Athens Journal of Architecture 2026, 12: 1-19
https://doi.org/10.30958/aja.X-Y-Z

From Silo to Sea: Drawing as Cultural Agency

*By Beatrice Moretti**

Architectural drawing operates as a form of cultural agency. Tracing its trajectory from early modern studies of grain silos to contemporary sea-based design, this essay frames drawing as a critical and operative practice capable of actively mediating between industrial form, territorial transformation, and emerging maritime conditions. The inquiry focuses on Erich Mendelsohn's early twentieth-century sketches of American grain silos, interpreted through a qualitative and comparative visual analysis. His drawings demonstrate how representation acts simultaneously as an analytical and projective tool, re-signifying industrial artefacts as spatial, cultural, and symbolic constructs. In doing so, they articulate a form of architectural thinking that bridges technical rationality and human experience. Building on this methodological framework, the paper extends the argument toward port and offshore environments, proposing them as contemporary spatial laboratories where such interpretive strategies can be tested, adapted, and projected across scales. As maritime territories are increasingly shaped by extraction, logistics, and ecological pressures, drawing regains urgency as a means to render these environments legible, situated, and culturally meaningful for both human and non-human actors. The essay ultimately argues for a renewed architectural agency grounded in representation, positioning drawing as a critical device for engaging the complexity, scale, and instability of contemporary oceanic spaces.

Introduction

Drawing as New Humanism

What does it mean to draw architecture in an age of ecological fragility, technological acceleration, and socio-spatial fragmentation? This question, central to the discourse on a "new humanism" in architecture, frames the investigation of Prussian architect Erich Mendelsohn (1887-1953)'s 1924 journey to Buffalo, USA and his visionary drawings of American grain silos (Figure 1). Mendelsohn's sketches, produced in black ink and pencil on transparent paper, offer a profound entry point into a form of representation that is neither purely technical nor overtly figurative. Rather, it manifests an embodied, reflective, and speculative mode of thinking through drawing, what might be termed a humanistic form of architectural knowledge.[1]

The act of drawing in this context becomes a means of engagement with the world, of coping with memory, history, and materiality through the architectural imagination. In terms of its research objectives, this paper examines how Mendelsohn's drawings

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1. M. Cohen, "Silo dreams: The industrial inspirations of the modern movement – How did American industrial buildings spur an architectural revolution in Europe?," in *MoMA Magazine*, 27 July 2023.

exemplify a mode of representation that is both analytical and poetic: one that constructs typologies through observation while projecting new possibilities through abstraction. From this premise, the study formulates broader research questions concerning how architectural drawing, in its multiple modalities, can articulate and renew humanist values within a period marked by profound environmental and cultural transformations. The study adopts a qualitative and interpretive methodology based on visual and comparative analysis, supporting the investigation of drawing as both analytical and projective practice.

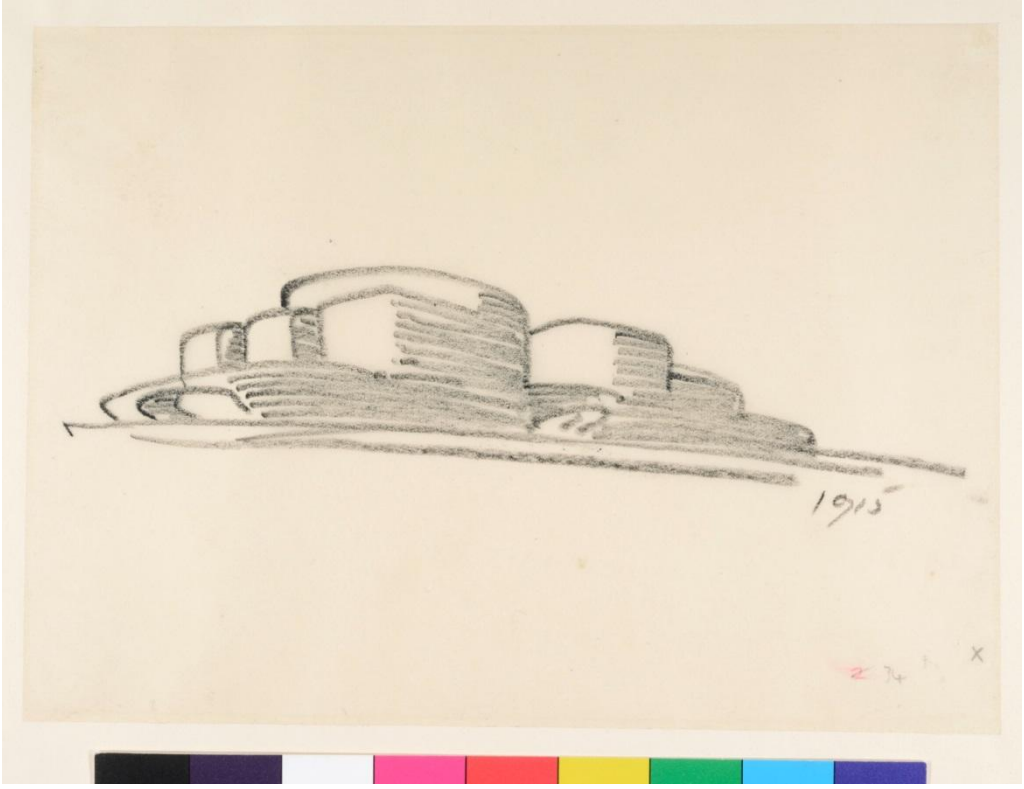

Figure 1. *Sketch for a Silo, Erich Mendelsohn, 1915*
Source: Kunstbibliothek, Staatliche Museen zu Berlin, Germany. Photo Scala Archives, Florence/ bpk, Bildagentur fuer Kunst, Kultur und Geschichte, Berlin. Photo: Dietmar Katz.

In this context, drawing is understood as a form of cultural agency, i.e., not merely a representational tool, but an active practice that interprets, reframes, and projects spatial realities, contributing to the construction of architectural meaning across different contexts. In parallel, while ports and coastal infrastructures implicitly inform the industrial and territorial contexts evoked by Mendelsohn's silo drawings, the correlation between a humanistic discourse on drawing and the specific spatial, operational, and environmental conditions of port and sea-based environments opens onto a field of inquiry still to be explored. This raises a broader disciplinary question: how architectural reflection grounded in land-based industrial typologies might be extended, adapted, or transformed when confronted with maritime and port-related spaces.

In a world increasingly mediated by digital interfaces, algorithmic processes, and automated design environments, the architectural drawing retains an enduring, even radical significance. More than a means of visual communication, it constitutes a speculative and cognitive tool, allowing architects to reflect on space, history, landscape, and identity.[2] In this sense, the act of drawing foregrounds the human subject, their memory, perceptual experience, and cultural imagination within the design process.

At a pivotal moment for both architecture and the world—between two world wars and amidst the search for new artistic and cultural languages—Erich Mendelsohn, regarded as one of the leading figures of Expressionist architecture, undertakes an iconic transatlantic journey to observe, photograph, and sketch the cathedrals of industry: the monumental symbols of American progress. Through the case of Mendelsohn's sketches of American grain silos,[3] the essay examines how drawing becomes a critical device for thinking—and re-thinking—architectural typologies. Mendelsohn's gestural and visionary representations reflect a profound engagement not only with form and function but with broader questions of modernity, materiality, and anthropological experience. His drawings are not mere renderings of buildings but interpretative acts that reframe the industrial landscape as a domain of spatial potential, demonstrating how even the most mechanized of architectural forms can be recast through drawing into human-centred artifacts.

A Trajectory to New Research Frontiers

To structure this inquiry, the essay unfolds through a series of interconnected sections. It begins with an introduction that situates the act of drawing within today's context of environmental crisis, technological acceleration, and socio-spatial fragmentation, using Erich Mendelsohn's sketches of American grain silos as a lens. The first section establishes the theoretical foundation, framing drawing as a cognitive, reflective, and speculative act that resists both purely technical representation and digital abstraction. The literature review examines the visual canon of the grain silo, contrasting the photographic appropriations of Gropius and Le Corbusier with Mendelsohn's embodied and interpretive graphic method. Through a recollection of other drawings and techniques by the same author, the methodology section shows how Mendelsohn's sketches are characterized by recurring formal strategies that suggest the persistence of a distinctive method. They have the ability to transform industrial and natural forms into dynamic, human-centred architecture.

The discussion deepens this analysis by exploring the silo as a cultural construct and architectural type, arguing that Mendelsohn's work reimagines infrastructure as expressive form. Since the American grain silo is a generative typological device, this section identifies its language through the cataloguing of key guiding principles. The discussion includes also the subsection "From Line to Atmosphere: Mendelsohn and Scarpa in Dialogue" that explores a further key outcome of the drawings: their

2. S. Gümüştaş Babalı, and N Ö Erem, "Drawing as a language in the design process: A cognitive bridge between thinking and representation," (Diségno, 2025), 16.

3. B. Moretti, "My silo dreams: Tipologia industriale nell'immaginario grafico e progettuale di Erich Mendelsohn," *GUD, Tipologia – Tipology* 11 (2025): 96-104.

display in monographic exhibitions. In Mendelsohn's case, two major shows—at the 1960 Venice Biennale and the University Art Museum in Berkeley nine years later—were both curated by Italian architect and designer Carlo Scarpa. The conclusion considers how Mendelsohn's analogue methods speak to contemporary hybrid drawing practices, highlighting the enduring relevance of hand-drawn speculation in a digital age. Lastly, in the final section "Ports as Mediators for a Humanist Reframing of Oceanic Space", the paper opens a new perspective on sea-based design and offshore space, proposing a critical and humanistic reframing of maritime infrastructures, where drawing once again emerges as a medium capable of negotiating between technological abstraction and architectural imagination. The last two sections of the essay are closely connected, aiming to challenge the applicability of the historical example—Mendelsohn's representational technique—within a contemporary and extreme context, namely seas and oceans. This projection outspreads the study's reasoning toward a new potential research frontier, serving as both a deliberate methodological advancement and a logically coherent extension of the original analysis.

Literature Review

Anonymous Icons: The Silo in the Modernist Imagination

To contextualize the research questions outlined above, the literature review examines how industrial typologies—particularly the grain silo—have been interpreted within modern architectural discourse, providing the conceptual background for understanding Mendelsohn's contribution.

The modern architectural fascination with American grain silos finds one of its earliest articulations in Walter Gropius's 1911[4] lecture *Monumentale Kunst und Industriebau*, where he presented sixty-nine photographs of industrial buildings to argue for a new monumental art rooted in technological expression. Gropius's notion of *Körperlichkeit*—understood as a corporeality[5] that mediates the tensions between form and function, mass and lightness, ornament and structure—offered a conceptual ground upon which the image of the silo was elevated to an aesthetic icon. This elevation occurred primarily through photography. Gropius's inclusion of nine images of American grain elevators in the 1913 *Jahrbuch des Deutschen Werkbundes*, in fact, catalysed a visual canon, subsequently reinforced by figures such as Le Corbusier, Bruno Taut, and later Reyner Banham.[6]

4. Walter Gropius consciously used photographs of American grain elevators as a tool for strategic promotion. This is evident in the structure of his 1911 lecture, as revealed by analysis of the manuscript and the use of photographic miniatures of the silos, which were integrated into the presentation through projections with lantern slides.

5. C. Mejía Moreno, "The corporeality of the image," in Walter Gropius' *Monumentale Kunst und Industriebau* lecture, 24-25 (Intermédialités / Intermediality, 2014).

6. W. Gropius, "The development of modern industrial architecture," in T. Benton, C. Benton, and D. Sharp (Eds.), *Form and function: A source book for the history of architecture and design, 1890–1939*, 54-55 (Crosby Lockwood Staples, 1913); C. Mejía Moreno, "Walter Gropius's silos and Reyner Banham's grain elevators as art-objects," in K. Lloyd Thomas, T. Amhoff, N. Beech (Eds.), *Industries of architecture*, 25-36 (Routledge, 2015).

However, as Banham would later note,[7] these early modernists, despite their rhetorical enthusiasm, had little understanding of the silos' technical operations. Their knowledge was mediated exclusively through images: photographs devoid of context, function, or material specificity. For instance, Le Corbusier used an aerial photograph of the Brooklyn Army Terminal to illustrate the chapter titled *Surface*, the second of the *Three Reminders to Architects* (*Trois rappels à Messieurs les Architectes*) in his seminal book *Vers une Architecture* (1923). The choice of this image was far from incidental: it exemplified the architect's fascination with large-scale industrial infrastructure and its capacity to express a new architectural language rooted in functionality, efficiency, and the aesthetics of engineering. Le Corbusier's decision to include this image in a book advocating for a radical transformation of architectural practice reveals a key aspect of his design philosophy: the belief that the modern machine age had produced new spatial paradigms that architects could no longer ignore. The aerial perspective underscored the formal clarity and geometric rigor of the terminal, emphasizing the vast horizontal surfaces of the roofs and tracks, the rhythm of repetitive structural bays, and the diagrammatic logic of circulation. To Le Corbusier, such infrastructure embodied the *engineer's aesthetic*, which he admired for its economy of means, structural honesty, and visual power.

Moreover, in framing the Brooklyn Army Terminal as an object of architectural contemplation, Le Corbusier elevated a work of pure logistics to the status of design precedent.[8] He blurred the disciplinary boundaries between architecture and engineering, proposing that the principles governing industrial space—efficiency, standardization, repetition, to name a few—could inspire a new architectural order. This move aligned with his broader modernist project: to replace ornament with logic, and monumentality with function, while still maintaining a poetic vision of space and form. By selecting this image, then, Le Corbusier also redefined what a "surface" could mean in architectural terms, not merely the skin of a building, but the planimetric and operational field in which architecture participates. Finally, in this way, the Brooklyn Army Terminal became a symbol of architecture's evolving relationship with territory, logistics, and industrial modernity.

7 R. Banham, "Catacombs of the modern movement: Grain elevators in myth and reality," *Archetype* 1, no. 4 (1980): 43-47; Banham, *A concrete Atlantis: U.S. industrial building and European modern architecture, 1900–1925* (MIT Press, 1986).

8 M. Kelly, "Following Function: Putting the Industrial Buildings that Inspired the Modernist Movement Back to Work," in *Docomomo US*, 14 October 2014.

Gropius, Mendelsohn, and the Transformative Role of Drawing

It is worth to note that Walter Gropius consciously employed photographs of American grain elevators as a strategic promotional tool to advance his architectural vision. This deliberate use is particularly evident in the structure and delivery of his 1911 lecture, as revealed through the analysis of his manuscript.[9] The presentation was supported by the use of photographic miniatures of the silos, which were not just illustrative but integral to his rhetorical strategy. These images were projected using lantern slides, creating a powerful visual narrative that framed the American industrial landscape as a model of formal clarity and functional elegance. Gropius effectively harnessed the visual language of photography to advocate for a new architectural ethos: one grounded in modernity, technological rationalism, and aesthetic coherence. Actually, he constructed a deliberate platform for the dissemination of American grain elevators, grounded in a process of selective isolation and strategic omission. He consciously withheld specific contextual information, notably omitting the exact locations of certain photographs and deliberately avoiding any mention of the engineers, designers, or construction firms responsible for the structures. By presenting these industrial buildings anonymously—stripped of authorship and technical attribution—Gropius effectively *recontextualized* them as architectural discoveries of his own. This act of appropriation was intentional: his goal was to be the first to introduce these forms into the European architectural discourse, thereby asserting intellectual and curatorial authorship over their aesthetic and conceptual significance. He positioned himself as a gatekeeper of architectural innovation, using the American silo as a cipher through which to rewrite the narrative of architectural modernity.

Mendelsohn's act of traveling to Buffalo in 1924 thus stands apart. He was the only early European modernist to witness the silos firsthand, to walk among their forms and observe their integration within the chaotic flows of port infrastructure. His subsequent sketches did not simply reiterate the photographic image of the silo; they transformed it. Drawing offered Mendelsohn an interpretive freedom beyond the frame of photography, enabling a dynamic, synthetic reimagining of space, scale, and movement.[10]

Beyond the well-known influence of Antonio Sant'Elia, several other key figures played a significant role in shaping the evolution of modern architectural language during the early 20th century.[11] Among them, Filippo Tommaso Marinetti stands out for his *Manifesto of Futurism* (1909), which articulated a radical vision that celebrated speed, dynamism, machinery, and the violent rupture with the past, concepts that would deeply permeate architectural imagination.

9. C. Mejía Moreno, "Photographs of silos: On the contingency of a modern photographic canon," *Architectural Histories* 10, no. 1 (2022): 5, 1-30; C. Mejía Moreno, "Walter Gropius's silos and Reyner Banham's grain elevators as art-objects" (Routledge, 2015).

10. E. Mendelsohn, Amerika: Bilderbuch eines Architekten. (Berlin, Rudolf Mosse Buchverlag, 1926)

11. S. King (Ed.), *The drawings of Erich Mendelsohn* (University Art Museum, University of California, 1969).

Equally impactful was Frank Lloyd Wright, whose *Wasmuth Portfolio*[12] (1910) served as a powerful vehicle for the international dissemination of his work. The portfolio's refined line drawings and perspective renderings introduced European architects to Wright's ideas of spatial continuity, horizontality, and the organic integration of architecture into its environment, catalysing a profound shift in formal sensibilities.

Otto Wagner also played a foundational role, particularly through his theoretical writings and built works that bridged historicism and modernity. His influence was extended by the students Joseph Maria Olbrich and Josef Hoffmann, who brought Wagner's principles into more experimental and expressive territories, contributing to the development of the Vienna Secession and early modern design thinking.

Not least, Henry van de Velde exerted a particularly subtle yet powerful influence on the generation of architects concerned with formal expression. His approach—based on flowing, curvilinear forms and an emphasis on the expressive potential of mass and volume—left a lasting impression on Erich Mendelsohn, whose own explorations of architectural space and dynamism can be traced, in part, to van de Velde's integration of artistic gesture and structural logic. Van de Velde's synthesis of fine art and applied design helped to articulate a new sensibility, one in which form and space were no longer static, but animated, fluid, and emotionally charged.

These influences would find early articulation in Mendelsohn's first public exhibition *Architecture in Steel and Concrete* held at the Paul Cassirer Gallery in Berlin in 1919, prior to his formative trip to America. The title of the show was largely misunderstood by contemporary critics, who dismissed the works as "sheer nonsense, pretty vignettes, or mere ornamentation".[13] Yet this misreading obscured the radical clarity of Mendelsohn's project. Far from being fantastical or devoid of precedent, the visual vocabulary and structural logics embedded in his sketches drew on the engineering feats of the late 19th century, particularly those built between France and Britain—such as the Crystal Palace (1851), the Galerie des Machines (1889), and, undoubtedly, the Eiffel Tower (1887). These were not just acts of construction but spatial experiments in scale, transparency, and repetition that had already begun to destabilize the classical tectonic order.

Mendelsohn recognized that the new materials of steel and concrete had the capacity to fundamentally alter architecture's compositional logic. His expressive graphic explorations were not abstract fantasies but conceptual blueprints—projections of new spatial conditions still seeking a built form. The dynamic reciprocity between drawing and design—between imagined architecture and future possibility—is particularly evident in the sketches Mendelsohn produced between 1914 and 1930, often in implicit conversation with the Futurist visions of Sant'Elia. A striking parallel can be observed between Sant'Elia's 1913 drawing of a power station and Mendelsohn's 1915 sketch of a grain silo: both deploy monumental cylindrical forms and exaggerated vertical scales that evoke the influence of American industrial architecture. These drawings do not just document architectural intent—

12. F. L. Wright, Ausgeführte Bauten und Entwürfe von Frank Lloyd Wright (The Wasmuth Portfolio). (Berlin: Ernst Wasmuth, 1910).

13. King, *The drawings of Erich Mendelsohn* (University Art Museum, University of California, 1969), 9.

they enact it, operating as speculative tools through which new typologies and spatial languages were imagined.

This historical overview highlights the limits of image-based interpretations and prepares the ground for a methodological shift toward drawing as an analytical and projective practice.

Methodology

Drawing as Process: Between Analogies and Invention

This study adopts a qualitative and interpretive approach grounded in visual analysis and comparative reading. It focuses on a selected corpus of Mendelsohn's drawings, including the silo sketches, the *Dune Architecture* series (1920), and the wartime *Trench Sketches* (1917). The analysis is conducted through a close reading of their formal, spatial, and representational characteristics, combined with a comparative framework aimed at identifying recurring strategies across different contexts. The objective is inductive: to derive a set of conceptual categories that articulate drawing as a process of architectural thinking.

Through this process, four main conceptual categories are identified: (1) *emphasis on form*, (2) *exaggeration*, (3) *serial variation*, and (4) *immediacy and dynamic composition*. The following examples illustrate how these categories operate within Mendelsohn's drawings, functioning as an application of the methodological framework.

In a letter to his wife Louise, Mendelsohn described the Buffalo silos as "mountainous," "space-conscious," and "creating space." He wrote of "[…] a random confusion amidst the chaos of loading and unloading corn ships" and of "[…] crane monsters with live gestures."[14] This language is interpreted here as evidence of a dual reading of industrial structures, simultaneously technical and expressive, which informs the analytical framework adopted in this study.

His sketches from the trip reflect this duality. Often rendered in black ink or pencil, they are both precise and evocative, compact yet monumental. Buildings are reduced to essential forms—cylinders, planes, vertical stacks—yet animated by unusual angles and directional forces. Within the proposed framework, this corresponds to a deliberate *emphasis on form* and its expressive manipulation. They are not passive depictions but active constructions of space, embodying what could be defined as a "kinetic monumentalism".

The analysis reveals recurring formal strategies that suggest the persistence in Mendelsohn's work of a distinctive operative approach. His sketches are often characterized by a pronounced focus on form, frequently amplified through processes of *exaggeration* that accentuate its architectural potential. This approach is particularly evident in the drawings of wind-swept sand dunes that Mendelsohn produced in 1920 along the Baltic coast of East Prussia. There, movement—

14. E. Mendelsohn, *Letters of an architect* (O. Beyer, Ed.; G. Strachan, Trans.; intro. by N. Pevsner) (Abelard-Schuman, 1967), 69.

generated by the relentless force of the wind—becomes the primary conceptual category, one that recurs in later works.[15]

His wartime sketches, drawn on the Russian Front during World War I in 1917 (Figure 2), depict architectural forms that oscillate between the plausible and the surreal. Executed on small, often improvised scraps of paper, these drawings reflect the constraints of his military service. Mendelsohn had negotiated a special arrangement with his commanding officers that allowed him to carry, protect, and use drawing materials during active duty. Yet these limitations shaped the visual language he adopted: a line that is rapid, anxious, and instinctive, which can be interpreted within this study as an instance of *immediacy and dynamic composition*. Far from weakening the architectural intent, this condition anchors the drawings in a form of direct experiential registration, reinforcing their speculative dimension.

Lastly, one of the most revealing aspects of Mendelsohn's drawing practice is his use of *serial variation*. A particularly notable example is his 1929 sheet of thirty studies for the Metal Workers' Union building in Berlin. Each iteration modifies the previous one slightly, adjusting a curve, adding a line, shifting a proportion. These are not mere options; rather, they constitute a design logic in motion, a recursive and cumulative process of thought.

This method is echoed in his silo sketches. Though many are compact and singular, they resonate as part of a broader system of exploration, here interpreted as an additional manifestation of serial variation. The drawings oscillate between the abstract and the specific, the real and the imagined. They compress massive forms into minute scales, distilling the silo's essence into a few strokes while expanding its conceptual significance.

Within this framework, drawing is understood as both an analytical and generative tool. It enables a shift from the reading of individual images to the interpretation of broader architectural questions, positioning drawing as an active medium in the construction of meaning rather than a passive form of representation. This methodological approach supports the transition from descriptive analysis to conceptual interpretation, allowing the study to address broader issues concerning typology, representation, and humanist agency. In this sense, drawing is not a final product, but is a process through which architectural meaning is constructed and transformed. This emphasis on *drawing-as-process* aligns with the ethos of "new humanism," framing the architect as an interpretive and imaginative agent operating through dynamic and evolving representations.

15. King, *The drawings of Erich Mendelsohn* (University Art Museum, University of California, 1969).

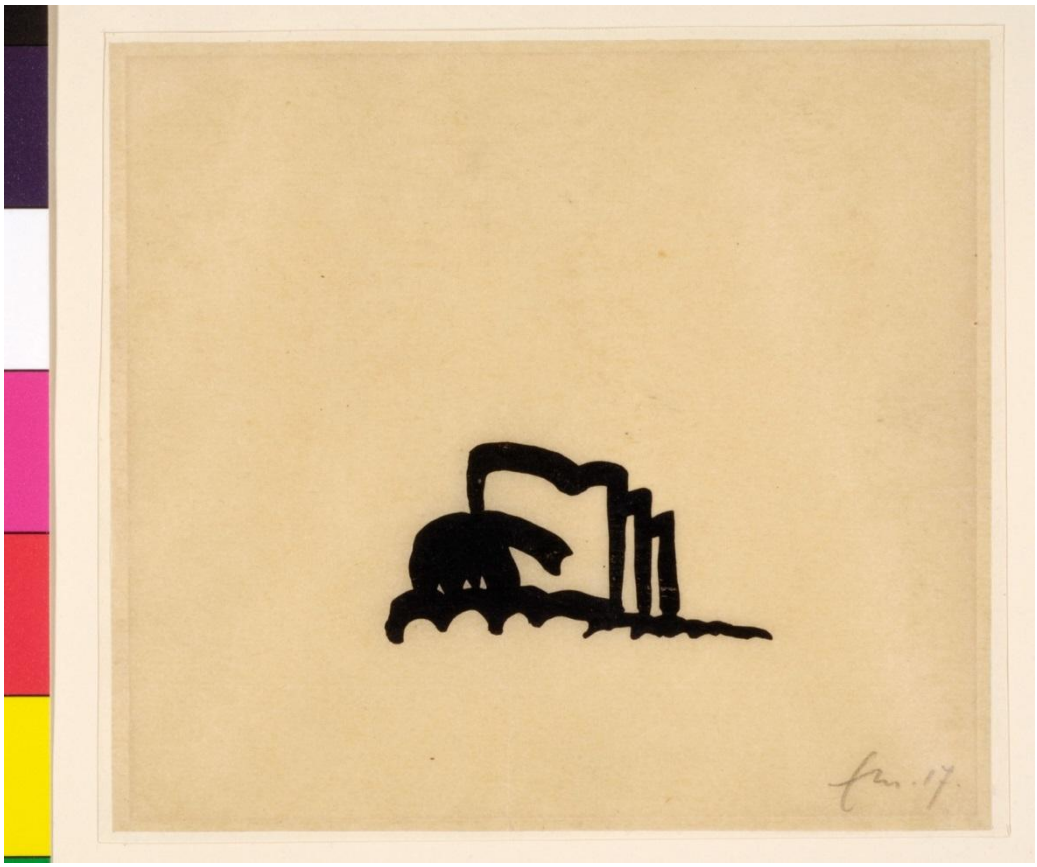

Figure 2. *Imaginary Sketch of the Russian Front, Erich Mendelsohn, 1917.*
Source: Kunstbibliothek, Staatliche Museen zu Berlin, Germany. Photo Scala Archives, Florence/ bpk, Bildagentur fuer Kunst, Kultur und Geschichte, Berlin. Photo: Dietmar Katz.

Discussion

Typology as Cultural Construct: The Silo, a Shared Language

The methodological analysis outlined above provides the basis for a deeper investigation into typology as a cultural construct. Typology has long served architecture as a conceptual instrument for analysing built forms and generating design. In the case of port architecture—which refers to the architectural typology linked to port operations, including warehouses, depots, and hangars, as well as the wider infrastructure of cranes, cargo-handling equipment, containers, and logistics systems[16]—typology becomes particularly compelling, as ports historically operate as hybrid zones, part infrastructure, part civic space, and part landscape. The grain silo, invented by the American businessman and entrepreneur Joseph Dart in 1842, is an exemplar of this hybridity: a utilitarian storage mechanism that, through sheer scale and repetition, becomes an urban icon.

16. C. Andriani, B. Moretti, and D. Servente, *Patrimonio di confine. Metabolismi della linea di costa. Indagini, sperimentazioni e visioni fra città e porto* (Sagep, 2024).

In Buffalo, where Dart was active since 1822 in the grain industry, silos lined the waterfront in such density and uniformity that the area became colloquially known as *Silo City*.[17] Their concrete cylindrical forms, engineered for efficiency, paradoxically yielded a new aesthetic vocabulary. The very anonymity of their function—the erasure of ornament, the dominance of repetition—offered the modernists a model for a new kind of monumentality.

In his 1913 essay *The Development of Modern Industrial Architecture*, Walter Gropius identifies American industrial buildings—especially grain elevators—as paradigmatic forms through which a revitalized architectural discourse might take shape.[18] For Gropius, the American grain silo is not simply a technical solution to the storage of grain, but a generative typological device: an embodiment of formal rational organization, governed by guiding principles such as the unity of form, the choice of colour, and a pervasive feeling of elegance. Yet these principles, Gropius insists, must be activated by a decisive artistic gesture—a synthetic act capable of transforming engineering into architecture, function into form, and plain construction into cultural expression. It is precisely this gap between industrial necessity and aesthetic intentionality that Erich Mendelsohn would later explore through drawing.

While Gropius found in these American infrastructures the formal DNA of modernism, Mendelsohn's graphite lines infuse them with something else: the imaginative force of a "new humanism", a symbol of architecture's potential to reassert human experience in the face of mechanization. This "new humanism" does not reject the machine, nor does it romanticize pre-industrial forms. Rather, it seeks to reconcile the technological and the poetic, the rational and the emotional, the infrastructural and the symbolic. His drawings of silos tap into the latent expressive power of utilitarian forms and, in doing so, reposition them as carriers of meaning, as structures capable of evoking human response even when devoid of traditional ornament or anthropomorphic reference.

In this context, the mechanical aesthetic that emerges in the early 20th century—far from being a surface style—is understood as a deep structural grammar, one that operates through other guiding principles that complement the ones mentioned earlier.[19] Sharp volumetric contrasts, proportional rigor, and a planimetric logic often overrides conventional perspectival or façade-based composition. This logic finds one of its most articulate expressions in the architecture of ports and, generally, of infrastructural complexes. These sites, composed of standardized modules and repetitive systems, manifest a productive ambiguity: they seem to elude typological classification, even as they obey rigorous formal rules.[20] Their identity lies in functional hybridity: they are simultaneously infrastructural, technological, and

17. L. H. Schneekloth (Ed.), *Reconsidering concrete Atlantis: Buffalo grain elevators. The Urban Design Project* (School of Architecture and Planning, University at Buffalo, SUNY & The Landmark Society of the Niagara Frontier, 2007).

18. T. Benton, C. Benton, and D. Sharp (Eds.), *Form and function: A source book for the history of architecture and design, 1890–1939* (Crosby Lockwood Staples/Open University Press, 1975).

19. Moretti, "La grammatica dei porti: Una morfologia speciale di paesaggi analoghi. Il caso del grain elevator di Buffalo," *GUD, Analogia – Analogy* 3 (2021): 46-55; Moretti, "Architetture della città portuale contemporanea: Composizioni ibride ed eccezionali contesti," *GUD, Composizioni – Compositions* 6 (2022): 24-33.

20. A. Rosselli. "Il porto come struttura e significato." Portus, 10 (2005): 4–9.

industrial, borrowing and blending typological traits in a dynamic process of adaptation and transformation. This ambiguity is not a deficiency but a condition of openness: it is a refusal to be pinned down by fixed categories.

Port architecture, in particular, embodies this logic of typological excess and transgression: it belongs everywhere and nowhere, speaking the language of docks and cranes, of warehouses and offshore platforms, of logistics and monumentality. It is precisely this condition that allows such forms to resonate with Mendelsohn's vision, where the architectural object is never closed or resolved, but always in tension between the demands of modern industry and the aspirations of a renewed human-centred architecture.

Within this field of inquiry, drawing triggers the identification of guiding principles becoming, even today, a critical instrument for conceptual reorientation. Mendelsohn's sketches of the Buffalo silos extract from industrial objects a new typological potential, one that is no longer bound to use or function alone, but which opens onto a wider field of architectural possibility. In his hand, the silo becomes a *matrixial form*: a structure that reveals both strong familial resemblances and subtle differentiations. It is this capacity to support difference within sameness, to accommodate change without dissolving identity, that places Mendelsohn's work at the heart of a modern humanist architectural language.

Thus, Mendelsohn's drawings recast the silo as subjects of architecture, exemplifying drawing as a form of cultural agency through which industrial artefacts are re-signified as spatial and symbolic constructs. In doing so, they signal a shift in the very nature of typology, from static taxonomy to dynamic field. This is the conceptual territory in which the "new humanism" of drawing unfolds: a domain where industrial form and human meaning, abstract logic and lived experience, intersect and co-evolve. Mendelsohn's drawings reflect a deep understanding of this typological condition. His sketches often explore seriality, alignment, and aggregation, they reveal the syntax of port architecture, of horizontals and verticals, voids and solids, shadow and light. Here again, drawing functions as a critical tool, not for cataloguing form, but for interpreting and projecting the latent potentials of type. It is no coincidence that, from that moment on, silos—like containers after them—were continuously refined in technology, materials, and function, while simultaneously proliferating across global ports, contributing to the emergence of a shared architectural and logistical language.

From Line to Atmosphere: Mendelsohn and Scarpa in Dialogue

The inclusion of Mendelsohn's work in exhibitions such as *The Drawings of Erich Mendelsohn* at the University Art Museum in Berkeley (1969), curated by Carlo Scarpa, underscores the enduring impact of his visual method.[21] Scarpa's exhibition design—a careful orchestration of colour, height, texture, and light—amplified the human encounter with Mendelsohn's miniature yet monumental drawings. In the windowless brown brick Romanesque building which hosted the

21. A detailed description of the installation, the exhibition, and the inaugural lecture given by Carlo Scarpa at Berkeley in March 1969 is contained in an article by American architect Max Levy, who was a student at the university at the time. See: https://maxlevyarchitect.com/articles/scarpa.html.

exhibition, small sketches were elevated to eye level, while larger ones were placed on inclined planes, inviting a bodily engagement with the work. This curatorial strategy echoes the sketches themselves, which demand a kind of physical empathy. They are not diagrams of machines, but expressions of a deeply embodied encounter with space and matter. Even the industrial landscape—so often thought to be inhospitable to humanist values—becomes, through drawing, a site of interpretive warmth.

Indeed, Mendelsohn's silo drawings anticipate what Banham in its first edition of *Theory and design in the first machine age* would later describe as the "industrial sublime":[22] a form of aesthetic experience rooted not in pastoral harmony but in the overwhelming scale, function, and intensity of the machine age. By translating this sublime into sketch, Mendelsohn does more than aestheticize it; he humanizes it. He shows that even the most remote and mechanized forms can be re-inscribed with meaning, memory, and imagination.

Already in 1960, as part of the 30th Venice Art Biennale, Carlo Scarpa curated the first solo exhibition of Erich Mendelsohn's work in Italy, titled *Erich Mendelsohn. Imaginary Sketches*.[23] This exhibition marked a pivotal moment in the posthumous reception of Mendelsohn's work in the Italian architectural discourse. Scarpa, known for his extraordinary sensitivity to spatial composition and material detail, approached the curatorial task with a deep understanding of the expressive fragility of Mendelsohn's graphic language. As in the Berkeley show later, Scarpa faced the curatorial challenge of displaying drawings that were often disorientingly small in scale: rapid sketches, sometimes no larger than a few centimetres, executed on paper remnants or the backs of postcards. These fragments, intense and concentrated, risked losing their impact in the grandeur of the Biennale's architectural halls.

To address this, Scarpa devised a spatial intervention within the exhibition room: a smaller, intimate environment was constructed inside the main space, effectively functioning both as "a room within a room" and as a scenographic device that provided a more concentrated viewing experience. This internal enclosure served both a practical and conceptual role: it offered physical proximity to the delicate drawings while also evoking a contemplative atmosphere, almost like a cabinet of curiosities or a private study.

This approach not only enhanced the legibility of the works, but also underscored the introspective and speculative nature of Mendelsohn's early graphic production. Scarpa's architectural gesture transformed the exhibition space into a kind of architectural model of the imagination, resonating with the visionary, often unbuilt quality of Mendelsohn's early "imaginary" architecture (Figure 3). The juxtaposition of Scarpa's meticulous spatial staging and Mendelsohn's explosive, freehand lines highlighted the tension between material precision and graphic abstraction, between built form, human scale, and ideated space.

Thus, Scarpa's curatorial approach in both exhibitions becomes a reading in itself: a dialogue between two architects, each deeply attuned to the expressive potential of line, space, and atmosphere. In retrospect, the 1960 Venice exhibition can be seen as both a critical rehabilitation and a poetic reinterpretation of

22. Banham, *Theory and design in the first machine age* (Cambridge: MIT Press, 1980).

23. O. Lanzarini, "L'architettura alla XXX Biennale d'arte, 1960: Carlo Scarpa e i 'bozzetti immaginari' di Erich Mendelsohn," *Opus Incertum* 10 (2024): 116-125.

Mendelsohn's early sketches, reframing them as autonomous works capable of projecting radical ideas into the present. Not least, the Erich Mendelsohn exhibition in Venice, with Carlo Scarpa's masterful design, marked the culmination of a long process aimed at incorporating architecture into the exhibition program of an event traditionally dedicated to art. It represents a first and fundamental milestone, one that would lead, only in 1973, to the formal inclusion of architecture among the official disciplines of the Venice Biennale.

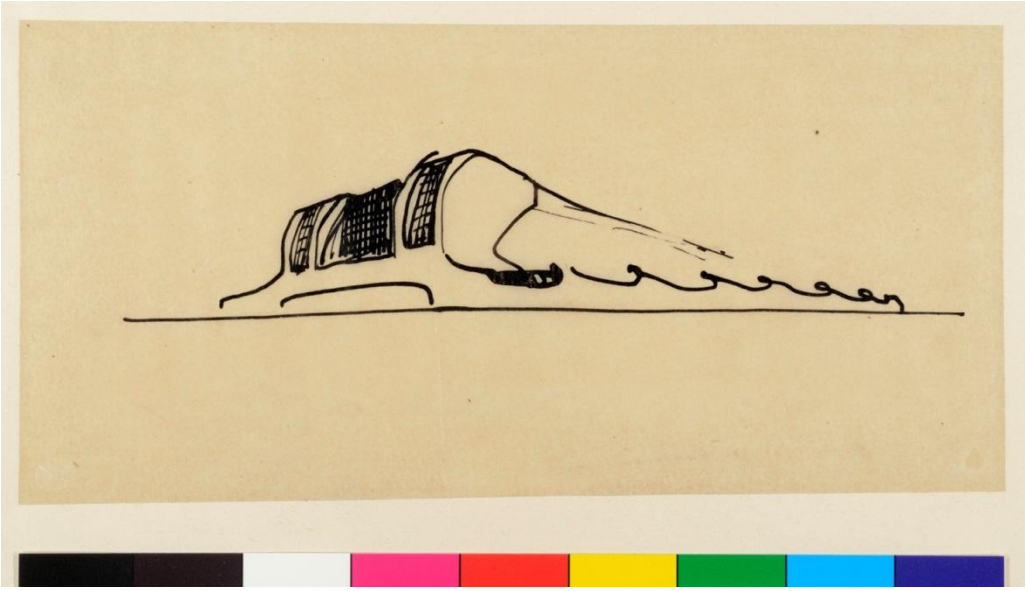

Figure 3. *Sketch for a Car Body Factory, Erich Mendelsohn, 1914*
Source: Kunstbibliothek, Staatliche Museen zu Berlin, Germany. Photo Scala Archives, Florence/ bpk, Bildagentur fuer Kunst, Kultur und Geschichte, Berlin. Photo: Dietmar Katz.

Conclusion

From Analog to Hybrid: Drawing Futures

Building on the preceding discussion, the conclusion reflects on the broader implications of drawing in contemporary architectural practice. In the current architectural landscape, dominated by parametric tools, BIM platforms, and AI-driven design, the question arises: how can drawing retain its humanistic dimension? Mendelsohn's work offers an instructive precedent. His sketches do not rely on precision or technological fidelity, their power lies in their capacity to synthesize—function, form, perception, and context—into a single, compact expression.

This capacity remains critical today. As design increasingly involves hybrid forms of representation—combining analogue sketching, digital modelling, and algorithmic scripting—the need for interpretive, human-centred practices grows more acute. Sketching, whether on paper or tablet, retains a vital role as a space for thinking, understanding, speculating, and dialoguing.

Moreover, Mendelsohn's attention to typology, context, and variation provides a model for how drawing can engage with contemporary challenges: ecological

transition, adaptive reuse, and cultural memory. The silo, once a symbol of industrial efficiency, can be reimagined as a sustainable container, a vertical landscape, or a civic landmark. And the sketch can be the medium through which such reimagining begins.

Erich Mendelsohn's 1924 journey to Buffalo, and his subsequent sketches of grain silos, constitute more than a footnote in architectural history. It exemplifies the capacity of drawing to mediate between the technological and the human, the typological and the personal, the industrial and the romantic. His sketches do not replicate reality; they reframe it by illuminating new paths for design thinking. In doing so, they embody a "new humanism" in architecture: one grounded in perception, iteration, and imagination.

Crucially, however, Mendelsohn's relevance does not lie solely in an abstract humanist attitude, but in the way drawing operates as a methodological tool for engaging infrastructural systems. His silo sketches confront large-scale, logistical architectures whose primary purpose is functional, yet whose spatial and symbolic dimensions remain open to interpretation. This positions drawing not as a representational afterthought, but as a form of cultural agency—an *active mediator* between infrastructure, territory, and human perception: a role that becomes particularly urgent when architecture engages environments marked by instability, discontinuous scales, and limited accessibility—conditions that anticipate those of port and offshore territories.

That said, how can architectural drawing—understood as a humanist, interpretive practice—reconfigure contemporary infrastructural environments that increasingly operate at the threshold between land and sea, from ports to offshore systems? This shift is not just thematic but methodological. The same representational operation through which Mendelsohn reinterprets the silo—transforming an industrial object into a spatial and cultural construct—can be extended today to contemporary infrastructural systems. In this sense, drawing operates as a transferable analytical device, capable of moving across scales and contexts, from land-based industrial typologies to the complex spatial conditions of port and maritime environments.

This conceptual shift opens the way for a broader extension of the argument and, hence, ports emerge here as a decisive intermediary condition. Situated between terrestrial industrial typologies and the open sea, port infrastructures translate land-based logics of storage, circulation, and accumulation into maritime contexts. They constitute spatial laboratories in which the lessons of Mendelsohn's industrial drawings can be tested, extended, and ultimately projected offshore, as outlined in the concluding section of the essay. In this process, drawing supports the project by making it both accessible and universal. It proves essential especially in extreme environments[24]—as seas and oceans—where the human footprint has long struggled to take hold, where uncertainty and constant change dominate, yet where the drive to operate, inhabit, and represent space is more pressing than ever.

24. D. Garcia, Extreme Environments: Architecture at the Frontiers of Human Habitation. (Danish Architectural Press, 2025)

Perspective

Ports as Mediators for a Humanist Reframing of Oceanic Space

Building on the analytical framework developed through Mendelsohn's drawings, industrial land-based typologies can be extended toward maritime environments through the mediating role of ports, revealing a spatial and conceptual continuity rather than a rupture. From silo to port terminal, from dock to offshore platform, in fact, drawing accompanies architecture as it progressively engages fluid and unstable territories.[25]

The extension of the argument from industrial land-based typologies to offshore and maritime environments requires further substantiation, particularly with regard to port architecture as a mediating condition between land and sea.

While the grain silo functions as a powerful generative device for rethinking industrial form through drawing, ports operate as hybrid spatial systems in which terrestrial and maritime regimes overlap. Their architecture is simultaneously grounded and floating, fixed and mobile, territorial and extraterritorial. A paradigmatic example can be found in large container ports where automated terminals, logistical landscapes, and infrastructural megastructures form environments that are technologically advanced yet perceptually opaque. Despite their centrality to global urbanisation, these spaces remain largely unreadable as architectural or cultural artefacts. Like Mendelsohn's silos, they demand interpretive tools capable of translating infrastructural abstraction into spatial understanding. The following reflections—pointing at the sea and the offshore—are therefore intended as a forward-looking perspective, outlining a potential research trajectory rather than a fully developed analytical framework.

Following Lefebvre's conception of space as socially produced and dialectically constituted (1974),[26] the sea may be understood as an edge condition, simultaneously forbidding and fecund.[27] As Nancy Couling and Carola Hein observe, "the ocean has become a site of spatial and environmental convergence, a type of 'hinterland' to urbanised territories at the same time as the urban has become more diffuse, porous, and far-reaching" (2020: 20).[28] This marks a critical turning point in the understanding of coastal and maritime space, as a space of entanglement, negotiation, and design potential. Offshore environments are increasingly subjected to processes of spatial regulation, from Exclusive Economic Zones (EEZs) to Marine Spatial Planning (MSP). Largely devoid of permanent human settlement, they have developed into mono-functional territories. Their spatial vocabulary is one of detachment: distant, over-scaled, and technocratic. As Couling and Hein again note, "[…] the ocean

25. C. Hein, Y. van Mil, and L. Azman-Momirski, *Port City Atlas. Mapping European Port City Territories: From Understanding to Design* (nai010 publishers, 2023).

26. Lefebvre, H. The production of space (D. Nicholson-Smith, Trad.). New York: Blackwell, 1974.

27. N. R. Couling, *The role of ocean space in contemporary urbanization* (École Polytechnique Fédérale de Lausanne, 2015); Couling and Hein (Eds.), *The urbanisation of the sea: From concepts and analysis to design* (nai010 publishers, 2020); I. Furbetta, and T. Malchiodi, *Blue uneven: A geography of the ocean at the time of planetary urbanization* (Enter Anthropocene) (ListLab, 2025); M. Vianello, *The Ground beyond Land. An Offshore Theory on Urbanisation* (Jovis, 2026).

28. Couling and Hein (Eds.), *The urbanisation of the sea: From concepts and analysis to design*, 2020, 20.

takes on an abstract, remote status...[…] incomprehensible in terms of scale and similarly inaccessible in both visual/conceptual and physical terms".[29]

Architectural design is challenged by the sea's morphological volatility and by the *impossibility of grounding*, both literally and metaphorically. In this sense, offshore infrastructures represent attempts to replicate terrestrial stability in a fluid realm. These operations crystallise a condition of design that seeks to solidify the unstable, to domesticate the indeterminate. Yet, as has become increasingly evident, such efforts are not merely technical: they are also ideological, performing a politics of presence in zones where traditional categories of public and private, nature and culture, land and sea dissolve. The consequence of these processes is not rather spatial alienation, but a loss of cultural imagination.

Historically, architectural discourse has addressed port infrastructures through a land-centred lens.[30] On one hand, the sea, perceived as both an empty desert and a politically exploitable surface, has remained conceptually peripheral. On the other, as Steinberg argues,[31] the ocean has been produced through social, political, economic, and cultural processes—just like land space—and that these constructions reflect broader power dynamics, state interests, and economic systems. Yet, approximately 98% of the global ocean is already affected by multiple stressors such as overfishing, pollution, coastal development, and climate change.[32] Marine environments now operate as spatial extensions of terrestrial urbanism.

In this expanded urban field, drawing reasserts its role as a form of cultural agency. As Mendelsohn used it to humanise the overwhelming scale and repetition of industrial silos, contemporary architectural drawing can render legible the logistical, environmental, and political dimensions of port and offshore infrastructures. Drawing does not resolve complexity, it frames it, making it available to interpretation and critique. This shift requires not only new engineering protocols but also a rethinking of design agency: a tool that actively participates in constructing the meaning, visibility, and ethical framing of infrastructures and environments, especially those, like ports and oceans, that lie at the frontiers of everyday experience.

Herein resides the pivotal challenge for architecture: how to restore legibility, intimacy, and ethical engagement to sea and offshore space. Rather than imposing terrestrial models of control, we argue for a representational approach rooted in drawing as a "humanist practice": one capable of engaging uncertainty, fluidity, and temporal instability as design conditions.

Offshore design does not propose habitation in the conventional sense, but rather the cultivation of situated knowledge and imaginative presence. Categories are changing in oceans: viscosity is replacing solidity; drift is supplanting stasis.[33] Conditions of extraterritoriality—and even illegality—generated by the offshore position are not treated as fixed realities, but are instead integrated as active elements

29. Ibid.

30. Vianello, *The Ground beyond Land. An Offshore Theory on Urbanisation*, 2026.

31. P. E. Steinberg, *The social construction of the ocean* (Cambridge University Press, 2001).

32. S. Georgian, S. Hameed, L. Morgan, D. J. Amon, U. R. Sumaila, D. Johns, and W. J. Ripple, "Scientists' warning of an imperiled ocean." *Biological Conservation* 272 (2022): 109595.

33. Couling and Hein (Eds.), *The urbanisation of the sea: From concepts and analysis to design*, 2020.

within the design process; in this framework, drawing could become an *epistemic instrument*, a means of thinking with the sea rather than against it. The ocean ceases to be an "elsewhere," and becomes a site through which the limits of architectural language and humanist values are redrawn. A "new humanism"—attuned to planetary limits, infrastructural complexity, and ecological entanglement—must begin not with domination, but with recognition: that to design for the sea is also to design with uncertainty, with remoteness, and with the irreducible otherness of a space long excluded from our spatial ethics.

By re-inscribing sea and offshore architectures within a broader cultural and spatial discourse, future research on these topics should outline a path toward their *re-humanisation*—renewed conceptual and representational agency. As it did for Mendelsohn more than a century ago, drawing bridges the gap between technological abstraction and human experience, between infrastructure and meaning. It is through ports, and ultimately through the sea, that drawing could be able to extend its human-centred legacy into extreme environments and a contemporary, and truly humanist, architecture might emerge.

Acknowledgments

The author wishes to thank the Berkeley Art Museum and Pacific Film Archive – BAMPFA for their precious collaboration in finding information about the exhibition curated by Carlo Scarpa, *The Drawings of Erich Mendelsohn* (Berkeley, CA, 1969). Thanks are also due to the Library of the Department of Architecture and Design – DAD of the University of Genoa for their assistance in the research of Erich Mendelsohn's *imaginary sketches* of industrial buildings, acquired through *bpk Picture Agency* in Berlin, with the support of the partner agency *Scala Archives* (Florence, IT).

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