collaborative practices [Paparella, Zanchetta 2022]. The construction of an integrated digital ecosystem, based on interoperability, collaborative platforms, and

immersive tools, fostered a more fluid relationship among the involved actors, introducing forms of collaboration rarely found in traditional management models. The results demonstrate how the shared organization of information and the use of interoperable environments can support coordination among stakeholders involved in heritage management, improving accessibility, consultation, and operational continuity. Experimentation with exhibition layouts also expanded the role of the digital model beyond its purely technical function. Moreover, adopting the perspective of the Public Administration gave the project a public and civic dimension, reinforcing attention toward transparency, operational continuity, and heritage accessibility [Osello, Ugliotti 2022].

Like any research based on a real case study, this experience also presents certain limitations related to the quality of pre-existing data, the need for continuous updating, and experimentation conducted on a single building, which does not yet allow extensive comparisons. Added to this is the rapid evolution of the technological context. These criticalities do not diminish the significance of the work, but rather highlight its dynamic and open-ended character [2]. Future perspectives include extending the methodology to other public buildings, developing integrated urban digital archives, and employing immersive tools to broaden accessibility and participation. Integration with monitoring systems and predictive models could transform the model into a dynamic organism, bringing it closer to the logic of heritage digital twins [Deng, Menassa, Kamat 2021; Ahleroff et al. 2021].

In conclusion, digital representation does not emerge as a final outcome, but as a point of convergence between memories, practices, and visions, capable of transforming heritage management into a collective exercise of care and interpretation [Mazzetto 2024].

Notes

[1] In this paper, the terms 'Public Administration' or 'PA' refer to the Public Administration of the Municipality of Parma.

[2] Within the proposed case study, several software platforms and applications were employed to support the experimental ac-

tivities: Namirial Building in Cloud for management-related functions, Geo Twin by ACCA Software for additional data management and integration applications, BIMx for testing simplified yet information-rich navigation modes, and Frame VR as an immersive virtual reality environment.

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Diagrammatic Drawing for Sequencing across Disciplines and Pathways

Flora Gaetani

Abstract

This paper frames curriculum redesign as a practice of diagrammatic drawing in which shared representations operate as synaptic surfaces: operational interfaces used to connect disciplines, impose temporal sequencing constraints, and make pathways legible. In a Sino-Italian joint bachelor's program (delivered entirely in China with a mixed Chinese-Italian faculty), the initial issues were identified based on a synthesis provided by the partner institution of recurring student feedback, along with consultations with teaching staff. A multidisciplinary working group iteratively co-designed alternatives on a shared diagrammatic surface, formalizing successive versions in a verifiable mapping file. Syllabus analysis supported a two-level model: mutually exclusive Disciplines (used for conservative quantitative checks via delivered contact hours) and non-exclusive Pathways (used to articulate and describe transdisciplinary trajectories). The representation-track case study shows how the process makes the progression across methods and techniques of representation explicit and negotiable. The paper reports structural evidence and decision traceability only, deliberately excluding claims about potential employability outcomes for students.

Keywords: diagrammatic representation; schematic artifacts; learning pathways; design visualization; synaptic surfaces.

Introduction

Curriculum redesign is often treated as an administrative exercise: courses are listed, moved, merged, or renamed, while the relationships that structure a program—dependencies, sequencing logics, and pathway trajectories—remain implicit. As a result, the curriculum's underlying rationale can be difficult to grasp for those who must work within it: students, instructors, and program coordinators. In this paper, redesign is instead approached as a problem of diagrammatic drawing. Shared representations are understood as synaptic surfaces: operational interfaces in which connections can be made visible, questioned, and reconfigured. This perspective aligns with the argument that tabular maps tend

to flatten curricular relationships and that more explicit representational models are needed to externalize connections and change [Willcox, Huang 2017, p. 3].

The contribution extends beyond the analysis of learning outcomes, positioning itself as an account of how combined diagrammatic and tabular artifacts support collective reasoning in a complex transnational setting. Building on a tradition that understands schematic artifacts as projective devices within design culture [Anceschi 1988; Munari 1993], we present a process in which graphic representation is used to negotiate temporal sequencing and disciplinary interfaces, and to communicate transdisciplinary pathways as intelligible

trajectories. The case study focused on the representation strand anchors this argument within the disciplinary field of drawing, showing how the progression across tools and methods of representation can be articulated and discussed through shared diagrams.

The contribution addresses two questions: What representational properties make shared diagrams 'synaptic surfaces' that are operational for collective curriculum decision-making? How does a two-level model (Disciplines and Pathways) enable conservative structural checks while preserving transdisciplinary trajectories as communicable sequences?

Diagrammatic drawing as a synaptic surface

Diagrammatic drawing occupies an epistemically distinctive space within design culture: it is not a neutral depiction of the world, but a device through which thinking is externalized, organized, and made negotiable [Larkin, Simon 1987, p. 65] and, more broadly, the mark does not simply transcribe an already formed idea; it generates a field of interpretations and successive transformations that guide design reasoning [Goldschmidt 1991, p. 123]. Within the tradition of drawing, schematic artifacts have been understood as projective devices that do not reproduce reality but anticipate and structure it [Anceschi 1988; Munari 1993], extending into a domain in which representation supports cycles of decision-making and reframing typical of reflection-in-action [Schön 1983]. This contribution sits within that tradition, extending it toward curriculum governance as a domain in which diagrammatic drawing operates as a device that is not merely representational but constitutive.

In this paper, synapse denotes a specific property of diagrammatic drawing: the ability to make relationships operational –visible, negotiable, and reconfigurable– through shared representation. The notion is analytical, not neuroscientific: it designates a junction in which heterogeneous elements (disciplines, sequencing constraints, institutional responsibilities) can be connected, tested, and modified in diagrammatic form, and in which the outcome of each revision cycle becomes the starting point for the next.

To clarify its distinctive properties, it is useful to compare it with adjacent concepts. Boundary objects [Star, Griesemer 1989, p. 393] similarly coordinate actors with

different languages, but they are typically pre-existing and stable: their strength derives from a structured agreement around an already consolidated artifact. By contrast, the synaptic surface is an artifact in the making: its stability is deliberately provisional, functional to the ongoing revision cycle, and its value lies in the tension between openness to modification and sufficient legibility to support comparison, consistent with perspectives that understand maps and mapping as processual, situated practices, continually remade in use [Kitchin, Dodge 2007, p. 335]. Unlike the interactive boundary object [Tharchen et al. 2020, p. 2], which locates the conditions for interdisciplinary interaction in the semantic polycentricity of a shared concept, the synaptic surface foregrounds its representational function: it is drawing as such that produces the conditions for negotiation, not merely the conceptual space in which negotiation takes place. Finally, relative to external representation [Larkin, Simon 1987, pp. 65-66], the synaptic surface is a collective and institutional device: its function is not only to compress complex relationships into a perceivable form, but to stabilize them sufficiently so that they can be discussed, attributed, and traced over time through dated iterations.

From this perspective, the curricular diagram takes the form of a relational map: not in the cartographic sense, but in the sense argued by Corner [1999, p. 213], for whom the map does not record a pre-existing territory but institutes it by assigning weights, building sequences, and making visible dependencies that would otherwise remain tacit. Applied to a curriculum, this means that the diagram of the study plan does not describe an order that is already given: it produces that order through each revision cycle, making it inspectable and modifiable by the actors involved.

Context and initial issues

The case concerns the revision of a four-year bachelor's degree program in Design-Engineering, delivered entirely in China within a Sino-Italian joint program, with Italian faculty accounting for approximately one third of the teaching staff. The revision started from the existing study plan (in place since 2022) and from a set of issues identified through the school's governance structure and consultations with teaching staff. On the Chinese side, the

partner institution provided a synthesis of issues reported recurrently by students. On the Italian side, a working group representative of the involved departments and disciplinary areas was established.

The issues initially identified included: overlaps in course content; misalignments between the syllabi and what was delivered in some courses; and a distribution of credits and contact hours that was not always consistent [1]. The absence of a professional internship was also noted, together with the need to make course sequencing more legible by clarifying dependencies and progressions along the pathway. Finally, the need emerged to integrate and position new content more explicitly (including the role of AI) and to address some gaps in cultural-area content, improving coordination across courses and among the institutional components involved (fig. 1).

The aim was therefore to make sequencing, disciplinary interfaces, and pathways explicit to a degree sufficient to support negotiation and the partner's subsequent validation [2].

Methodology

The process began with an analysis of the existing study plan and the set of issues collected through the program's governance structure and consultations with teaching staff. The Chinese partner's synthesis of student notes was used to identify problems, not as evaluative data [3]. The Italian partner established a multi-department working group to represent the disciplines involved, under the coordination of the Dean of the School associated with the program. Each member conducted informal consultations with instructors in their department and with the departmental coordinator, consolidating constraints and priorities. The outcome was then prepared for submission to the joint program governance (Academic Committee [4] and partner review).

The activities did not follow a linear sequence, but rather a combined workspace in which a collaborative digital diagramming environment [5] and a traceable mapping file [6] were used in parallel as synchronized views of the same evolving curricular model. The collaborative environment supported diagrammatic drawing to externalize alternative structures, dependencies, and pathway hypotheses; the mapping file supported the work through coding and the rapid generation of

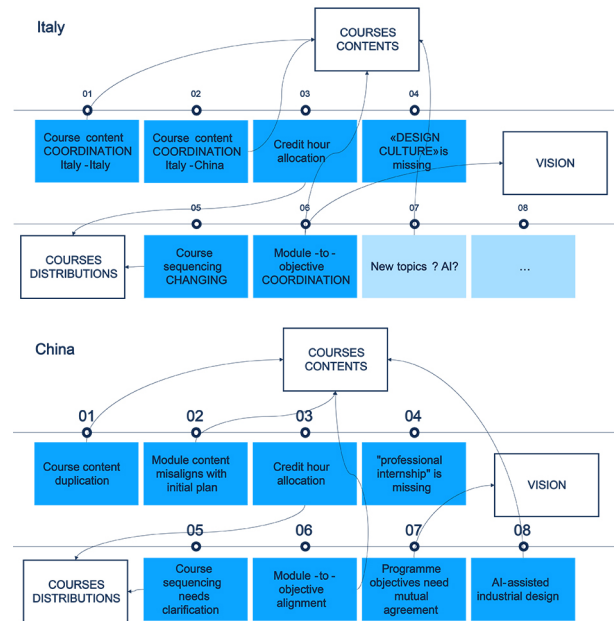


Fig. 1. Mapping of issues identified by the two partners of the joint program for the bachelor's degree in Design-Engineering (author's elaboration).

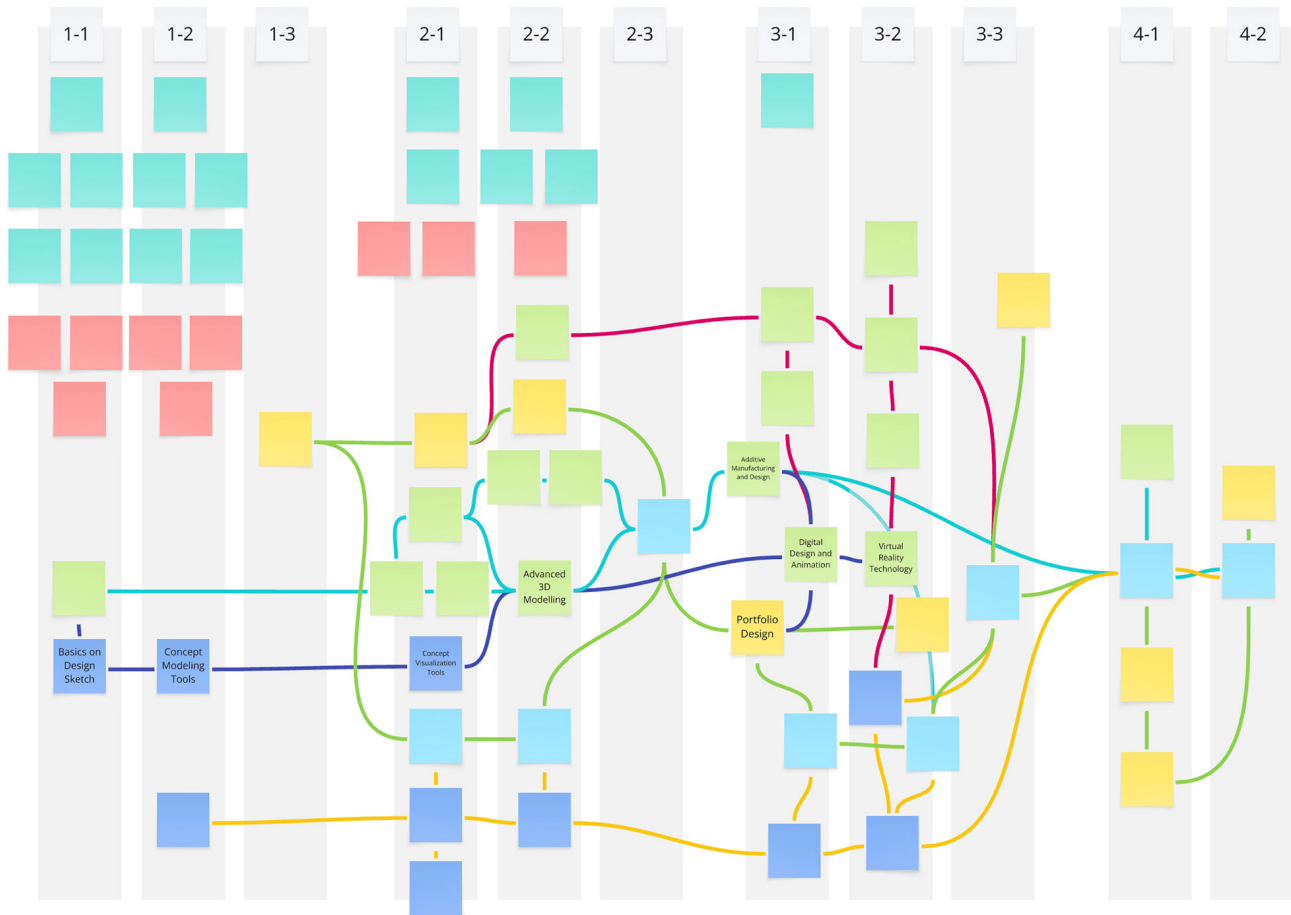


Fig. 2. Overview map: columns represent semesters; boxes represent courses; colors indicate Disciplines and lines show Pathways (author's elaboration).

structural charts. Within the adopted methodology, drawing makes it possible to explicitly document differing terminological and linguistic interpretations, serving as crucial support in defining and specifying the methodologies, techniques, and operational procedures employed in recalibrating the study plan [Ciammaichella, Menchetelli 2022, p. 8]. During each meeting, the group repeatedly moved between the two environments to discuss and immediately test proposed changes against their structural implications. The workspace therefore operated as a synaptic surface: an interface in which relationships became visible, negotiable, and traceable over time.

The group then recognized that a classification based solely on Disciplines would not be sufficient to represent the program's complex architecture and its transdisciplinary trajectories. A two-level model was therefore built: Disciplines and Pathways. Disciplines are mutually exclusive categories (each course in the plan is assigned to one Discipline only), useful for preserving disciplinary integrity and enabling quantitative aggregation; Pathways are non-exclusive trajectories (each course may belong to more than one trajectory), oriented toward content and sequencing and intended to make educational routes communicable and debatable among stakeholders.

Assignment to Disciplines followed explicit rules. The assignment was based on syllabi and teaching responsibility, with borderline cases resolved by the working group.

The five Pathways were derived from syllabi and interviews with coordinators to make explicit and optimize trajectories that were already implicitly present and to justify sequencing decisions. Because membership in Pathways can be multiple, delivered hours were not aggregated at the Pathway level to avoid double counting; instead, Pathways were used as a narrative and representational layer for sequencing logic, transparency, and multidisciplinary. The group also proposed targeted reallocations of topics across courses and refinements of syllabi to recalibrate complexity when a course was moved within the study plan.

Structural checks used contact hours [1] as a comparable proxy for delivered teaching load, and charts to examine distributions and imbalances across semesters and Disciplines. Short summer terms are included in the mapping but have limited impact on overall distributions.

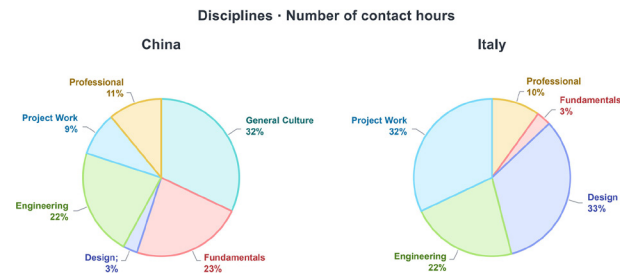
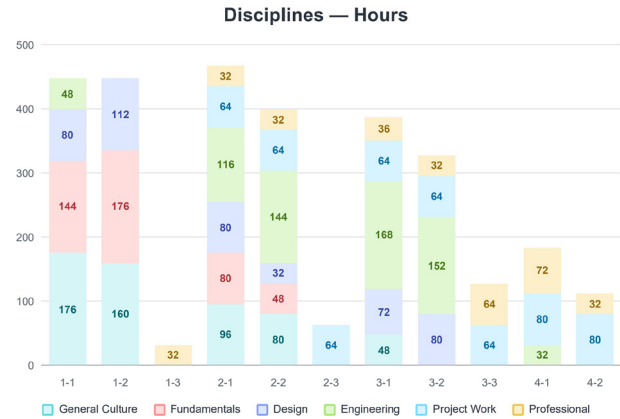


Fig. 3. Distribution of delivered hours by semester, aggregated at the Discipline level (author's elaboration).

Fig. 4. Percentage breakdown of delivered hours by Discipline, by teaching responsibility across the two institutions (author's elaboration).

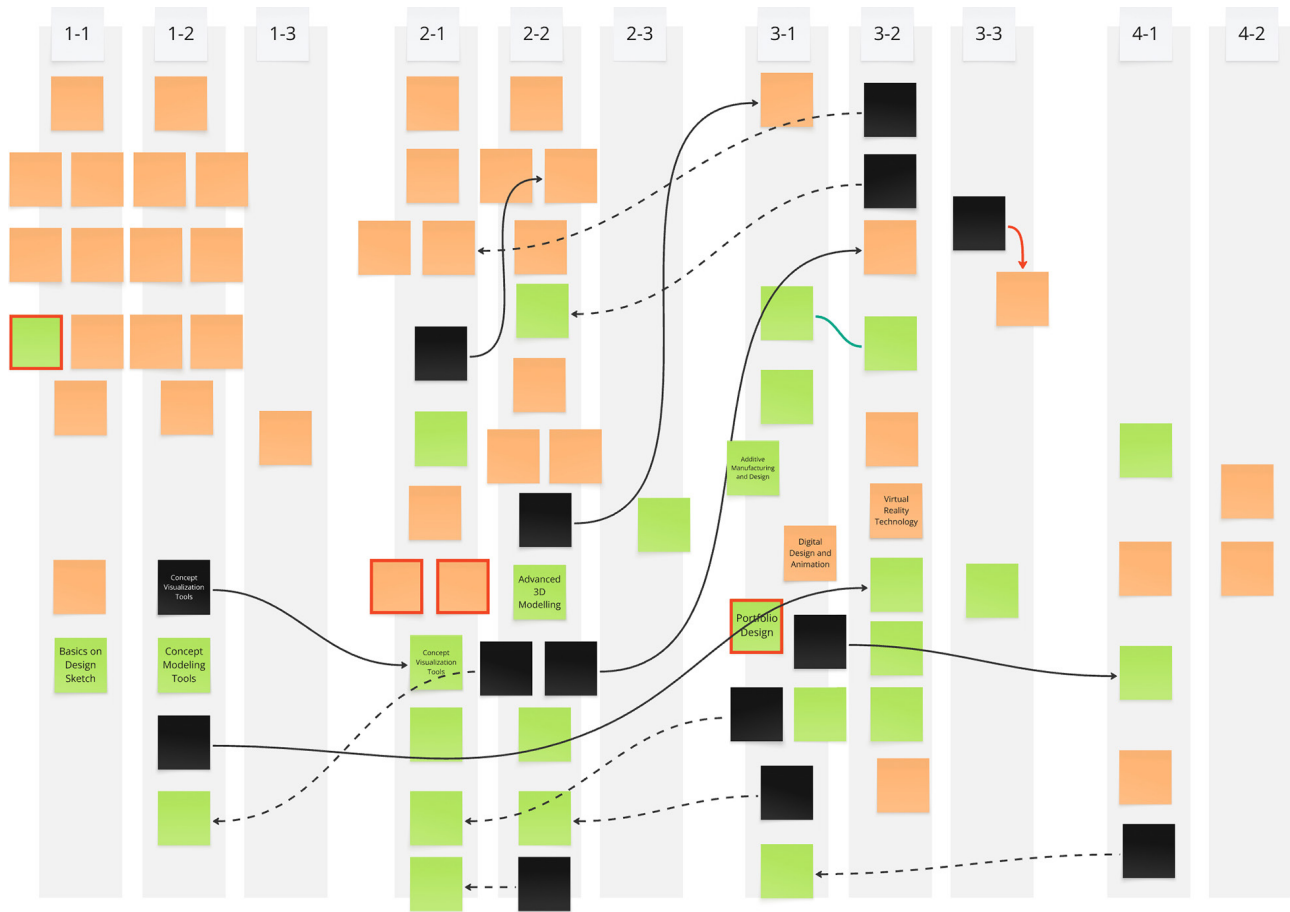


Fig. 5. Map of course movements in the study plan: boxes represent courses grouped by teaching responsibility (China vs. Italy) (author's elaboration).

The process unfolded through four co-design sessions between late 2024 and early 2025, interspersed with asynchronous revisions between sessions. Between sessions, the board in the collaborative digital diagramming environment remained open; changes were flagged with visual markers and reviewed collegially before being consolidated in the traceable structured mapping file. The output is a consolidated working version intended for partner validation and further refinements prior to implementation.

The method produces structural evidence: explicit relationships, sequencing logics, pathway visibility, hour-based coherence, and decision traceability. It does not claim learning or employability outcomes; such outcomes can only be assessed after implementation, through future cohorts.

Results

At the program level, the process produced a combined set of artifacts: two diagrammatic representations of the study plan (one to track course movements and highlight redesign operations, and another to formalize Disciplines and Pathways) and a traceable structured mapping file with embedded charts, through which the redesign becomes legible as a curricular architecture rather than as a list of modules. Selected charts generated in the mapping file were also embedded into the boards of the collaborative digital diagramming environment to maintain a single visual workspace, integrating qualitative exploration with quantitative checking. In addition, pathway-specific representations were produced to describe the logic of interdisciplinary trajectories in greater detail.

In the proposal documents, this diagrammatic strategy is framed as a shift from a previous organization based on modules and rigid schemes toward a structure organized through two concurrent classification levels.

The main output is therefore the two-level curricular model: mutually exclusive Disciplines and non-exclusive Pathways that cut across multiple Disciplines (fig. 2). This separation preserves the multidisciplinary of trajectories while enabling hour-based aggregation only where coding is exclusive. Pathways are described as interconnected perspectives, whose overlaps become visible when courses appear in more than one

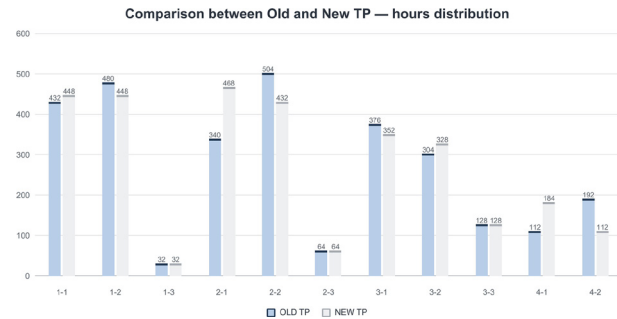
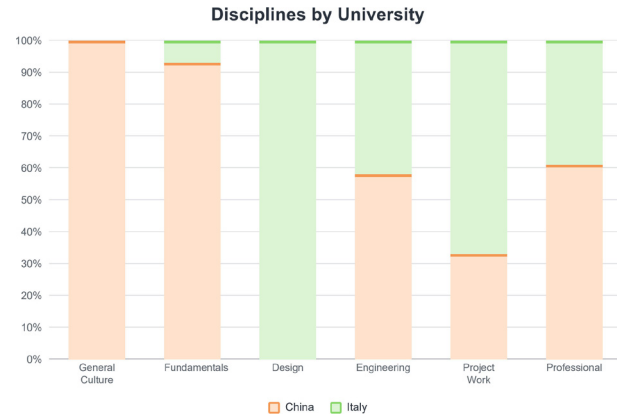


Fig. 6. Percentage breakdown of hours by Discipline by teaching responsibility (China in orange and Italy in green, author's elaboration).

Fig. 7. Comparison between the previous study plan (OLD TP) and the redesigned proposal (NEW TP) in the distribution of delivered hours by semester (author's elaboration).

trajectory. Accordingly, quantitative aggregation is performed only at the Discipline level (figs. 3, 4), while Pathways are treated as content- and sequencing-oriented trajectories that support shared understanding among stakeholders.

Another output is the surface of change that externalizes redesign operations (moves across semesters, splits, new courses, and changes in teaching responsibility), enabling stakeholders to discuss what changed and why without relying on tacit knowledge (fig. 5). Supporting this, a compact set of hour-based charts built at the Discipline level enables lightweight checks of the plausibility of the redesigned architecture across the four years and facilitates iterative corrections when imbalances across semesters or Disciplines emerge. Finally, the proposal is explicitly positioned as a consolidatable working version, intended for further negotiation and refinement with the Chinese partner (first: structural evidence and traceable decisions; then: operational implementation and evaluation) (figs. 6, 7).

The Representation Pathway as a synaptic spine: a grammar of progression and the properties of diagrammatic drawing

In this paper, the Representation Pathway is not merely an applied example, but the site where the theoretical properties of the synaptic surface become verifiable through structural evidence. Choosing the representation strand as a privileged field of observation is not neutral: it is in this domain that drawing can examine itself as an object of study, showing how progression across methods and tools of representation can be articulated, discussed, and transformed through shared diagrammatic drawing.

The diagram as a grammar of progression

The Pathway was not constructed as a catalog of courses, but as a relational structure that expresses a grammar of progression. The distinction is fundamental: a list enumerates elements; a diagram institutes relationships among them, assigning orientation, dependency, and direction. The difference is not aesthetic but epistemic: in a diagram, ordering becomes arguable, contestable, and modifiable. In this case, the grammar is organized around representational modalities sequenced not by

convention or historical inertia, but by recognized and formalized cognitive and technical dependencies.

The 2D space (*Engineering Drawing; Basics on Design Sketch*) establishes the base: literacy in drawing as a language, through the complementarity of standardized technical drawing, freehand drawing, and basic two-dimensional graphics. The 3D space then branches into two strands –*Modeling* and *Visualization*– which are not parallel but interdependent: visualization is enabled by, and presupposes, the existence of a model. This dependency constraint, which becomes an arrow in the diagram, is precisely what the synaptic surface renders negotiable: the decision to place *Concept Visualization Tools* after the first modeling module was not adopted by convention but argued for and traced as an explicit redesign operation (fig. 8). The diagram made this dependency visible, and therefore discussable.

The synaptic surface as an interdisciplinary junction

A second property highlighted by the pathway is the interstitial nature of diagrammatic drawing with respect to Disciplines. The Representation Pathway is not a disciplinary silo: the spine distributes courses across distinct Disciplines and makes interfaces with other Pathways legible through concrete junctions. *Additive Manufacturing* and *Design* function as a bridge between representation and fabrication, consistent with the program's manufacturing trajectories; *Digital Design* and *Animation and Virtual Reality Technology* connect the progression of representation to digital and immersive systems. These connections were not explicitly described in the pre-existing syllabi: they were produced –not discovered– through the shared diagramming process.

What the synaptic surface generates is not a description of relationships that already exist, but their construction as an inspectable and negotiable structure. The diagram does not record that *Engineering Drawing* precedes *Concept Modeling Tools*; it institutes that precedence as a foundational cognitive relationship on which subsequent choices can be discussed, decided, and grounded. In this sense, each arrow in the diagram is a design act, not a statement of fact. This distinguishes diagrammatic drawing from tabular mapping: the table shows where courses sit in the study plan; the diagram shows why they sit there and how they relate to one another.

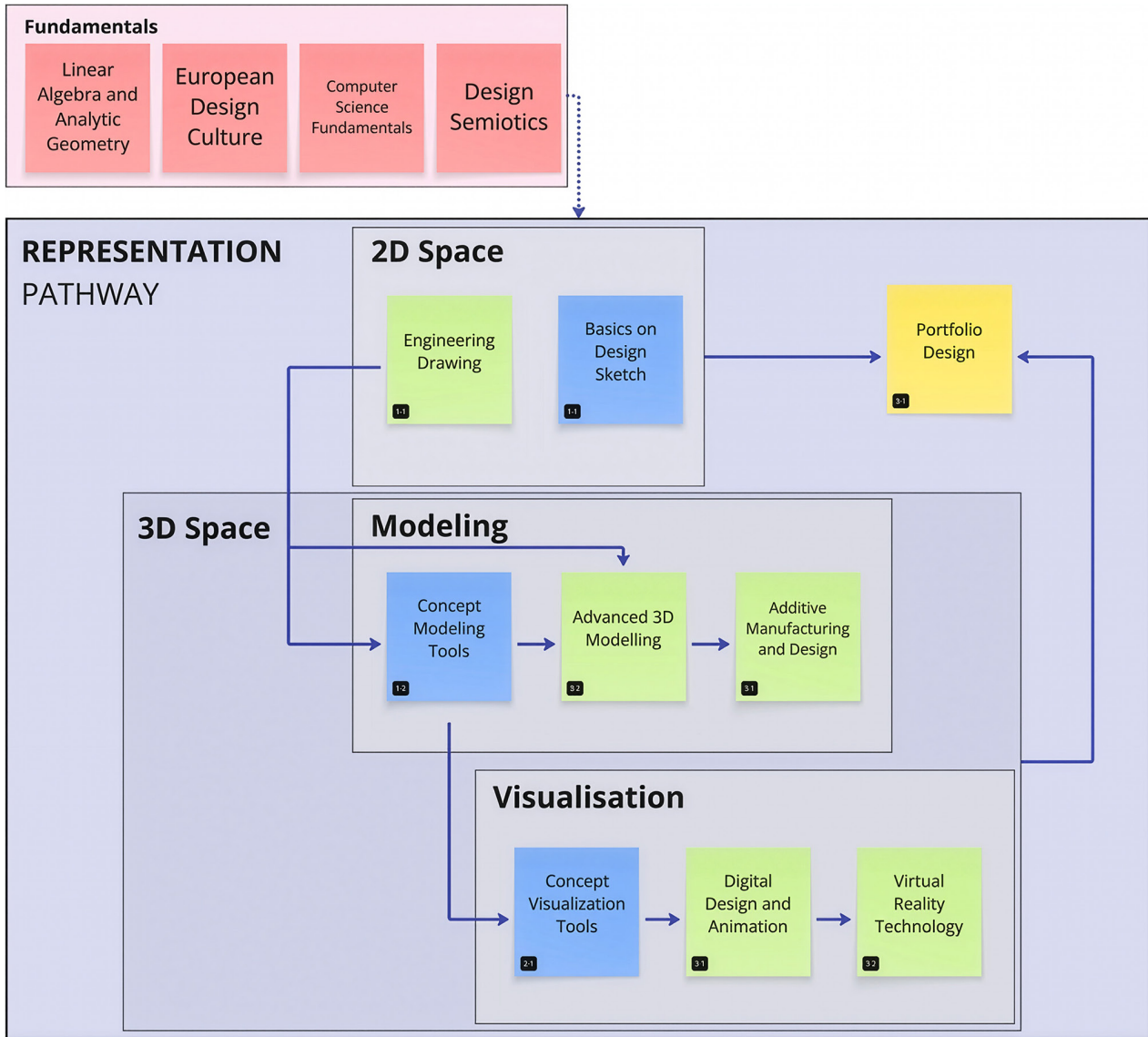


Fig. 8. The Representation Pathway as a synaptic spine. The diagram makes explicit a grammar of progression by modality (author's elaboration).

China/ Italy	TEACHING PERIOD (year-sem.)	Course Name	XJTU Credits	Hours
China	I-I	Engineering Drawing	3	48
Italy	I-I	Basics on Design Sketch	2 (was 3)	80 (was 96)
Italy	I-2	Concept Modeling Tools	3	64
Italy	2-I (was I-2)	Concept Visualization Tools	2	48
Italy	2-2	Advanced 3D Modeling	3	64
China	3-I	Digital Design and Animation	2	64
Italy	3-I	Additive Manufacturing and Design	2	40
Italy	3-I	Portfolio Design (NEW elective)	1	32
China	3-2	Virtual Reality Technology	2	40

Tab. 1. Semester-by-semester sequence of the Representation Pathway, with teaching responsibility, credits, and delivered hours.

Traceability as an epistemic property
of diagrammatic drawing

A third property emerges from the semester-based mapping (tab. 1): the traceability of redesign operations. The semester-indexed spine is not merely a managerial tool, but an epistemic artifact: it preserves the memory of decisions, makes visible what has changed relative to the previous configuration and why, and enables the curriculum's rationale to be questioned over time. In this sense, the Pathway functions as an active archive of curricular rationality: a structure that can be interrogated, challenged, and updated without losing track of the reasoning that produced it.

This addresses a structural weakness of low-formalization diagrams: the inability to distinguish intentional organization from historical sedimentation. By maintaining openness and traceability simultaneously (the diagramming environment remained open between sessions; changes were flagged with visual markers and iteratively consolidated in the mapping file), the synaptic surface produces a legible stratification of design rationality. An archive not as a static artifact, but as a dynamic record of curricular decisions.

What this adds to the disciplinary debate in drawing

The Representation Pathway demonstrates three properties of diagrammatic drawing that transcend the case study: the diagram constructs and orients relationships rather than merely making them visible; progression across representational modalities requires the externalization of cognitive dependencies that otherwise remain tacit without a shared graphic artifact; and decision traceability produces an epistemic memory of design rationality, a necessary condition for any responsible process of curriculum governance.

Discussion

While adopting the design curriculum as a case study, this paper ultimately examines drawing as a meaning-making device operating within multi-stakeholder governance contexts. The Sino-Italian joint program serves as the material through which properties of diagrammatic drawing –performative capacity, negotiability, and traceability– can be observed more clearly than they would in single-institution or

single-disciplinary settings. The complexity of governance (two universities, two cultures, two validation systems) is therefore not a limitation of the research, but the condition that makes these properties observable in their actual operation.

Within the Sino-Italian setting, shared artifacts reduced ambiguity across disciplinary languages and institutional cultures: the collaborative digital diagramming environment remained open for flagged proposals, changes were attributable to authenticated accounts, and they were reviewed collegially before consolidation. Partner validation is still ongoing, and the process has been slowed by leadership changes; the method should therefore be understood as support for responsible negotiation rather than as a guarantee of agreement.

Finally, the approach is explicitly oriented towards stakeholders, but at present it remains a design intention rather than an evaluated outcome: a student-facing map is still a project aim. Once partner validation is completed, the same representational infrastructure can support the publication of legible pathway narratives and post-implementation observation of effects. In drawing discipline practice, the shift from descriptive artifact to operative artifact –from a map that documents to a map that institutes relationships, guides decisions, and reshapes collective understanding of the problem– remains an open theoretical question that has not yet been systematically examined in the context of educational governance. Through the curricular

case, this contribution offers structural evidence that can inform that debate, and it suggests that the concept of diagrammatic drawing can be extended to domains in which representation functions simultaneously as an analytical instrument and a constitutive act.

Conclusions

This paper presented a representation-centered process for curriculum redesign within a multicultural, multidisciplinary university program. Treating a collaborative digital diagramming environment and a traceable structured mapping file as a synaptic surface produced a two-level model (Disciplines and Pathways), explicit sequencing logics, and traceable change operations supported by conservative hour-based checks.

The applied example of the Representation Pathway shows how diagrammatic drawing can make progression across representational modalities explicit and negotiable. The proposal remains a consolidated working version pending partner validation; any syllabus refinements are currently at the proposal stage and contingent on approvals, and a student-facing map belongs to the implementation phase.

Ultimately, the study argues that drawing, understood as diagrammatic representation, can operate as an organizational device that renders curricular relationships actionable, not merely describable.

Acknowledgments

The author would like to thank the working group involved in the degree program revision: Giovanni Bonaccorsi, Antonio Capone, Sara Creatini, Giovanni Quattrocchi, and Diego Scaccabarozzi.

Notes

[1] In this paper, contact hours refer to scheduled, in-person teaching hours. Independent study and assessment time are excluded [European Commission 2009].

[2] The figures prioritize the visualization of structural relationships to reduce confidentiality risks; the Representation Pathway is described in detail as an applied example.

[3] Because the procedures used to collect and aggregate student-reported data were managed by the Chinese partner, these data were treated as secondary evidence rather than as an evaluative dataset.

[4] The Academic Committee is the body responsible for course design and quality assurance. It includes faculty and administrative staff from both universities.

[5] The collaborative digital diagramming environment (MIRO) supported exploratory visualization and shared diagrammatic drawing.

[6] The structured mapping file (Excel) enabled systematic coding, the generation of comparative charts, and change traceability.

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RUBRICS

Readings/Rereadings

Readings/Rereadings

The World as Theater, the Theater as World. On Scenography as an Expanded Epistemology in Massimiliano Ciammaichella's Research

Francesco Bergamo

The book by Massimiliano Ciammaichella titled *Scenography and Perspective in Sixteenth and Seventeenth centuries in Venice. Preconditions and Developments in the Baroque Theatre* [Ciammaichella 2021] presents on its cover a digital drawing by the author, an axonometric section of the ephemeral wooden theater designed by Andrea Palladio for the *Antigono*, staged in Venice in 1565. The three-dimensional virtual model underlying this drawing declares the continuity between artifacts whose physical matter has been lost as well as the persistence of their cultural value in the present and, thanks to Ciammaichella's own published research, into the future. In her *Preface*, Francesca Fatta observes how, in the "multitude of actors, technicians, and spectators" and in the "training of experts in the field of stagecraft, in the design of enchantments and spells," there took concrete form the "material culture of the theater pertaining to the period described by Ciammaichella, made of panels, canvases, and scaffolding, and produced by craftsmen who often remained anonymous, which the author reconstructs in three-dimensional models" (p. 9; all transl. from the volume are by the author). Indeed, through the study of numerous archival and bibliographic sources and through operations of drawing and modeling, the book traverses the invention

of modern scenography in Venice and restores importance to the figure of the scenographer, a figure too often kept in the background by theater studies, which have concentrated chiefly on the authors of texts and music. Ciammaichella connects the foundations of the science of perspectival representation with the projects of the scenographers and architects active in Venice, by means of three-dimensional reconstructions made possible by a rereading of the original drawings, by comparison with the sources, and by the spatial relationship with the architectural and urban spaces in which the spectacles were produced. The urban dimension is an active part of the argument: the peculiar conformation of Venice—its *campi*, its palace courtyards, and its repurposed volumes—conditions the forms and placements of the productions, so that the city itself becomes the first of the scales on which the book focuses. As throughout Massimiliano Ciammaichella's work, drawing is the *trait d'union* that skillfully weaves connections among fields of knowledge that are sometimes still distant from one another, generating new knowledge by activating sources that are at times mute, thereby making them available to a plurality of disciplinary contexts and interests. The cover drawing may thus be understood as a declaration of method for research that

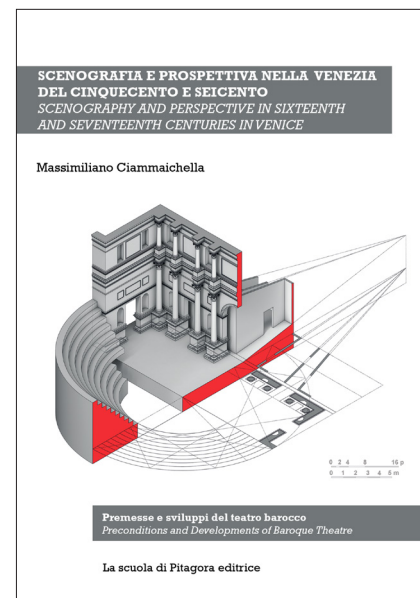


Fig. 1. Cover of the book [Ciammaichella 2021].

takes up drawing not as the illustrative accompaniment to a historical inquiry, but as its primary instrument of knowledge. The book opens with a dense survey of the festivities –both public and popular– and spectacles staged in Venice during the sixteenth century. The first chapter, *The City and the Spectacle*, rests on an imposing labor of documentary and bibliographic excavation, with archival sources transcribed at several points and articulated into a unified and original argument. Theater reveals itself here as the ideal field in which Massimiliano Ciammaichella's manifold interests converge: geometry and drawing, first of all, but also their political, social, historical, and performative implications. Theater is a representation of the world, and by reading its vicissitudes in depth it becomes possible to understand the world more fully, and to grasp how the very idea of the world has changed over the centuries [Ciammaichella, Ena, Liva 2024]. The chapter reconstructs, in parallel, the passage from ephemeral productions to the first permanent theaters. Among the cases analyzed in detail, one that stands out is the 1542 apparatus in Campo Santo Stefano for Pietro Aretino's *La Talanta*, with the stage designed by Giorgio Vasari, commissioned in 1541 and begun in December, for which the author offers a graphic reconstruction based on all the sources he was able to trace (pp. 30-36). The narrative proceeds through successive episodes, identified as salient moments in the change under way; episodes that, as we know, will converge upon Andrea Palladio's Teatro Olimpico in Vicenza (1585): the idea of the theater as a public building, anticipated by Alvise Cornaro; the ephemeral Palladian productions of *Amor costante* (1561) and of Trissino's *Sofonisba* (1562); and, finally, the episode evoked by the cover, the *Antigono*

of Shrove Tuesday 1565, a tragedy by Antonio Pigatti, for which Palladio designed the wooden theater and Federico Zuccari painted the solid perspectives of Jerusalem in twelve scenes. Here the author does not simply record the sources, which are often discordant: he tests their soundness by reconstructing, through drawing, the layout of the structure and by verifying whether its dimensions were compatible with the location that historiography has hypothesized in the courtyard of Ca' Foscari. From the author's account there also clearly emerges the relationship with the theoretical framework of the stage and theater designers: the reworking of Vitruvius's *I dieci libri dell'architettura* undertaken by Daniele Barbaro together with Palladio [Barbaro 1556], giving rise to a conception of the stage designed on the basis of geometries.

The chapter further traces the reasons for the birth of Venice's paying theaters, "forerunners of the Baroque theater" (p. 54), beginning with the Teatro Michiel in 1580 and the Teatro Tron in 1581. Built at great economic outlay, they were equipped with a pit and several tiers of boxes and, in the case of the Tron, with a horseshoe-shaped cavea that already prefigured the *teatro all'italiana* of the following century. It is the idea of theater that would welcome the arrival of Claudio Monteverdi as a choirmaster of the Serenissima in 1613 and would influence the Teatro San Cassiano (1637) and Giacomo Torelli's Novissimo (1641): a model, the author observes, destined to take root throughout Europe and still flourishing today.

The second chapter, *The Mathematics of Illusion*, is the shortest one (pp. 67-99), yet within the architecture of the book it constitutes the crucial hinge that allows expertise in perspective and stagecraft to emerge as fundamental to the birth and development of the Baroque

theater. Perspective is considered here as the science capable of determining the mode of reception and the role of the spectator; while the static, Vitruvian-derived stage of the Teatro Olimpico gives way, in Venice, to the liberation of the fourth wall, which makes possible a dynamic, mutable scenography able to follow the unfolding of the *melodramma* (pp. 67 ff.). This observation follows from the historical-critical study the author conducts on the treatises and verifies through redrawing: from the Vitruvian *periaktōi* with their three scenes –tragic, comic, and satyric– to Serlio's *Secondo libro* (1545) and the solid perspectives; to the fourth part of Daniele Barbaro's *Pratica della prospettiva* (1568), devoted to scenography; and as far as the unpublished treatise of Ludovico Cardi, known as Cigoli, brought out by his nephew Giovan Battista Cardi in 1629, in which Massimiliano Ciammaichella recognizes an anticipation of the eighteenth-century solutions of Ferdinando Galli Bibiena. The analysis of the theater of Sabbioneta, designed by Vincenzo Scamozzi between 1588 and 1590, is exemplary of this manner of proceeding. Beyond the solid perspective, the author brings to light its functional modernity –separate entrances for the public, dressing rooms for performers and musicians on two levels, a multipurpose vocation for tragedy and comedy alike– and offers a three-dimensional reconstruction that makes it possible to recover the vantage point of the privileged observer, positioned along the longitudinal axis in line with the door that was designed at the middle of the wall. The most eloquent fact is geometric: sets ten meters deep yield a street perceived as three times that length, through the effect of accelerated perspective, and the position of the elect observer reconnects the geometry of the stage to its political dimension.

For Ciammaichella, digital modeling is the contemporary continuation of the very perspectival thinking that is the object of his study: the digital model becomes the place where a historical hypothesis is made verifiable and can be actualized, demonstrating how today's instruments of representation can restore scientific dignity to a heritage otherwise consigned to fragmentary and discordant sources.

The third chapter, *The Baroque Stage*, occupies the entire second half of the volume (pp. 100-187) and opens with a lively, at times tragicomic, examination of early-seventeenth-century Venice: the decline of the Republic, the Interdict of 1606, and the expulsion of the Jesuits all help to explain, in causal terms, the progressive rise of Venetian theater; otherwise incomprehensible at a moment of economic, political, and military crisis for the Serenissima. After the reopening of the Tron family's Teatro San Cassan in 1637, paying theaters proliferate, and the companies' need for self-financing gives rise, within the span of two decades, to the professional figure of the theatrical impresario. Through drawing, the author shows how theatrical spaces and productions evolved in relation to an audience ever more demanding and ever more willing to spend ever more, to take part in ever more astonishing spectacles. We are thus able to understand and to compare the projects for the Teatro San Cassan, whose 1670 configuration is set beside the later design by Francesco Bagnolo of 1762; for the Teatro San Moisé, converted into a musical theater in 1639 and destined to host, in 1810, Gioacchino Rossini's debut with *La cambiale di matrimonio*; and for the Teatro San Samuele, opened in 1656 and managed by the Grimani family.

The subchapter *Scenographers and Spectacles* (pp. 125-183), lavish in iconographic sources, shows how far the book exceeds

pure theatrical topography, considering simultaneously three closely interrelated scales: the city of Venice, the individual theaters, and the complex work of the scenographers, between fixed scenes animated by light and dynamic scenes in which people, animals, and objects fly and are transformed, with results of increasing spectacularity and European resonance. Scenography itself is followed in its public and private aspects, without neglecting the ephemeral productions commissioned by nobles for the courtyards and halls of their palaces and thereby reconnecting, ideally, with the context of the sixteenth-century festivities reconstructed at the opening of the volume.

A little-known economic history of spectacle also emerges with clarity: paid admission, speculation on the boxes, the self-financing of the companies, and the birth of the figure of the impresario make of Venetian theater a productive system that helps keep alive the cultural relationship between Venice and the world. The finest architects and scenographers converge on Venice from several Italian cities and from there radiate outward into the courts and theaters of Europe, according to a model –the so-called *teatro all'italiana*– of long-lasting fortune. The figure of Giacomo Torelli is emblematic here, capable as he was of transferring his scenographic inventions into the engineering and military spheres, to buildings and warships; and it is significant that this brilliant openness of mind should be recognized by a scholar who owes his own *forma mentis* to that very multidisciplinary approach, and who had found in the theater the world where one can study, in their reciprocal relations and among many other things, Drawing, Descriptive Geometry, the human body, fashion and costume, music, writing, politics, architecture, the city, and what we now call the

performing arts. It comes as no surprise, then, that the volume takes its leave by defining the theater as “the democratic institution that clearly grasps the concept of *Representation*” (p. 191).

This book can be read as a refined work of directorial staging: it orchestrates a crowd of authors, draftsmen, treatise-writers, and designers, some of whom had until now remained in the shadows, restoring to each of them dignity and a web of reciprocal relations. It is an undertaking that reflects the singular figure –within the Italian and international landscape alike– of the scholar Massimiliano Ciammaichella, able to connect, on the most solid of scientific foundations, worlds apparently distant from one another, bringing forth their hidden aspects. This is, then, a book on the Baroque theater of great present relevance, and its author is profoundly contemporary, if it is true that “The contemporary is he who firmly holds his gaze on his own time so as to perceive not its light, but rather its darkness. [...] This means [...] that to perceive this darkness is not a form of inertia or of passivity, but rather implies an activity and a singular ability, which [...] amounts to a neutralization of the lights that come from the epoch in order to discover its obscurity, its special darkness, which is not, however, separable from those lights” [Agamben 2009, p. 44], and, moreover, that “the contemporary [...] is also the one who, dividing and interpolating time, is capable of transforming it and putting it in relation with other times. He is able to read history in unforeseen ways, to ‘cite it’ according to a necessity that does not arise in any way from his will, but from an exigency to which he cannot not respond” (p. 53) [see also Ciammaichella 2023].

The text, rich in quotations from the documents of the period, is complemented by a substantial iconographic apparatus in

which the author's drawings dialogue with the historical engravings he has tracked down: the latter are working material, a point of departure for reconstructing the vantage point, the design rationale, the innovations. Where the period image is missing or grows reticent, redrawing takes over; where it survives, eidographic analysis interrogates its graphic features to the point of allowing, in some cases, hypotheses of attribution for the drawings and hence for the projects. Here one can take the full measure of the repertoire of cognitive uses to which drawing may lend itself: spatial reconstruction, the testing of historiographic hypotheses, regressive dating, attribution. And the reader senses, as a common ground, a love for drawing that is the author's own. Rereading this book on the occasion of this brief commentary has led me to recall the many moments in which

Massimiliano Ciammaichella shared this love, with care and generosity, communicating his discoveries and submitting his own intuitions to discussion with the people around him. I remember his words, during a telephone call or a meeting in Venice, and I remember how much he valued exchange, first and foremost with his beloved Stefania, but also with colleagues, doctoral students, students, and friends (and often these categories were anything but separated). These ideas continue to exist, to proliferate, and to generate new ideas, in the memory of those who knew him and in the minds and the work of those who continue to study his research. *Scenography and Perspective in Sixteenth and Seventeenth centuries in Venice* contains the seeds for many other possible inquiries, as is shown, for instance, by the volume *Tutto il mondo è teatro. Digitalizzazione,*

accessibilità e valorizzazione della scena scomparsa, edited by Massimiliano Ciammaichella together with Roberta Ena and Gabriella Liva [Ciammaichella, Ena, Liva 2024], which documents the outcomes of the eponymous seminar organized by the editors at the Università Iuav di Venezia on May 20, 2024, and which, as Agostino De Rosa notes in his preface, proposes a stratigraphic reading, organized across multiple levels, of the theme of vanished theaters, in some sense bringing back to life and actualizing the work of people who had been active in the Baroque age. The research continues with the PRIN 2022 project *SCAENAE – Italian Baroque Theatre: Paradigms of Scene and Cultural Memory* [cf: Valenti, Ciammaichella 2025], which Massimiliano Ciammaichella had shaped and will surely continue along paths and through connections that will animate the stage of the theater of the world.

Note

[1] Principal Investigator: Graziano Mario Valenti, Sapienza Università di Roma; Associated Investigators: Massimiliano Ciammaichella, Università Iuav di Venezia (now Gabriella Liva, Università Iuav di Venezia), Elena Gigliarelli, CNR. Consiglio Nazionale delle Ricerche.

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Reviews

Reviews

Alessandro Meloni

Percepire e rappresentare lo spazio oltre la visione. Strategie di comunicazione multisensoriale per l'accessibilità del Museo di Arte Orientale Edoardo Chiossone

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Napoli 2025
304 pp.
ISBN: 978-88-6887-352-3



The book *Percepire e rappresentare lo spazio oltre la visione. Strategie di comunicazione multisensoriale per l'accessibilità del Museo di Arte Orientale Edoardo Chiossone* by Alessandro Meloni is part of a line of research that has gained increasing relevance in recent years, investigating the relationship between representation, perception and accessibility. Published in the *Beyond Accessibility* series by FedOA Press, the book addresses a topic of particular significance for Representation studies: the possibility of understanding and communicating architectural space through methods that transcend the traditional primacy of vision.

From the very first pages, the research framework emerges clearly through a set of questions that guide the entire investigation: «Can a blind person understand the characteristics and qualities of space in the same way as a sighted person? Can the sensations perceived by a blind person enrich the aesthetic reading of architecture?» and, above all, «Which methods and representation tools can contribute to an accessible communication of architectural space?» [p. 15]. The relevance of these questions lies in their ability to shift the debate from the normative domain of accessibility to the broader field of spatial knowledge and experience, directly involving representation as a tool for cultural mediation and the construction of architectural knowledge.

The volume is structured into three complementary sections. The first establishes the theoretical framework of the research by addressing the themes of perception, representation and orientation. One of the most original aspects of this section is the ability to place Representation in dialogue with different disciplinary fields, ranging from neuroscience and cognitive psychology to the philosophy of perception and wayfinding studies. The author examines the functioning of vision and the relationship between the eye, the brain, and the

construction of mental images, while simultaneously analysing perceptual dynamics activated through alternative sensory channels.

Particularly noteworthy is the emphasis placed on neuroscientific studies, which are not treated merely as a supporting theoretical framework but rather as a means of redefining the very concept of architectural experience. Reflections on cognitive processes, multisensory perception and embodied perception let to overcome a predominantly ocularcentric conception of architecture, demonstrating how the understanding of space results from the complex integration of visual, tactile, auditory and proprioceptive stimuli. In this respect, the book explicitly engages with theories of embodied perception and multisensory experience developed by scholars such as Juhani Pallasmaa and Harry Francis Mallgrave, whose work serves as a reference for rethinking the relationship between body, perception, and architectural space.

The significance of the first section also lies in its capacity to bring the issue of accessibility back into dialogue with questions that have historically been central to the discipline of Representation. Perception is not treated as a secondary or highly specialised topic but rather as an interpretative key for understanding the processes through which space is known, represented and communicated. From this perspective, the comparison between sighted and blind individuals acquires a methodological value that extends beyond the specific case study, encouraging a critical examination of many of the implicit assumptions underlying contemporary visual culture.

The second section focuses on the Edoardo Chiossone Museum of Oriental Art in Genoa, adopted as a case study through which the previously discussed theoretical issues can be tested in practice. The interest of the analysis lies not only in the historical and architectural

value of the building but above all in its particular spatial configuration, characterised by complex circulation systems and limited physical accessibility. The reconstruction of the museum's design history and subsequent transformation proposals, including the project developed by Gae Aulenti, allows the author to highlight the often problematic relationship between architectural quality, usability and inclusion.

The case study, however, assumes a significance that extends beyond the simple application of theoretical principles, becoming a genuine experimental laboratory in which to test the capacity of representational tools to contribute to the construction of inclusive spatial knowledge. The building's complex layout, the succession of routes; in this regard, the presence of both physical and perceptual obstacles provide an opportunity to assess different methodologies while comparing their strengths and limitations. In this sense, the museum is not merely an object of study but a research platform through which procedures transferable to other cultural and architectural contexts can be developed.

From a disciplinary perspective, the chapters devoted to representational strategies and spatial analysis are particularly significant. Virtual models, panoramic photography, three-dimensional isovists and simulation tools are employed not merely as devices for documentation but as genuine interpretative instruments. Representation thus assumes an active role in the process of knowledge production, confirming one of the underlying assumptions that runs throughout the volume: understanding space also means identifying effective ways of communicating it.

The third section presents the applied outcomes of the research and arguably constitutes the most compelling part of the work. Theoretical analyses, scientific references, and experiments conducted on the case study converge in the definition of an operational proposal aimed at improving the museum's accessibility. In particular, the *MultiPano* project and the development of tactile devices for understanding space in the absence of vision demonstrate the author's intention to

translate theoretical reflection into concrete mediation tools. The most convincing aspect of these experiments lies in their capacity not merely to compensate for a sensory limitation but to enhance alternative modes of perception and architectural experience.

At the same time, the contribution of the book extends beyond its applied dimension and the specific issue of museum accessibility. One of its most stimulating reflections concerns the relationship between aesthetic experience and multisensory perception. Architectural appreciation has traditionally been associated with a predominantly visual reading based on the observation of form, proportions, and compositional relationships. The book proposes a different perspective, suggesting that the understanding of architectural qualities may also emerge through the coordinated involvement of other senses. In this way, the absence of sight is not interpreted only as a limitation but rather as an opportunity to recognise aspects of spatial experience that are often overlooked in contemporary design culture.

From a methodological standpoint, another distinctive feature of the work is the constant dialogue between empirical observation and theoretical construction. Perceptual investigations involving both sighted and blind participants, in situ experiments, and analyses of digital tools are not presented as isolated episodes but as parts of a progressive process of verification. The research thus assumes a circular structure in which theory, experimentation, and design continuously inform one another; once again recognising representation as a tool that is not only descriptive but also heuristic and interpretative.

From this perspective, the book also offers an important contribution to contemporary reflections on digital technologies. Virtual models, immersive panoramas and simulation tools are not celebrated as autonomous solutions to accessibility issues but are instead framed within a broader communication strategy. The author's attention remains consistently focused on the ways in which these tools can facilitate the construction of mental images and the understanding of spatial qualities. This balanced

position successfully avoids both technocentric enthusiasm and an exclusively assistive conception of inclusion.

Equally noteworthy is the decision to address accessibility through the concept of multisensory perception. In recent years, disciplinary debate has often focused on the removal of physical barriers or on the adoption of dedicated technological devices. Meloni's work instead proposes a broader reflection in which accessibility and perception are considered inseparable aspects of the same cognitive process. The result is a conception of architecture and its representation grounded in the plurality of experiences and in the enhancement of different modes of relating to space.

The conclusions effectively synthesise the overall contribution of the research. The author states that the work aims to redefine the concept of accessibility by abandoning common assumptions associated with a strictly visual conception of architecture, highlighting how an understanding of these dynamics can enrich the experience of all users, not only those with disabilities. Within this framework, accessibility is no longer seen as a set of technical solutions addressed to specific categories of users but rather as an opportunity to expand the ways in which people relate to the built environment. It is no coincidence that the book ends with an ideal reference to Paul Klee's celebrated perceptual diagram. If, in Klee's reflection, the construction of the image originated from the interaction between subject, world, and perception, Meloni's research appears to extend its meaning towards an authentically multisensory and inclusive dimension. It is precisely in this opening that the most significant value of the work resides: demonstrating how representation can become a tool capable not only of describing space but also of expanding the very possibilities of its understanding. The result is an original contribution to Representation Studies, one that extends the debate on accessibility beyond its normative and technological dimensions and reconnects it to the fundamental issues of perception, communication and the construction of architectural experience.

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Reviews

Emanuela Chiavoni, Giulia Pettoello,
Giorgia Potestà, Federico Rebecchini

***Disegno per la Moda /
Drawing for Fashion***

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collana "Materiali e documenti", n. 119
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pp. 230
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Within the framework of recent reflections on Drawing in university education and interdisciplinary research, *Disegno per la Moda / Drawing for Fashion* is a contribution of particular interest to the academic community of Drawing and, more generally, to scholars in the fields of representation, visual culture, and fashion studies. This work belongs to a line of research that has recently expanded the discipline's scope to include the fashion system, a field in which Massimiliano Ciammaichella has played a pioneering role, and to whose impactful research this issue of the scientific journal *disegno* is dedicated. We owe much to his perspective and studies, through which he has helped to investigate fashion using the theoretical and practical tools of representation, exploring the relationships between body, identity, design, and image, and the expressive potential of Drawing across analog practices, digital processes, and scenarios opened up by new technologies.

Published in 2025 by Sapienza Università Editrice as part of the *Materiali e documenti* series, this bilingual Italian-English volume, edited by Emanuela Chiavoni, Giulia Pettoello, Giorgia Potestà, and Federico Re-

becchini, is deeply rooted in this field of research. It compiles and organizes nearly a decade of teaching and experimental activities from the bachelor's degree programs in *Fashion and Costume Sciences* and *Fashion Studies*. Additionally, the volume includes the proceedings of the *Disegno & Moda* exhibition, which serves as an archive of educational experiences and methodological reflections, showcasing the outcomes of a journey that has positioned Drawing at the heart of knowledge-building processes.

The book's main value resides in its capacity to document the scientific, methodological, and technical advancements achieved within the discipline, showcasing how Drawing transcends the conventional boundaries of architecture and engineering. It presents a vision of the discipline as more than just a representational practice; rather, it is framed as a cognitive tool, an interpretive instrument, and an interdisciplinary language that can effectively read, analyze, and communicate the complexities of fashion-related cultural phenomena.

From the very first pages, the authors clearly articulate the aims of the editorial project, born of the intention "to record, in a single volume, the

content, methods, and techniques of Drawing within university education" (p. 7) and, at the same time, "to provide an initial overview of the teachings, methods, and tools used in Drawing education over the past decade, balancing cultural tradition with technological innovation" (p. 7). This programmatic statement effectively defines the scope of the work, serving as a tool for reflection on the teaching of Drawing and as an archive of practices, experiences, and results intended to form a foundation for future research developments.

One of the most significant aspects of this volume is its documentation of a positive and productive inter-faculty and interdepartmental collaboration within Sapienza University of Rome between the Faculties of Architecture and of Letters and Philosophy. This experience represents an interesting case of integration between the humanities and the disciplines of representation. The collaboration initiated by Alessandro Saggiaro and Emanuela Chiavoni has made it possible to introduce Drawing as a structural component of fashion-related degree programs, demonstrating the interaction between teaching and research, and reflecting this synergy not only in the creation of new courses but also in the development of a group of young scholars and researchers – Gaia Lisa Tacchi, Francesca Porfiri, Alekos Diacodimitri, Giulia Pettoello, Federico Rebecchini, and Giorgia Potestà – who have contributed to the development of a scientific and educational project that is now well-established.

The structure of the volume consistently reflects the educational and scientific framework that underpins it. After the introductory contribu-

tions by Romana Andò, Alessandro Saggiaro, and Emanuela Chiavoni, the book presents the activities developed in the various courses within the Drawing scientific disciplinary sector offered in fashion-focused degree programs. The sections dedicated to Theory and Techniques of Drawing – Drawing 1, Theory and Techniques of Drawing – Drawing 2, Fashion Illustration – Track 1, and Fashion Illustration – Track 2 illustrate the curriculum of the bachelor's degree program, while the courses Science of Drawing – Science 1 and Science of Drawing – Science 2 document the experience of the international master's program in Fashion Studies. The volume is rounded out by a section dedicated to graduation theses, documentation of the *Drawing & Fashion* exhibition, and concluding reflections.

The interpretive framework that runs throughout the entire publication is the centrality of Drawing as a vehicle for knowledge. Throughout the volume, the notion emerges that Drawing transcends the purely technical dimension of representation and takes on epistemological value. This approach is particularly well-articulated in Romana Andò's contribution, where she draws on Emanuela Chiavoni's insights to present drawing as a powerful language that enhances our ability to "think and understand" (p. 10). Andò underscores its role as "a bridge between cultures, a builder of perceptions, and a facilitator of interpretations" (p. 10).

The outcome of this process is the definition of Drawing as a "space for symbolic mediation" (p. 10), an expression that effectively summarizes the entire volume from a theoretical perspective. From this perspective,

Drawing becomes the tool through which to read, interpret, and communicate the complexity of the fashion system, connecting objects, bodies, cultures, social practices, and collective imaginaries. Andò further observes that "in our degree programs, drawing becomes the actual connective tissue linking different fields of knowledge and disciplines" (p. 10). This statement clearly highlights the interdisciplinary nature of the experience described in the book. Drawing, in fact, serves as a meeting point between art history, anthropology, semiotics, sociology, visual culture, design, and communication, demonstrating an extraordinary ability to bridge different disciplinary contexts.

An analysis of the individual courses reveals the methodological progression that characterizes the educational program. In the Drawing 1 and Drawing 2 courses, the focus is on acquiring the fundamental skills of representation: observation, perception, proportion, form construction, spatial organization, and the development of a conscious graphic language. In this context, Drawing retains its traditional cognitive value and is directly linked to the practice of field surveying, understood as a process of analyzing and interpreting reality.

Although operating in a context different from that of architecture, students are guided to use drawing as a tool for critical observation. The body, clothing, accessories, and textile artifacts become objects of study through which to experiment with established methods of representation. Here, we recognize the continuity with the scientific tradition of the discipline, which has always attributed a central role to survey and

direct observation in the processes of knowledge acquisition.

In Fashion Illustration courses, drawing progressively evolves toward more interpretive and communicative approaches. Traditional techniques are integrated with digital tools, multimedia languages, and innovative methodologies. This volume effectively documents the integration of analog and digital, demonstrating how the discipline of drawing can adapt to technological transformations without compromising its theoretical foundations.

Particularly innovative is the experiential section dedicated to the *Science of Drawing* courses. Aimed at students in the international master's program in *Fashion Studies*, these courses take on a fully intercultural and interdisciplinary dimension. In this context, drawing serves as a universal language that transcends linguistic and cultural differences, functioning as an essential tool for communication, research, and constructive dialogue.

The international focus of the *Science of Drawing - Science 2* course is another innovative aspect of the educational project. The works collected in the volume indeed reflect a diversity of approaches, sensibilities, and cultural references that find a common ground for exchange in the language of graphics. Drawing thus becomes a tool for cultural mediation and the building of dialogue, concretely confirming the definition proposed by Romana Andò.

The archival dimension is examined in Alessandro Saggioro's contribution, which underscores the key strengths of the exhibition and catalog: their remarkable ability to transform educational outputs into a

shared cultural heritage. The scholar observes, in fact, that "the ability to collect and enhance the products of many students, to make them an archive for future reflection, and a method for research and study, constitutes the essential value of the exhibition and now of the catalog that arises from it" (p. 14).

This statement highlights a significant aspect of the educational experience undertaken. The volume not only showcases the educational outcomes achieved but also serves as a comprehensive record of research aimed at preserving and providing access to materials that will be invaluable for future investigations into drawing, fashion, and educational methodologies.

The section dedicated to thesis projects is also of interest. The list of works produced by the students not only documents the growing academic maturity achieved by the educational programs but also attests to the courses' ability to generate new lines of research. The theses demonstrate how Drawing has become an autonomous field of inquiry within *Fashion Studies* and how it can be used as a framework for the critical analysis of contemporary visual culture. The breadth of the topics addressed—from the representation of the body to digital technologies, from exhibition practices to visual communication—demonstrates the fruitful relationship between Drawing and Fashion and its capacity to generate interdisciplinary knowledge.

The exhibition *Disegno & Moda*, from which this volume originates, plays an equally important role. It represents the public presentation of a research and educational journey that finds its critical systematization in the catalog. While the exhibition showcases the

students' work, the volume organizes its contents, interprets the results, and presents them to the academic community, transforming the exhibition experience into a tool for disciplinary reflection.

In this context, the book's visual content takes on a significant role. The quality of the images, the richness of the graphic documentation, the variety of techniques represented, and the careful layout are among the book's key strengths. Life drawings, sketches, surveys, digital renderings, mood boards, design drawings, and visual experiments transcend mere illustration; they contribute significantly to the development of scientific discourse. This underscores the research tradition intrinsic to Drawing, where visual representation becomes a vital form of knowledge.

Taken as a whole, the work effectively captures the maturation of a scientific and educational experience that has transformed Drawing into a forum for dialogue among different disciplines, languages, and design practices. The documentation of the activities carried out, the reflection on the methods adopted, and the quality of the results presented highlight the discipline's ability to engage with emerging areas of contemporary research, expanding its fields of application without compromising its theoretical and methodological foundations. From this perspective, *Disegno per la Moda / Drawing for Fashion* serves simultaneously as a testament to a significant educational and scientific research experience, providing valuable insights for future discussions on the relationship between representation, design culture, and fashion studies. It serves as an exemplary model for the academic

community, demonstrating the successful integration of research, teaching, and the 'third mission', while reaffirming the productive dialogue between the humanities and the disciplines of representation.

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Reviews

Renato Angeloni

Rappresentazione digitale e realtà estesa. Soluzioni per la fruizione del patrimonio culturale

Aracne

Roma 2024

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ISBN: 979-12-218-1580-1

In contemporary debates on digital cultural heritage, there is no shortage of highly technical volumes on surveying and many, often more popular, texts on virtual and augmented reality. Renato Angeloni's book, *Rappresentazione digitale e realtà estesa. Soluzioni per la fruizione del patrimonio culturale*, occupies an interesting intermediate position: it is neither an operational handbook nor a simple catalogue of 'immersive' experiences, but rather a deliberate attempt to establish continuity between the culture of architectural surveying and digital fruition practices, taking the 3D model as a shared infrastructure between documentation and access.

Published by Aracne in the series *Architettura, Costruzione e Recupero del Patrimonio - Ricerche*, it proposes a concise yet articulated trajectory that connects the normative and methodological framework of digitisation with exemplary case studies, in which the digital model becomes a device for knowledge, access, and cultural mediation. The structure is clearly organised into three parts. Following Paolo Clini's preface and an introduction that recalls the European Year of Cultural Heritage 2018 and recent European strategies for heritage protection and enhancement, the first chapter is devoted to techniques for the digital representation of heritage, the second to fruition from physical reality to extended reality, and the third to models and applied experiences. The decision to distinguish sharply between the acquisition phase and the fruition phase, and then converge on a set of emblematic case studies, produces a coherent framework that guides the reader from theoretical methodological premises to operative outcomes.

In Chapter I, the author provides an up-to-date overview of the main survey and data acquisition methodologies, distinguishing between image-based and range-based methods. The former are presented along a trajectory that runs from traditional photogrammetry to recent automated procedures and the potential of image-based

reconstructions assisted by artificial intelligence; the latter focus on active sensors, particularly terrestrial laser scanning, highlighting both technological evolution and its implications for workflows and pointcloud management.

Chapter II constitutes the conceptual core of the book, shifting the focus from digital replica to the construction of experience. Angeloni adopts Milgram and Kishino's Reality-Virtuality Continuum as a theoretical framework to define the different declinations of extended reality –augmented, mixed, and virtual– and organises the discussion around degrees of immersion, the nature of interaction, and the relationship between the physical world and digital content. Within this framework, AR is described as an *in situ* enrichment device, MR as a hybrid space in which users interact with physical and digital objects, and VR as a fully simulated environment granting access to remote, fragile, or lost places. Perhaps the most original aspect of this chapter does not lie in the taxonomy of technologies as such, but rather in the effort to root their use in a perspective of accessibility and cultural rights. By emphasising the possibility of 'virtually' bringing works and sites into homes, schools, and distant communities, Angeloni interprets digitisation as a cultural and political act, capable of reducing geographic, economic, and physical barriers and enabling forms of informed participation. In this sense, XR is not presented as a merely spectacular device but as a tool for modulating the visitor's experience, calibrating it to users' skills, needs, and constraints.

The reference to the ThreeYear Plan for the Digitisation and Innovation of Museums (Direzione Generale Musei - MiBACT) and, more broadly, to national guidelines for 'aware' digitisation of heritage allows the author to situate his argument within a clear institutional and policy framework. The adoption of the lexicon of digital transformation –management, conservation, access, innovative services– is, however,



constantly mediated by a disciplinary perspective firmly anchored in the culture of drawing and surveying, which remain the devices through which data quality, and consequently experience quality, are constructed.

The three examples presented in Chapter III are not mere appendices but genuine argumentative devices. Federico da Montefeltro's *Studio* in Urbino is interpreted as a laboratory for recomposing a 'scattered' interior, in which the digital replica restores a spatial and semantic unity weakened by the history of collecting and dispersion. The underground chambers of Palazzo Campana clearly demonstrate the substitutive – and not only integrative – role of virtual experiences: closure to the public for conservation reasons makes the VR environment the only possible access, turning the 3D model into an interface between conservation and fruition. Leonardo's machines, finally, exemplify the didactic potential of extended reality: virtual disassembly and reassembly of the devices makes mechanical logics and relationships between parts explicit, shifting attention from mere 'wonder' to functional understanding.

Overall, the volume stands out for several evident strengths. First, the clarity with which it articulates the relationship between technical and experiential levels: the digital replica is never an end in itself, but is consistently related to usage scenarios, user typologies, and educational and communicative objectives. Second, the attention

to the normative framework and national strategies for digitisation helps to situate individual experiments within a systemic horizon that goes beyond the single project. Finally, the coherence among the three parts – methods of representation, extended reality, case studies – produces an effective narrative, suitable both for readers approaching the topic for the first time and for scholars and practitioners already involved in digital heritage projects.

At the same time, the book's deliberately programmatic stance reveals some room for further critical inquiry. The emphasis on the potential of XR technologies in terms of accessibility and engagement sometimes risks overshadowing problematic issues such as the digital divide, dependence on complex technological infrastructures, or the dangers of information overload and 'spectacularisation' of experience at the expense of interpretative depth. Moreover, reflection on the epistemological implications of digital replicas – the relationship between original and copy, the construction of authority in reconstructions, the role of paradata in governing interpretation – remains in the background, even though it is evoked through references to the London Charter and the tradition of scientific visualisation.

Despite these limitations, which can be read more as an invitation to future integrations than as actual shortcomings, *Rappresentazione digitale e realtà estesa* offers a significant contribution to studies on the relationship between

digital representation and heritage fruition. The writing maintains an effective balance between clarity and scientific rigour, and the volume presents itself as a useful tool not only for the community of drawing and surveying scholars, but also for museum curators, heritage professionals, and students interested in understanding how the transition "from the physical to the virtual world" can be governed with methodological awareness and careful attention to the cultural and ethical dimensions of digital transformation. *Rappresentazione digitale e realtà estesa* is, ultimately, a bridging text: between the tradition of architectural surveying and the cultures of interactivity; between the language of norms and that of experimental design; between the rhetoric of conservation and that of participation. It serves as a structured introduction for those approaching the topic for the first time – in particular students and early-career researchers – and, at the same time, as an operational synthesis for practitioners already working in the field of digital documentation and fruition, offering a concise framework within which practices and experiments can be repositioned. In this sense, rather than closing a phase, Angeloni's work appears to open a construction site: that of a mature reflection on the ways in which extended reality can become a 'third place' between research, design, and fruition, without renouncing the critical complexity of the cultural heritage it aims to serve.

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Events

Events

Reading Drawing: *I Libro: I Disegno* Scientific Review and the Emerging Geographies of UID Research

Laura Farroni

Throughout 2025, the review series *I Libro: I Disegno*, promoted by the Unione italiana per il Disegno (UID), once again confirmed its role as a stable forum for scholarly discussion devoted to the editorial production of the CEAR-10/A disciplinary sector. Conceived as an initiative to share and debate the most recent publications in the field of Drawing and structured around monthly online meetings, the series has progressively evolved into a critical apparatus for examining the sector's scientific output. Through books, scientific editions, and scholarly debates, it has made visible the epistemological, methodological, and taxonomic transformations currently reshaping the discipline. In 2025, the series underwent a significant reorganization of its coordination team. Alongside the original group –Massimiliano Ciammaichella (who passed away prematurely in August 2025), Enrico Cicalò, Laura Farroni, Francesca Fatta, and Ornella Zerlenga– Stefano Brusaporci and Roberta Spallone joined the coordination, with Matteo Flavio Mancini contributing to the management staff. During the same year, Enrico Cicalò and Francesca Fatta concluded their participation in the coordination committee. The publications examined throughout the year included both monographs and

scientific editions covering a wide range of topics consistent with the scope of the CEAR-10/A disciplinary sector: from the representation and reproducibility of architecture, landscape, and cultural heritage to surveying as a process of morphological and thematic knowledge production; from the reading and interpretation of archival documents to modelling –including information modelling– and visual communication; and extending to graphic, infographic, and multimedia languages, digital applications, extended reality, accessibility, and practices of transmission, use, and dissemination of tangible and intangible values. The serial structure of the initiative enabled not only a continuous survey of recent editorial production but also the development of a discursive context in which the book assumed the role of an analytical unit through which to investigate trends, continuities, and discontinuities within the sector's research landscape. The meetings held in 2025 outlined a multifaceted picture of the research trajectories currently active within the field. Drawing emerged not merely as an instrument for the description and interpretation of the built environment, but also as a methodological infrastructure capable of connecting surveying, modelling, storytelling, simulation, and cultural mediation, thereby redefining its modes

of operation between research, representation, and knowledge production. Particularly significant were contributions oriented toward interdisciplinary practices and methodological cross-fertilisations, demonstrating how contemporary Drawing operates within an expanded ecosystem in which representation, communication, narration, and digital interaction increasingly converge into integrated epistemic frameworks. Within this framework, the review clearly highlighted not only the flexibility of the disciplinary sector but also the plurality of configurations through which it is currently organized, increasingly hybrid, relational, and transdisciplinary.

The year 2025 also confirmed the persistence of established theoretical foundations that continue to play a structuring role within the disciplinary field. Publications devoted to geometry, perspective, modern graphic language, visual practices, and historical-critical reflections on Drawing attest to the resilience of a field of study in which the relationship between theory, history, and representation remains a fundamental epistemological axis. The coexistence of these lines of continuity with ongoing innovation processes is not merely incidental but constitutes one of the most relevant features of the sector.

Within this context, the meeting held on 24 October 2025, dedicated to the memory of Massimiliano Ciampaichella, assumed paradigmatic significance. Through topics such as staging, modeling, and genres, the event brought into focus a conception of Drawing as an interpretative device capable of traversing architecture, performing arts, fashion, and contemporary visual cultures. From this perspective, the meeting was not merely commemorative but represented an opportunity for metadisciplinary reflection on Drawing's capacity to function as a field of intersection among heterogeneous practices, languages, and regimes of visibility.

The analysis of UID editorial production, discussed during the first meeting of 2026 (<https://www.youtube.com/@UIDUnionelItalianaperilDisegno>) integrated the 2020-2024 datasets using a homogeneous classification procedure applied to monographs and scientific editions, organized into nine macro-themes (Figs. 1, 2). The methodology was based on title extraction, text normalisation, dictionary-based semantic classification, and manual verification of ambiguous cases. The resulting distribution charts and heat maps reveal, on the one hand, a gradual variation in the overall volume of monographs published during the five-year period and, on the other, a clear thematic differentiation between editorial formats. Monographs show a marked concentration on the history and theory of Drawing, surveying, and documentation, displaying greater coherence with the adopted taxonomy. Scientific editions, by contrast, exhibit a more heterogeneous distribution, with a stronger presence of themes related to advanced digital technologies, artificial intelligence, extended reality, accessibility, and inclusive practices. This suggests that the scien-

tific edition format functions as a more permeable space for experimentation and for the emergence of research lines not yet fully consolidated.

Particularly noteworthy is the 'Other' category within the taxonomy used to classify publications. Rather than representing a residual classification, this category serves as an indicator of phenomena that exceed the available interpretative framework, signalling re-

search areas not yet fully captured by consolidated disciplinary categories. Recurring topics identified within the 2020-2024 dataset—including healthcare architecture, ephemeral architecture, territorial narratives, hybrid artistic practices, digital humanities applied to architecture, educational methodologies, and experimental visual processes—suggest not thematic marginality but rather the expansion of the

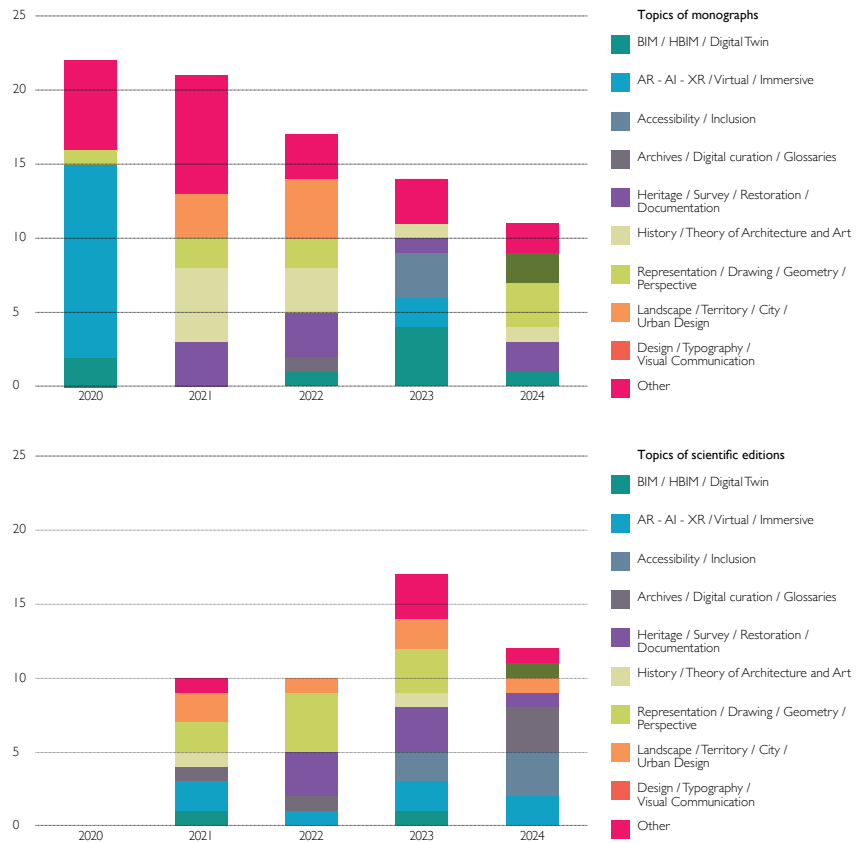


Fig. 1. Thematic distribution of monographs in the 2020-2024 dataset.

Fig. 2. Thematic distribution of scientific editions in the 2020-2024 dataset.

field toward areas characterized by greater methodological permeability. In this sense, *Libro: lDisegno* emerges not only as a platform for scientific dissemination but also as an observatory and a tool for refining the interpretative instruments through which the sector examines its own production.

A further significant aspect of the initiative concerns the relationship between editorial production and the construction of the scientific community. The dialogic format of the series –based on the simultaneous participation of authors, editors, and discussants– has fostered exchanges among different schools of thought, generations, and methodological orientations, contributing to the definition of a shared discursive space within UID. In a context characterized by the accelerating circulation of research, the book continues to function not only as a publishing medium but also as an infrastructure for theoretical sedimentation, methodological negotiation, and the construction of disciplinary vocabulary, capable of temporarily stabilizing the interpretative frameworks through which the sector recognizes and reformulates its objects, methods, and aims.

From this perspective, the value of the analysis lies not only in its results but also in its capacity to make explicit the criteria through which editorial production is observed and organized.

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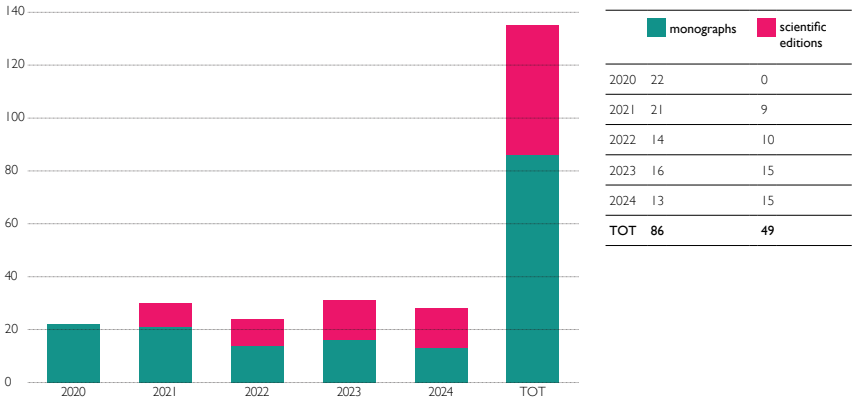


Fig. 3. Trends in UID editorial production (2020-2024): monographs and scientific editions compared.

The following data are drawn from the initiative's webpage (<https://www.unioneitalianadisegno.it/wp/2026/03/16/1-libro-1-disegno-22/>):

- First edition (28 May - 17 December 2021): 22 monographs published in 2020;
- Second edition (25 February - 16 December 2022): 21 monographs and 9 scientific editions published in 2021;
- Third edition (28 April - 15 December 2023): 14 monographs and 10 scientific editions published in 2022;
- Fourth edition (22 March - 20 December 2024): 16 monographs

and 15 scientific editions published in 2023;

- Fifth edition (16 May - 19 December 2025): 13 monographs and 15 scientific editions published in 2024.

The final visualisation highlights a gradual shift in the editorial center of gravity of the UID scientific community, from monographs toward scientific editions. In this respect, *Libro: lDisegno* confirms its role as an observatory of the transformations through which the disciplinary sector is currently redefining the forms, themes, and modes of its scientific production.

Events

IMG2025 – IMAGE ETHICS

Michele Valentino

On November 27 and 28, 2025, the city of Assisi hosted the fifth edition of the International and Interdisciplinary Conference on Images and Imagination, sponsored by the IMG Network association and organised by the University of Perugia at Palazzo Bernabei. The initiative, organised by a committee comprising Paolo Belardi, Ornella Zerlenga, Valeria Menchetelli, Vincenzo Cirillo, Giovanna Ramaccini, Monica Battistoni, Francesco Cotana, Eleonora Dottorini, Matteo Lanfalonì, Camilla Sorignani, and coordinated by Valeria Menchetelli, took place under the patronage of the Unione Italiana per il Disegno, the City of Assisi, the Sacred Convent of St. Francis in Assisi, the Artemis Interuniversity Alliance, and the REAACH association, confirming the event's distinctly interdisciplinary nature.

The conference took *Image Ethics* as its central theme, offering a critical reflection on the social role of images and on the cultural, political, and design responsibilities of contemporary visual culture; a theme that fits within a landscape characterised by the growing prevalence of images in daily life and by the transformation of the processes of production, circulation, and visual consumption introduced by digital culture. As already highlighted by the reflections underlying the

initiative, images are no longer limited to representing the world but actively participate in the construction of collective perceptions, the shaping of opinions, and the definition of social behaviours. In this context, the conference adopted interdisciplinarity as its primary methodological approach, serving as a forum for dialogue among scholars from diverse disciplines united by an interest in the ethical implications of contemporary visuality.

The choice of Assisi as the venue for the initiative proved particularly significant. The symbolic dimension of the location, explicitly referenced in the conference's academic materials, played a central role in the event's conceptual framework. Giotto's images from the *Stories of St. Francis* in the Upper Basilica were interpreted as historical models of ethical transmission through visual language, transforming the Franciscan city into a cultural space aligned with the themes of responsibility, proximity, and the social communication of images.

The choice of Assisi also appears to be no coincidence with the conference theme. The city is home to the inter-university Master's Degree Program in Planet Life Design / Design per la Vita del Pianeta, promoted by the University of Perugia and the University of Cam-

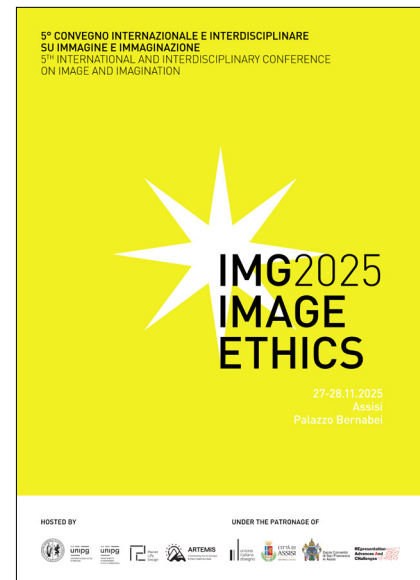


Fig. 1. Event poster.

pania Luigi Vanvitelli and coordinated by Paolo Belardi. The program develops a design-oriented reflection focused on sustainability, ethics, and the social responsibility of design – issues that find significant theoretical continuity with the themes addressed by IMG2025 and with the contemporary debate on the cultural role of images.

The conference opened with institutional greetings from Massimiliano Marianelli, Rector of the University of Perugia; Evangelia Ntzani, professor at the University of Ioannina and institutional representative of the Artemis Alliance; Fra Marco Moroni, Padre Custode of the Sacred Convent of St. Francis in Assisi; Filippo Ubertini, Chair of the Department of Civil and Environmental Engineering at the University of Perugia; Paolo Belardi, Chair of the Master's Degree Program in Planet Life Design; Ornella Zerlenga, President of the Italian Union for Design; Roberta Spallone, President of the REAACH association; and Alessandro Luigini, President of the IMG Network association.

Massimiliano Marianelli's address, which drew upon the thought of Simone Weil as a key to interpreting the conference's themes—emphasising the ethical value of the gaze and the need for a culture of images grounded in attention, awareness, and relationship with others—created the ideal atmosphere for the proceedings to begin.

Valeria Menchetelli's opening presentation, titled *Image Ethics. The Social Responsibility of Images* outlined the conference's theoretical framework, situating the debate on the ethics of images within a critical genealogy spanning philosophy, semiotics, visual studies, media theory, and design culture. The presentation focused particularly on the progressive loss of trust in images in the age of digital manipulation and visual hyperproduction, emphasising the need to rebuild a relationship of accountability between citizens, the media, and institutions.

The scientific program was divided into six thematic sessions—*City and Architecture, Environment and Sustainability, Media and Communication,*



Fig. 2. Guided tour of the Basilica of St. Francis led by Friar Michael Lasky (photo by Eleonora Dottorini).

Society and Politics, Memory and Heritage, Education and Care—which highlighted the cross-cutting nature of the ethical issue of images. The distribution of the contributions demonstrated how contemporary visual culture simultaneously engages with the themes of the city, the environment, communication, politics, memory, and care, confirming the role of images as active tools in the construction of social and cultural reality.

Among the recurring themes was a reflection on the relationship between representation and generative artificial intelligence, addressed in the contributions dedicated to the ethical, representational, and environmental implications of new visual technologies. In particular, issues related to image manipulation, the transparency of generative processes, and design responsibility in the construction of digital

visualisations highlighted the urgency of critically redefining the role of drawing in the age of algorithmic automation. At the same time, the contributions dedicated to the ethics of rendering, institutional communication, visual activism, and representations of conflict demonstrated how the contemporary debate on visibility is closely linked to the political and social implications of iconic production. Ample space was also devoted to the themes of education, inclusion, and care, addressed through contributions on visual learning, neurodiversity, tactile images, and Graphic Medicine. In this context, the image was interpreted not only as a communicative tool but also as a relational device that fosters processes of cultural accessibility, empathy, and social participation. At the same time, reflections on cultural heritage and memory highlighted the potential of digital



Fig. 3. Guided tour of the Basilica of St. Francis (photo by Eleonora Dottorini)..

technologies in creating new ways of experiencing and transmitting heritage, while maintaining a critical awareness of visual mediation practices.

The two keynote lectures further expanded the conference's theoretical framework. The presentation *Responsibility and Proximity. Suggestions and Guidance from St. Francis and Giotto* by

Susan Petrilli and Augusto Ponzio (University of Bari Aldo Moro), dedicated to the relationship between responsibility and proximity in the Franciscan and Giottesque traditions, proposed a semiotic-ethical reading of the image as a dialogic and relational practice. The lecture *Anatomy of Fragility: The Body as a Space for Research, Education, and Care* by Stefano Ratti (Alma Mater Studiorum Università di Bologna), centred on the body as a site of fragility, formation, and care, introduced a reflection on the relationship between representation, medicine, and the human dimension of visual experience.

The conference proceedings, published in open access by Publica, bring together approximately fifty contributions organised into the six thematic sections of the conference. The very structure of the publication highlights the desire to foster a collective reflection on contemporary visual culture, treating the image not merely as an aesthetic artefact, but as a critical, social, and political device.

At the conclusion of the conference, a guided tour of the Basilica of St. Francis was also organised, which houses Giotto's famous cycle of the *Stories of St. Francis*. The tour, led by Friar Michael Lasky and centred on a critical reading

of Franciscan ethics, served as a moment of synthesis particularly consistent with the themes addressed during IMG2025, allowing guests to engage directly with one of the most significant historical examples of the ethical and narrative construction of the image in Western culture.

Overall, IMG2025 confirmed the role of the IMG Network as an interdisciplinary observatory dedicated to the themes of image and imagination, while simultaneously strengthening dialogue with the scientific community of Drawing. The conference highlighted how the ethical question of images today represents a structural theme of the contemporary world, capable of traversing the processes of representation, communication, and design. Set against the symbolic backdrop of Assisi, IMG2025 emerged not only as a forum for scientific exchange but also as an open space for critical reflection on the cultural responsibilities of contemporary visual culture. The diversity of contributions presented revealed a scientific community aware of the need to examine the relationship among images, technology, and society, opening new research perspectives on the role of drawing in the construction of a more critical, inclusive, and responsible visual culture.

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Events

TALES 2025

Tangible Aspects and Legacy Enhancement through Storytelling

Cettina Santagati

The International Symposium *TALES Tangible Aspects and Legacy Enhancement through Storytelling*, held on 16 and 17 December 2025 at the Department of Architecture and Design of the Mediterranean University of Reggio Calabria, contributes to the contemporary debate on Cultural Heritage as a significant occasion for interdisciplinary exchange. It focuses on the role of storytelling in processes of knowledge production, interpretation, valorization, and transmission. In this context, storytelling is conceived as an interpretative device. It is used to investigate the relationship between the tangible and intangible dimensions of heritage, highlighting its potential in terms of accessibility, participation, and the shared construction of meaning.

The initiative was promoted within the framework of the PRIN 2022 PNRR research project on *Byzantine Cultural Routes*. The project is coordinated by the Reggio Calabria unit, led by Marinella Arena, and involves the Palermo and Catania units, respectively coordinated by Edoardo Dotto and Francesco Maggio. It represents both the concluding phase of the project and an open space for dialogue with scholars from different disciplinary backgrounds. The conference intertwines the presentation of

research outcomes –including operational tools and digital applications developed within the *TALES* framework—with a broader international discussion on storytelling practices applied to cultural heritage.

The study days opened on the afternoon of 16 December with the inauguration of the *TALES Exhibition*, followed by institutional greetings and the presentation of the PRIN project results by Marinella Arena, Edoardo Dotto and Francesco Maggio. The *APP Routes platform*, developed within the research, was also introduced.

The exhibition, dedicated to works produced within the Infographics

Course, Bachelor's Degree in Design, represented one of the most significant moments of the initiative. The projects demonstrated how drawing and visual representation can assume a narrative function, translating complex content into accessible and shareable visual forms.

The presentation of the *APP Routes* platform, curated by the company Living Camera, further highlighted the potential of digital tools in creating interactive experiences of heritage. It stands as a relevant applied outcome of the research.

To outline a coherent framework of the multiple forms of storytelling

Fig. 1. Banner of the event.



applied to heritage, the scientific program was structured into five thematic sessions: *Speaking Architecture: from the Silence of Stone to the Voice of Heritage*; *Crossing Imaginaries: Heritage Across Borders*; *The Field of Possibilities: Media, Languages and Technologies for Narrating Heritage*; *Intermediate Spaces: Engaging Communities in Preservation and Regeneration*; and *Narrative and Memory: Storytelling as a Tool for Conservation*.

During the first day, the sessions *Speaking Architecture* and *Crossing Imaginaries* were addressed. In the first session, coordinated among others by Elena Ippoliti and Roberta Spallone, the contributions explored the transition from the material dimension of architectural artefacts to their narrative interpretation. They highlighted the role of representation –both analog and digital– in making the layered values of places legible.

The session *Crossing Imaginaries: Heritage Across Borders* expanded the perspective in an intercultural direction. It interpreted heritage as a space of relationships between different contexts. In this framework, storytelling emerges as a tool capable of constructing transnational narratives and conveying the complexity of cultural identities.

The second day opened with institutional greetings from UID President Ornella Zerlenga. This was followed by the keynote lecture by Livio De Luca, Research Director at the CNRS in

Marseille, focusing on integrated digital systems for heritage knowledge.

His contribution emphasized the need for convergence between data, models, and storytelling in the construction of shared informational environments. It outlined a methodological framework in which technological and narrative dimensions are increasingly intertwined. The session *The Field of Possibilities: Media, Languages and Technologies for Narrating Heritage* offered a broad overview of the potential of digital tools. These ranged from immersive environments to user platforms, contributing to the redefinition of modes of access to and experience of heritage. In this way, they expand its communicative and participatory possibilities.

The subsequent session, *Intermediate Spaces: Engaging Communities in Preservation and Regeneration*, coordinated by Rossella Salerno and Sonia Mollica, addressed storytelling as an operational practice in urban regeneration and community engagement. The contributions highlighted the value of collaborative storytelling as a tool for the shared construction of heritage. It fosters inclusive dynamics and strengthens the sense of belonging to places.

The final session, *Narrative and Memory: Storytelling as a Tool for Conservation*, brought attention back to the role of storytelling in conservation processes. It emphasized how narratives –historical, graphic, and visual–

contribute to transmitting and reinterpreting complex cultural values, while integrating material and immaterial aspects.

The conference concluded with a roundtable that brought together scholars from diverse disciplinary and geographical backgrounds. This moment confirmed the international scope of the initiative and its role as a platform for dialogue and the development of research networks.

The conference proceedings, published in open access on the PVBILICA Sharing Knowledge platform, include 55 contributions selected through a double-blind peer-review process. Approximately thirty of these were presented in oral sessions. The volume offers an expanded overview of the research developed in response to the call, extending the discussion beyond the conference itself. Overall, *TALES 2025* stands out for the coherence between its theoretical framework and program structure, as well as for its ability to effectively integrate research, teaching, and innovation. The centrality of storytelling practices and the prominence of the visual dimension –well exemplified by the exhibition– contribute to defining storytelling not only as a communicative tool, but also as an analytical and design-oriented one. Heritage thus emerges as a dynamic and shared process, open to new modes of representation and interpretation in the contemporary context.

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Events

FORTMED 2026

International Conference on Fortifications of the Mediterranean Coast

Giuseppe Antuono

Now in its ninth edition, the International Conference *FORTMED Fortifications of the Mediterranean Coast* has confirmed its role as one of the leading scientific events dedicated to the study, conservation, and enhancement of Mediterranean defensive architecture. The 2026 edition took place in Rome on 19, 20, and 21 February, at the Fontanella Borghese and Borghetto Flaminio venues, and was organized by the Department of History, Representation and Restoration of Architecture (DSDRA) and the Faculty of Architecture of Sapienza University of Rome. The Roman edition reaffirmed the international and interdisciplinary vocation that characterizes the Conference, bringing together scholars, researchers, and professionals from different disciplinary backgrounds interested in defensive architecture and fortified heritage. The scientific programme was structured around seven thematic areas that guided the organization of parallel sessions, fostering dialogue among different methodological approaches and between historical, technical, conservation, and management perspectives on Mediterranean fortifications. The Conference organization, coordinated by Michele Russo and Marta Acierio, was supported by an Advisory Committee, a Scientific Committee,

a Technical-Scientific Secretariat, and an Operational Staff. The scientific activities were also supported by the work of the Track Chairs, responsible for assigning contributions to the seven thematic tracks that structured the Conference programme and guided the parallel sessions.

The figures for the 2026 edition testify to the growing interest of the scientific community in the study of defensive architecture. Following a double-blind peer-review process conducted by an international scientific committee, 162

scientific papers were selected and subsequently published in the Conference proceedings, collected in three volumes of the Defensive Architecture of the Mediterranean series. Published by Sapienza Università Editrice and UPV (Universitat Politècnica de València), the Proceedings are assigned ISBN and ISSN codes and made available in open access (<https://www.editricesapienza.it/book/11178>). All publications produced throughout the first nine editions can be accessed directly from the Conference website (www.fortmed.eu), contributing

Fig. 1. Poster of the event.



to the international dissemination of research results on fortified heritage.

The Conference opened with institutional greetings at the historic Fontanella Borghese venue, in the Aula Magna of the Department of History, Representation and Restoration of Architecture of Sapienza University of Rome. Welcome addresses were delivered by Antonella Polimeni, Rector of Sapienza University of Rome; Daniela Esposito, Director of the Department of History, Representation and Restoration of Architecture; Stefano Catucci, Vice-Dean of the Faculty of Architecture; and Carlo Bianchini, Vice-Rector for Architectural Heritage. These were followed by representatives of major scientific organizations: Maurizio Caperna, Vice-President of the Italian Society for Architectural Restoration (SIRA); Ornella Zerlenga, President of the Italian Union for Drawing (UID); Maurizio Di Stefano, President of ICOMOS Italia; and Guglielmo Villa, Vice-President of the Scientific Committee of the Italian Institute of Castles. Their contributions offered different perspectives on key Conference themes and highlighted the value of the event as an opportunity for interdisciplinary and international dialogue on the knowledge, conservation, and enhancement of fortified heritage. The opening session concluded with the official inauguration of the Conference by Pablo Rodríguez-Navarro, President of the International FORTMED Association, together with Michele Russo and Marta Acierno, chairs of *FORTMED 2026*.

The morning of 19 February continued with an introductory discussion dedicated to the relationship between cultural heritage and the contemporary city, coordinated by Marta Acierno. Participants included Simone Quilici, Director of the Colosseum Archaeological Park; Alessandro D'Alessio, Director of the

Archaeological Park of Ostia Antica; Stefano Borghini, Official of the Colosseum Archaeological Park; Adele Cesi, UNESCO representative at the Italian Ministry of Culture; Giulio Mirabella Roberti from the University of Bergamo; and Valentina Garramone from the Directorate of National Museums of the City of Rome. The discussion emphasized the strategic role of historical heritage as a cultural and identity resource for contemporary cities, focusing on both the opportunities offered by enhancement processes and the challenges associated with managing complex contexts characterized by significant historical and monumental stratifications.

The morning concluded with the keynote lectures, chaired by Michele Russo. Donatella Fiorani reflected on fortified heritage as a tool for understanding the historical and territorial transformations of the Mediterranean and the challenges related to its conservation. Pilar Chías Navarro explored the relationships between fortified systems, territorial networks, and cultural connections across both sides of the Atlantic, highlighting the role of defensive architecture in shaping shared landscapes and identities. The afternoon of 19 February marked the beginning of the five parallel scientific sessions, organized into seven thematic tracks that structured the Conference programme. The papers addressed topics related to the history of military architecture, heritage documentation and knowledge processes, surveying and representation methodologies, conservation and restoration projects, as well as strategies for heritage management and enhancement. Across the various sessions, the widespread adoption of digital technologies for the study and communication of fortified heritage confirmed a growing trend toward integrating such tools and methodologies

within research. Numerous contributions focused on integrated surveying methods, HBIM models, GIS systems, virtual reconstructions, and immersive applications, demonstrating the increasing interest of the scientific community in tools capable of supporting the documentation, analysis, and enhancement of defensive architecture.

The sessions continued throughout 20 February, encouraging discussion among scholars from diverse geographical and disciplinary contexts. The case studies presented included coastal fortifications, castles, watchtowers, urban defensive walls, and defensive landscapes located throughout the Mediterranean region and beyond, offering an up-to-date overview of current research on fortified heritage.

The diversity of contributions confirmed the multidisciplinary nature of the Conference, which continues to serve as a meeting point for architectural historians, architects, archaeologists, engineers, conservators, representation experts, and specialists in digital technologies applied to cultural heritage. This plurality of approaches fostered a broad and cross-disciplinary scientific dialogue capable of connecting different research methodologies and scales of analysis, while drawing renewed attention to this distinctive category of cultural heritage.

Alongside the Conference activities, the photographic exhibition *The Walls of Rome in the Contemporary City*, curated by Marta Acierno, Alessandro Lanzetta, and Michele Russo, attracted particular interest. Through photographs, video contributions, and research materials, the exhibition reflected on the relationship between the historic walls of Rome and the contemporary city, interpreting these structures not merely as remnants of

the past but as active elements in shaping the urban landscape and the social dynamics of the city.

During the second day, and for the first time in the history of the Conference, a plenary session was dedicated to international research projects focusing on fortifications. This initiative aimed to demonstrate how the study of fortifications can serve as common ground for exchange and collaboration among different research groups, fostering the development of international networks and joint projects.

The second day concluded with the final plenary session, during which the Best Paper Awards were presented to

contributions distinguished by their scientific quality and originality. The session also featured the presentation of the next Conference edition, *FORTMED 2027*, scheduled to take place in Valencia at the Universitat Politècnica de València (UPV), under the coordination of Pablo Rodríguez Navarro and Teresa Gil Piqueras, before the closing remarks. The third day, traditionally devoted to the direct exploration of cultural heritage, offered participants the opportunity to visit the Domus Aurea. The visit provided an important field-based learning experience, allowing participants to complement the theoretical reflections developed during the Con-

ference with direct observation of one of Rome's most significant archaeological complexes.

The 2026 edition of *FORTMED* concluded by further strengthening the Conference's role as an international reference point for studies on fortified heritage. The high quality of the papers presented, the participation of scholars from numerous countries, and the ongoing dialogue between historical, conservation, and digital approaches confirmed the Conference's ability to promote interdisciplinary exchange and international scientific cooperation on issues related to the knowledge, protection, and enhancement of defensive architecture.

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Events

The P(r)o(bl)em. *Studying, Processing and Communicating Wicked Problems*

Adriano Magliocco

On 6 March 2026, the international symposium *The P(r)o(bl)em. Studying, Processing and Communicating Wicked Problems* was held at the Department of Architecture and Design of the University of Genoa, within the framework of the PhD Programme in Architecture and Design (fig. 1).

Curated by PhD candidates Elena Benedetto, Elena Geria, Tiziana Iorio, and Alessia Segalerba, under the scientific coordination of Enrica Bistagnino, Cristina Cándito, Maria Linda Falcidieno, Giovanna Franco (ADD - University of Genoa), and Valeria Menchetelli (Unione Italiana per il Disegno), the event provided an interdisciplinary forum for discussing the role of research and design in addressing contemporary challenges.

The symposium received the patronage of the Unione Italiana per il Disegno (UID), the Interdepartmental Centre for Visuality (ciVIS), and the Order of Architects, Planners, Landscape Architects and Conservators of the Province of Genoa, confirming the cross-disciplinary relevance that complexity currently holds within the fields of representation and design research.

The symposium's theoretical orientation was evident from its very title. *The P(r)o(bl)em* draws inspiration

from *The Solution* (2020), a work by artist and visual poet Anatol Knotek in which the word 'problem' transforms into 'poem'. This semantic shift suggests an alternative understanding of the relationship between problems and solutions, highlighting how many contemporary issues cannot be reduced to purely solution-oriented logics but instead require new forms of interpretation, narration, and design imagination.

The call for papers and images was structured around three main trajectories – *Studying*, *Processing*, and *Communicating* – conceived as complementary ways of engaging with complexity. The *Studying* trajectory focused on how problems are observed, described, and interpreted; *Processing* explored design as a device for mediation, transformation, and knowledge production; while *Communicating* addressed forms of representation, visualization, and narration of complexity. These trajectories were complemented by six cross-cutting themes: accessibility and usability in architecture and design; care and responsibility in communication practices; education and training; archives, memory, and contemporary heritage; material and cultural ecologies; and intersections

between the analogue, the digital, and artificial intelligence. Rather than defining separate domains, these thematic clusters functioned as an open framework, encouraging connections among contributions from diverse disciplinary contexts.

The symposium unfolded through two complementary moments. The morning session, held online and open to the public, featured three international keynote lectures; the afternoon session, held in person at the Department, engaged authors and participants in a collective experiment entitled *The Problem Atlas*. The overall structure proved effective in linking theoretical reflection and discursive practice, connecting the conceptual frameworks proposed by the keynote speakers with the representation of the issues emerging from the selected contributions.

The three keynote lectures offered distinct yet converging perspectives on complexity. In *A Medium that Thinks: Generative AI, Media Cognition and Artistic Creation*, Lev Manovich proposed an interpretation of generative AI as a new cultural medium endowed with its own forms of cognition. Artificial intelligence was described not as a passive tool, but as a system capable of participating

THE PROBLEM

studying
preventing
contemporary
wicked problems

We live among complex problems. Some are even wicked problems (Rittel & Wubbe, 1973). "malicious" challenges that escape linear solutions and require new perspectives. In this scenario, design is once again called upon to assume its role as a critical and relational practice: a tool for interpreting uncertainty and generating visions. The symposium *The Problem Becoming Poem* (2026) is a title that reworks Anatoli Knotek's artwork *The Solution* (2020), where problem and solution coincide in a linguistic gesture - opens a space for transdisciplinary dialogue. *Poem problem to poem*. Studying, Elaborating, Communicating: three ways of engaging with complexity.

1. 18-19-20: Welcome and Registration

1. 18-19-20: Institutional Overview

Adriano Bignardi (Director, Department of Architecture and Design)
Alessandra Bignardi (Associate Professor, Department of Architecture and Design)
Alessandra Bignardi (Associate Professor, Department of Architecture and Design)
Alessandra Bignardi (Associate Professor, Department of Architecture and Design)

Guests' Introduction

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in creative and epistemic processes by suggesting configurations and relationships within a statistical space constructed from cultural data. The tension between creativity and control emerged as a central issue: while generative models expand possibilities for exploration, they simultaneously reduce the predictability of outcomes, challenging notions such as originality, authorship, and the uniqueness of the work.

In *Everything Not Saved Will Be Lost*, Tiziana Alocci examined the relationship between data, memory, and perception, showing how many of the phenomena shaping contemporary life remain invisible to ordinary experience. Through projects based on data sonification and multisensory translation, the lecture highlighted the role of design as a mediating practice capable of making informational flows, environmental processes, and technological infrastructures perceptible. Particularly compelling was the reflection on digital archives: what is preserved or forgotten increasingly depends on algorithmic infrastructures that influence the construction of collective memory.

In the lecture *From What to How: Investigating the Nature of Problems*, Silvio Lorusso critically questioned the very notion of the 'problem', distancing himself from the problem-solving rhetoric that has characterised much of twentieth-century design culture. Problems were presented not as objective and universal entities, but as cultural constructions emerging through processes of definition, selection, and representation. From this perspective, design is called less to produce optimal solutions than to make explicit the conditions through

which problems are formulated, bounded, and rendered visible.

The afternoon session translated these reflections into a workshop-based format through *The Problem Atlas*, a collective mapping device for the selected contributions (figs. 2, 3). At the centre of the space, a matrix generated by the intersection of the symposium's three trajectories and the six cross-cutting themes of the call was projected. Each author was invited to position their contribution within this coordinate system, identifying relationships, affinities, and tensions with previous interventions. The *Atlas* functioned as a process of shared knowledge construction, making thematic concentrations and transversal trajectories visible.

The analysis of the contributions revealed that complexity was rarely interpreted as a problem to be solved and more often understood as a condition to be explored, represented, and navigated. From the visualization of relational systems to the creation of living archives, from participatory practices to multispecies experimentation, the selected papers showcased a plurality of approaches united by the search for interpretative tools capable of making phenomena resistant to linear perspectives more intelligible. In this sense, the symposium confirmed that complex problems do not appear as stable objects but rather as dynamic configurations of relationships, temporalities, and viewpoints. The event concluded with the exhibition *The Problem Becoming Poem*, which gathered the images associated with the submitted contributions into a continuous visual sequence. The exhibition transformed the multiplicity

Fig. 1. Poster of the Symposium.



Fig. 2, 3. *The Problem Atlas*: collaborative mapping activity conducted during the symposium's participatory session. Authors were invited to position their contributions within a matrix structured around the three thematic trajectories and the six cross-cutting themes of the call.



of issues addressed throughout the symposium into an open narrative capable of stimulating imagination, interpretation, and dialogue. The transition from 'problem' to 'poem' thus did not correspond to the resolution of the problem itself, but rather to the possibility of making it shareable, narratable, and generative.

The keynote lectures, contributions, *Atlas*, and exhibition collectively presented complexity as an open, relational, and constantly evolving condition. The symposium's main achievement lay in shifting attention towards the problem as a shared space of exploration, suggesting that design can contribute not so much by closing open questions as by generating new possibilities for understanding and critical imagination. From this perspective, visualizing, narrating, mapping, archiving, and representing emerge as fundamental design practices for inhabiting contemporary complexity.

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Events

VL 2026 International Conference on Visualizing Landscape

Maurizio Perticarini

On May 7 and 8, 2026, the second edition of the international conference *Visualizing Landscape*, titled *Beyond the Dominant Aesthetic: Landscapes, Perceptions, and Transformations* (fig. 1), was held at the Rectorate of the University of Campania Luigi Vanvitelli. The event began by challenging the traditional image of the landscape as a harmonious, balanced place, traceable to the long lineage of the *locus amoenus*, deeply rooted in Western figurative culture. Against this, VL 2026 contrasted the need to explore its counterpoint: marginal, degraded, unsettling, contaminated, industrial, abandoned, or simply ordinary landscapes, often excluded from the dominant imagination. Within this framework, the reference to the *locus horribilis* is adopted as a critical tool for recognizing those territories which, though marked by conflict, fracture, or loss, constitute a decisive part of the contemporary experience of space. The biennial conference was organized by Vincenzo Cirillo, associate professor of Drawing at the University of Campania Luigi Vanvitelli, PhD Margherita Cicala, and PhD Riccardo Miele, and featured the participation of 96 authors from Italy, Albania, Lebanon, Germany, Brazil, Argentina, Spain, and Portugal, for a total of 53 contributions presented out of the 56 selected. During

the opening ceremony, the event was introduced with institutional remarks by Prof. Ornella Zerlenga, Director of the Department of Architecture and Industrial Design at UniCampania and President of the Italian Design Union; Prof. Vincenzo Cirillo; and PhD Margherita Cicala. The keynote speaker was the prominent artist and photographer Mario Amura, who, through his visual art project *Napoli Explosion*, captured the complex and layered relationship that Naples maintains with Vesuvius: a living presence in the landscape, at once physical, symbolic, and deeply rooted in the city's collective consciousness. His photographic research, based on long exposure times, low ISO sensitivity, and careful direction of light, transforms New Year's Eve into a ritual scene in which Naples, understood as a single great collective soul, seems to issue its own challenge to the volcano every year. Fireworks, explosions, and trails of light thus produce abstract compositions, cosmic landscapes that stand out against the dark, motionless backdrop of Vesuvius. The volcano, once a dominant natural element, becomes a silent spectator to a collective exorcism, in which the Neapolitan people symbolically renew their relationship with the place's memory and identity. The conference, organized into four sections



Fig. 1. Event poster.

held consecutively in a single plenary session, featured alternating thematic sessions with introductions by moderators Margherita Cicala, Michele Valentino (University of Sassari), Flavia Camagni (Università Telematica San Raffaele Roma), Rosina Iaderosa (UniCampania), PhD Riccardo Miele, PhD candidate Gianluca Gioioso, Luigi Corniello

(UniCampania), and Alessandro Scandiffo (Politecnico di Milano), as well as presentations by Domenico Iovane and Alice Palmieri (UniCampania) and by Veronica Tronconi and Francesco Stilo, both PhD. In particular, with regard to the thematic sections addressed, Section A, *Cultural Landscapes, Infrastructure, and Territorial Planning*, brought together six contributions that addressed the landscape as a tool for interpretation and transformation, where historical memory, settlement patterns, infrastructure networks, and social practices converge to define the forms, values, and identities of places. Maps, atlases, surveys, and digital visualizations are understood as interpretive tools capable of revealing latent relationships and guiding design hypotheses. The contributions explored the theme through archaeology, historical archives, photogrammetry, and georeferenced data organization, demonstrating how heritage can be documented, narrated, and revitalized, thereby creating a framework in which knowledge, participation, and design support new forms of enhancing contemporary and collective cultural landscapes. Section B, *Sensory and Artistic Digital Visualization*, brought together twelve contributions, further expanding the scope of inquiry. It highlighted how the landscape can be represented and interpreted through images, data, and digital tools. The research demonstrated how maps, surveys, 3D BIM models, audiovisual archives, photomontages, sound data, and AI can make memories, boundaries, and social relationships visible. Case studies such as Positano, Naples, Venice, L'Aquila, and Milan revealed a conception of landscape as a

living, complex system to be explored through scientific methods and artistic sensory experiences to enhance its content and guide a design hypothesis. Section C, *Marginal, Industrial, and Wounded Landscapes*, comprising twenty-four contributions, formed the core most directly connected to the theme of the invisible: viewing marginal, industrial, and wounded landscapes as places full of memory, traces, and possibilities. Brownfield sites and abandoned areas, military zones, industrial archaeology, and flawed settlement models present opportunities for rethinking urban regeneration. The contributions demonstrated that these territories can regain value through interdisciplinary integration. Among these, representation serves as a conduit for a better understanding of transformations, thereby rediscovering the dignity of both natural and built spaces and directing collective sensibility toward new avenues of enhancement. Section D, *Historical and Rural Landscapes: Memory, Identity, and Production*, featured eleven contributions and gathered content in which the territory is interpreted as a living organism: historical and rural landscapes constitute animated palimpsests of collective memory and cultural identity. Through integrated methodologies of surveying, three-dimensional modeling, GIS systems, and iconographic analysis (pictorial, archival, and cartographic sources), scientific representation conveys the geometric-perceptual complexity and profound symbolic values of the territory. The conference thus falls within a research field that is central today: the description of landscape as a cognitive, critical, and design tool that invites us to

go beyond the dominant aesthetic by representing the invisible as well. From this approach stems one of the initiative's main merits: having placed at the center not only new objects of study but also new ways of looking at them. In conclusion, *Visualizing Landscape 2026* outlines a move beyond the traditional idea of landscape as a purely harmonious place, allowing us to embrace the complexity of the contemporary territory in all its facets. Shifting attention toward marginal, industrial, or scarred areas means giving scientific value to spaces often neglected by classical visual culture. In this context, the combination of geometric surveying, advanced digital technologies, and sensory analysis creates an innovative approach to work. Technology and art do not merely record reality but reveal the collective memory and the stories hidden within places. The strong international participation demonstrated that understanding the territory requires a continuous dialogue between the rigor of spatial data and the sensitivity of human experience. Drawing thus emerges as a profound interpretive activity, capable of transforming the complexity of historical layers into tools for active knowledge. The act of representation becomes a dynamic interface that unites past memory with choices for the future, offering essential insights to guide urban regeneration projects. The true value of the event lies in its ability to legitimize the graphic perspective as a driver of cultural, social, and territorial regeneration. The proceedings of this collaborative event are available on the Publica Press website and can be downloaded via open access.

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Events

EGA 2026

XXI Congreso Internacional de Expresión Gráfica Arquitectónica

Marco Giorgio Bevilacqua

In the wonderful setting of the city of Barcelona, World Capital of Architecture 2026, the *XXI Congreso Internacional de Expresión Gráfica Arquitectónica* (EGA 2026) took place from May 28 to 30. Organized by the Departamento de Representación Arquitectónica (DRA) [1] of the Universitat Politècnica de Catalunya (UPC), the congress was hosted by the Escola Tècnica Superior d'Arquitectura de Barcelona (ETSAB), precisely within the spaces of the famous extension of its headquarters built between 1978 and 1982 according to the design by José Antonio Coderch de Sentmenat.

The central objective of the conference was to promote a profound reflection on the different areas of the discipline of Expresión Gráfica Arquitectónica, balancing traditional disciplinary foundations and drives toward innovation. *Certezas e incertidumbre* (Certainties and uncertainty) was the programmatic title chosen by the curators – an explicit invitation to question the constants and consolidated paradigms within our specific field of knowledge (the certainties, indeed) in order to explore and address the uncertainty generated by contemporary and future processes of architectural ideation, modeling, and representation.

The numerous contributions received in response to the call for papers were selected by the scientific committee through

a peer-review process. Over 160 papers were compiled into the five volumes of the conference proceedings, published by Iniciativa Digital Politècnica and available open-access on the event's webpage. Among the accepted texts, only a selection was chosen for oral presentation in the form of short 5-minute pitches, distributed across parallel sessions in the Sala de actos and Sala de grados of the ETSAB. In each session, a member of the organizing committee, acting as a session chair, introduced the contributions that were not slated for oral presentation but were deemed scientifically worthy of publication.

The scientific program was structured around five thematic lines. The first – *Ante la enseñanza y el aprendizaje...* (On teaching and learning...) – focused on the long tradition of architectural graphic expression – a tradition understood not only as an integral part of architectural project development but also as a method for learning the professional practice of the architect. Within this scope, a reflection was proposed on the methodologies, approaches, and tools of representation in architectural training pathways.

The second line – *...Con información y datos...* (...With information and data...) – aimed to propose a reflection on new technologies applied to the field of representation, while also sparking debates on the real appropriateness of integrating

them into the creative process. Computational design and computing engines based on generative artificial intelligence (AI) represent a revolution that the academic Drawing community is called upon to face and assimilate.

The third line – *...De dibujos, geometrías y trazos...* (...Of drawings, geometries, and strokes...) – looked at the foundations of the drawing discipline and the documentary value of 'drawings of the past,' which are essential references in the cultural education of an architect. Geometry is central, understood as an organizing principle and a tool for controlling architectural form. In this context, the acceleration of digital evolution opens up new fields of uncertainty. The session explored the various techniques and mediums used to represent architectural projects, from antiquity to the digital era, including freehand drawing, 3D modeling, rendering, animation, virtual reality, and AI.

...Desde lo existente... (...From the existing...) – the fourth line – addressed heritage surveying, the analysis of built reality, and the role of drawing as a critical interpretive tool from transdisciplinary perspectives. This line welcomed studies that use graphic expression techniques to document, preserve, and reconstruct architectural heritage, as well as to explore new ways of experiencing and understanding history and culture.

The line ...*Hacia la sociedad* (...Towards society) closed the series by focusing on the social role of architecture and eco-social sensitivity as a fundamental component of professional practice. In the relationship between the architect and society, the role of communication is crucial for the dissemination and outreach of the project across all its dimensions and scales. Therefore, this line welcomed contributions addressing the environment, economy, and social context, as well as reflections on the dissemination of knowledge to society in the broadest sense: technology transfer, accessible and inclusive communication, participatory processes, the role of social media, the use of graphic expression as a communication tool, visual storytelling, and multimedia. The scientific program was enriched and enhanced by two distinguished keynote speakers. The inaugural lecture on May 28 was delivered by Carme Pinós i Desplat (National Architecture Award of Spain 2021). Trained at the ETSAB and an internationally renowned architect, Carme Pinós passionately described the compositional genesis of her projects: a rigorous process that starts with an in-depth reading of the context and initial plan sketches, followed by physical study models made with poor materials such as paper, cardboard, wire, etc., along with section, elevation, and detail sketches, in a continuous and iterative process that gradually refines the design idea toward its final form. The lecture on May 29 was given by Carlos Bañón Blázquez, a leading

figure in computational design and digital methodologies. Bañón (Associate Professor at the Singapore University of Technology and Design and Co-founder of FORMAS.AI) illustrated the frontiers of 3D printing applied to the building macro-scale, data-driven design workflows linked to the circular economy, and the use of generative algorithms in spatial configuration.

His presentation was followed by an interesting round table on the topic of digital technologies and AI applied to architecture, moderated by Karina Gibert i Oliveras (UPC professor and expert in computational statistics and AI), which featured, alongside Carlos Bañón, Héctor Mendoza Ramírez (co-founder of the Mendoza Partida studio and lecturer at the DRA-ETSAB) and Roberto Molinos Esparza (CEO of Modelical and lecturer at the IE School of Architecture and Design). In conclusion, recalling the opening speech by Isabel Crespo Cabillo, professor at the Escuela Técnica Superior de Arquitectura del Vallès of the UPC and member of the organizing committee, the conference sought to clearly state that, in a context dominated by uncertainty, architecture must reclaim its historic capacity to operate within contradiction, translating complexity into responses that are not necessarily unique, but certainly rigorous and meaningful. Drawing reaffirms itself as a fundamental tool for interpreting the future that awaits us and overcoming the 'uncertainties' that permeate our contemporary consciousness.

Note

[1] The Departamento de Representación Arquitectónica (DRA) of the Universitat Politècnica de Catalunya (UPC) is a teaching and research structure present across all schools of architecture and building engineering of the UPC, such as the Escola Tècnica Superior d'Arquitectura de Barcelona (ETSAB), the Escola Tècnica Superior Arquitectura del Vallès (ETSAV), and the Escuela Politécnica Superior de Edificación de Barcelona (EPSEB).

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Fig. 1. Poster of the event.

The UID Library

The UID Library

edited by Vincenzo Cirillo and Laura Farroni

The UID Library brings together monographs and scientific editions published by UID members since 2016 based on voluntary submissions by UID members to the annual call for submissions of scientific publications in the discipline published during that year.

The publications are organized into three main thematic areas: *Theory, practice, and history of drawing*; *Theory, practice, and history of surveying*; and *Theory, practice, and history of multimedia communication*.

All scientific publications by members submitted to the UID Library for the current semester (January-June 2026) are listed below.

Titles addressing topics aligned with the call for papers of the issue are marked with the (•) symbol.

In addition, a selection of titles consistent with the themes of the call for papers of the issue has been drawn from the scientific publications published between 2016 and 2024 and included in the catalogue available on the website of the UID - Unione Italiana per il Disegno (<<https://www.unioneitalianadisegno.it/wp/publicazioni/>>).

For volumes available in Open Access, the link to directly access the text is provided, while for those that refer to the video recording of the presentation of the volume in the scientific review *Il libro: il disegno* (<<https://www.unioneitalianadisegno.it/wp/2025/11/04/il-libro-il-disegno-22/>>), the date and reference link are indicated in square brackets.

Theory, practice, and history of drawing

Monographs

2026

Banfi, F., De Trizio, A. (2026). *Realtà virtuale e prossemica digitale | Rappresentazione e grammatica invisibile dell'esperienza immersiva*. Santarcangelo di Romagna (RN): Maggioli Editore. Politecnica.

Pagnano, G. (2026). *Léon Dufourmy in Sicilia. 1788-1793*. A cura di E. Dotto. Catania: Editoriale Agorà.

2025

Buratti, G., Mele, G., Rossi, M. (2025). *"Mirabili artificio". Santa Maria presso San Satiro. Numero e misura nel progetto dello spazio immaginario di Bramante architetto a Milano*. Milano: Biblion edizioni.

[17 april 2026 - <https://www.youtube.com/watch?v=I4-YsQyKD1k>]

Colonnese, F. (2025). *La Tomba di Porsenna. Il Labirinto Italico tra mito e ricostruzioni*. Roma: Artemide.

Empler, T. (2025). *Il sistema difensivo esterno a Portoferraio. La rappresentazione tra il XVIII e il XIX secolo*. Alghero: Publica. <<https://publicapress.it/index.php/portfolio/il-sistema-difensivo-esterno-a-porto-ferraio/>>.

- Empler, T., Caldarone, A., Fusinetti, A. (a cura di). (2025). *3D Modeling & BIM. Proliferazioni*. Alghero: Publica. <<https://publicapress.it/index.php/portfolio/3d-modeling-bim-proliferazioni/>>.

- Empler, T., Caldarone, A., Nuñez, J., Tuzi, S., Pérgamo, B. (a cura di). (2025). *3D Modeling & BIM. Desarrollos Futuros*. Alghero: Publica. <<https://publicapress.it/index.php/portfolio/ws2025arg/>>.

Vattano, S. (2025). *Ermeneutiche digitali. Dieci disegni nascosti a Venezia*. Milano: FrancoAngeli. <<https://series.francoangeli.it/index.php/oa/catalog/book/1303>>.

2024

Pagliano, A. (2024). *Geometries of anamorphic illusions. Landscape, Architecture, Contemporary art and Design*. Cham: Springer. [20 june 2025 - <https://youtu.be/WwBoaq8gCCQ>]

2023

Buonincontri, F., Dolfi, S.G., Gilardi, F., Volpini, P. (2023). *Antonio di Pietro Averlino detto "Filarete". Il progetto rinascimentale per il Duomo di Bergamo*. Bergamo: Edizioni El Bagatt.

Pecora, A.L. (2023). *Lo spazio rappresentato per il disturbo dello spettro autistico (ASD)*. Napoli: fedOAPress. <<http://www.fedoa.unina.it/14867/>>.
[28 june 2024 - <https://www.youtube.com/watch?v=IXuLcEfFXoQ>]

2021

Ciammaichella, M. (2021). *Scenografia e prospettiva nella Venezia del Cinquecento e Seicento. Premesse e sviluppi del teatro barocco*. Napoli: La scuola di Pitagora editrice. <https://www.scuoladipitagora.it/_filespdf/TFI4-9788865427965.pdf>.
[25 february 2022 - <https://www.youtube.com/watch?v=mZn19r3AZzs>]

2020

Càndito, C. (2020). *Rappresentazione e Accessibilità per l'Architettura*. Morrisville: Lulu.

2019

Farroni, L. (2019). *L'arte del disegno a Palazzo Spada. L'Astrolabium Catoptrico Gnomonicum di Emmanuel Maignan*. Roma: De Luca Editori d'Arte.

2018

Avella, A. (2018). *Disegno di moda. Corpo|Abito|Illustrazione. Fashion drawing. Body|Clothing|Illustration*. Ariccia: Aracne editrice.

Bergamo, F. (2018). *Il disegno del paesaggio sonoro*. Milano-Udine: Mimesis edizioni.

Zerlenga, O. (a cura di). (2018). *M'illumino d'immenso. La scala del palazzo Cassano Ayerbo d'Aragona. The staircase of Palazzo Cassano Ayerbo d'Aragona*. Napoli: La scuola di Pitagora editrice.

Scientific editions

2026

- Cirillo, V., Cicala, M., Miele, R. (a cura di). (2026). *VL 2026. International Conference on Visualizing Landscape*. Alghero: Publica. <<https://publicapress.it/index.php/portfolio/vl-2026-international-conference-on-visualizing-landscape/>>.

Dotto, E. (a cura di). (2026). *Architetture bizantine nella Sicilia orientale. Temi, percorsi, approfondimenti*. Alghero: Publica. <<https://publicapress.it/index.php/portfolio/architetture-bizantine/>>.

Maliqari, A., Gioioso, G. (Eds.). (2026). *Vernacular Architecture. Tangible and intangible cultural heritage*. Tirana: Pegi.

Zerlenga, O., Corniello, L. (Eds.). (2026). *Elements of Architecture. Structures, methods and processes for heritage documentation*. Tirana: Pegi.

2025

Farroni, L., Mancini, M.F. (a cura di). (2025). *Ambienti flessibili. Creatività, inclusione, ecologia, reale/virtuale. Teorie e buone pratiche per l'architettura*. Roma: RomaTrE-Press. <<https://romatrepress.uniroma3.it/libro/ambienti-flessibili-creativita-inclusione-ecologia-reale-virtuale-teorie-e-buone-pratiche-per-larchitettura/>>.

[22 may 2026 - <https://www.youtube.com/watch?v=MX-CcgMkK8>]

2024

Balzani, M., Bertocci, S., Maietti, F., Rossato, L. (2024). *Research Innovation and Internationalisation. National and international experiences between identity and inclusivity*. Rimini: Maggioli Editore.

[16 may 2025 - <https://youtu.be/b6HECj-kRio>]

Ciammaichella, M., Ena, R., Liva, G. (a cura di). (2024). *Tutto il mondo è teatro. Digitalizzazione, accessibilità e valorizzazione della scena scomparsa | All the world is theatre. Digitisation, accessibility and enhancing of the disappeared scene*. Napoli: La scuola di Pitagora editrice. <https://www.scuoladipitagora.it/_filespdf/TF21-9791256130146.pdf>.

[24 october 2025 - <https://youtu.be/ZAlfz2hpUvA>]

Farroni, L., Faienza, M. (a cura di). (2024). *Gli archivi di architettura nel XXI secolo. I luoghi delle idee e delle testimonianze*. Roma TrE-Press. <<https://romatrepress.uniroma3.it/libro/gli-archivi-di-architettura-nel-xxi-secolo-i-luoghi-delle-idee-e-delle-testimonianze/>>.

[18 july 2025 - <https://youtu.be/YhuOHkYzF94>]

2023

Carlini, A., Farroni, L., Mancini, M. F. (a cura di). (2023). *Orizzonti di accessibilità. Azioni e processi per percorsi inclusivi. Accessibilità e patrimonio culturale*. Roma: Roma Tre Press. <<https://romatrepress.uniroma3.it/libro/orizzonti-di-accessibilita-azioni-e-processi-per-percorsi-inclusivi-accessibilita-e-patrimonio-culturale/>>.

[28 june 2024 - <https://www.youtube.com/watch?v=IXuLcEfXXo>]

Zerlenga, O., Cirafici, A. (a cura di). (2023). *Nuove frontiere nel disegno / New frontiers in drawing*. DADI_Press. <<https://www.architettura.unicampania.it/35-dadi-press/report-ricerca/666-nuove-frontiere-nel-disegno-new-frontiers-in-drawing>>.

[13 december 2024 - https://www.youtube.com/watch?v=jds_n7hYuY0&t=6051s]

2022

Giordano, A., Russo, M., Spallone, R. (Eds.). (2022). *Representation challenges. New frontiers of AR and AI research for cultural heritage and innovative design*. Milano: FrancoAngeli. <<https://series.francoangeli.it/index.php/oa/catalog/view/845/692/5002>>.

[26 may 2023 - <https://www.youtube.com/watch?v=WCKMAN6YIXg&t=24s>]

2020

Messina, B., Pascariello, M. I. (a cura di). (2020). *Il disegno tra sguardo e pensiero*. Fisciano: CUA.

2018

Rossi, M., Buratti, G. (a cura di). (2018). *Computational Morphologies - Design Rule between Organic Models and Responsive Architecture*. Cham, Switzerland: Springer.

Theory, practice, and history of surveying

Monographs

2025

Inglese, C. (2025). *Il rilievo integrato del complesso abbaziale di Casamari*. Cinisello Balsamo: Silvana editoriale S.p.A.

2023

Maiorano, A. C. (2023). *Il corpo grafico di una architettura decorata. Rilievo Disegno Ornamento*. Firenze: Altralea Edizioni.
[25 october 2024 - <https://www.youtube.com/watch?v=9wUirdmI3Ms>]

2019

Cera, V. (2019). *La significazione digitale dell'elemento architettonico. Dal rilievo alla strutturazione semantica dell'architettura*. Napoli: Editori Paparo.

Theory, practice, and history of multimedia communication

Monographs

2025

D'Alessio, M. (2025). *Narrazioni immersive. Scenari virtuali per la valorizzazione del patrimonio culturale*. Alghero: Publica. <<https://publicapress.it/index.php/portfolio/narrazioni-immersive/>>.

Empler, T. (2025). *Visual & Architectural Design. La rappresentazione come fondamento della comunicazione visiva*. Alghero: Publica. <<https://publicapress.it/index.php/portfolio/visual-architectural-design-la-rappresentazione-come-fondamento-della-comunicazione-visiva/>>.

2024

Menchetelli, V. (2024). *Forma immagine. Pratiche dello sguardo*. Alghero: Publica. <<https://publicapress.it/index.php/portfolio/forma-immagine-pratiche-dello-sguardo/>>.
[26 september 2025 - <https://youtu.be/KNHD5O4pLYs>]

2023

Ansaldi, B. (2023). *Perspective and the blind. Rappresentazione e Comunicazione inclusive per l'accessibilità dei dipinti prospettici*. Napoli: fedOAPress. <<https://www.fedoabooks.unina.it/index.php/fedoapress/catalog/book/461>>.

Antinozzi, S. (2023). *Appunti per l'infografia di modelli immersivi*. Fisciano: CUA.
[26 april 2024 - https://www.youtube.com/watch?v=IF1bAGF09_I&t=2s]

Attademo, G. (2023). *Lo spazio narrativo nei videogiochi. La rappresentazione dello spazio virtuale come nuova modalità narrativa negli entertainment games e nei cultural games*. Napoli: fedOAPress. <<https://www.fedoabooks.unina.it/index.php/fedoapress/catalog/book/460>>.
[19 july 2024 - <https://www.youtube.com/watch?v=2hao-4GRTwk>]

2020

Cirafici, A., Zerlenga, O. (2020). *WordLIKESignMOVIE. Content switch*. Napoli: La scuola di Pitagora editrice. <<https://www.scuoladipitagora.it/collane-scuola-di-pitagora/temi-e-frontiere-della-conoscenza-e-del-progetto/wordlikesignmovie-content-switch>>.

Piscitelli, M. (2020). *L'identità visiva della rivista di moda. Evoluzione di un medium per la seduzione di massa*. Napoli: La scuola di Pitagora editrice.

2018

Casale, A. (2018). *Forme della percezione. Dal pensiero all'immagine*. Milano: FrancoAngeli.

2016

Cicalò, E. (2016). *Intelligenza grafica*. Ariccia: Aracne.

Scientific editions

2024

Giordano, A., Russo, M., Spallone, R. (Eds.). (2024). *Advances in representation. New AI- and XR-driven transdisciplinarity*. Cham: Springer.
[18 luglio 2025 - <https://youtu.be/YhuOHkYzF94>]

2022

Cicalò, E., Savini, F., Trizio, I. (a cura di). (2022). *Linguaggi Grafici. DECORAZIONE*. Alghero: Publica. <<https://publicapress.it/index.php/portfolio/linguaggi-grafici-decorazione/>>.

2021

Cicalò, E., Menchetelli, V., Valentino, M. (a cura di). (2021). *Linguaggi grafici. MAPPE*. Alghero: Publica. <<https://publicapress.it/index.php/portfolio/linguaggi-grafici-mappe/>>.