Mara-Johanna Kölmel and Ursula Ströbele

Introduction

The Expanded Field of the Sculptural

In recent years, sculpture has experienced a renaissance. This renaissance is based on altered concepts of sculpture that dispense with statuary, permanence, and the anthropomorphic in favor of time-based, performative, and immaterial digital aspects. Johann Gottfried Herder, for instance, described sculpture as "Bildsäule" and August Schmarsow referred to it as "Körperbildnerin."[1] In addition to these designations, each of which emphasizes different characteristics, sculpture has even been referred to as action: "Handlung" (Franz Erhard Walther); or form of action: "Handlungsform" (Manfred Schneckenburger); as a "real-time system" (Jack Burnham/Hans Haacke); "biofact" (Nicole C. Karafyllis); and performance: "Aufführung" (Erika Fischer-Lichte).[2] This multifaceted expansion between three-dimensional thing and pictorial object is also expressed in terms such as "specific object," "readymade," and "objet trouvé." Historically, the art-theoretical discussion of sculpture has been stimulated by the Pygmalion discourse and the *paragone* debate.[3] But the dissolution

1 Johann Gottfried Herder, *Plastik: Einige Wahrnehmungen über Form und Gestalt aus Pygmalions Bildendem Traume* (1778), ed. Lambert Schneider and Peter Bachem (Cologne: Jakob Hegner, 1969), e.g., pp. 42–43, 62. August Schmarsow, *Unser Verhältnis zu den Bildenden Künsten: Sechs Vorträge über Kunst und Erziehung* (Leipzig: B.G. Teubner, 1903), p. 54.

2 Manfred Schneckenburger, "Plastik als Handlungsform," *Kunstforum International* 34 (1979): 20–31. Jack Burnham, *Beyond Modern Sculpture: The Effects of Science and Technology on the Sculpture of This Century* (New York: Braziller, 1968), idem, "Real Time Systems," *Artforum* 8, no. 1 (September 1969), pp. 49–55. Nicole C. Karafyllis, "Biofakte: Grundlagen, Probleme und Perspektiven," *Erwägen Wissen Ethik (EWE)* 17, no. 4 (2006): 547–58. Erika Fischer-Lichte, "Kunst der Aufführung – Aufführung der Kunst: Der Aufführungsbegriff als Modell für eine Ästhetik des Performativen," in Clemens Risi and Jens Roselt, eds., *Kunst der Aufführung – Aufführung der Kunst* (Berlin: Theater der Zeit, 2004), pp. 11–26.

3 For the *paragone* debate as it arose in Renaissance Italy, see Leatrice Mendelsohn, *Paragoni: Benedetto Varchi's Due Lezzioni and Cinquecento Art Theory* (Ann Arbor, MI: UMI Research Press, 1982); Claire Farago, *Leonardo Da Vinci's "Paragone": A Critical Interpretation with a New Edition of the Text in the Codex Urbinas* (Leiden: Brill, 1992). For further reading on the Pygmalion topoi, see Oskar Bätschmann,

of sculpture's boundaries and its convergence with time-based, action-related art forms, such as performance, theater, dance, and music, demand other comparisons. The transgression of classical boundaries of genre and "states of destabilization" of characteristics of genre entail multisensory concepts—works that address not only the senses of touch and sight but might also have olfactory and acoustic dimensions. Despite this, sculpture is often retained as a categorical term. This is the position that the symposium *The Sculptural in the (Post-)Digital Age*, which was hosted by the Zentralinstitut für Kunstgeschichte in Munich, started from in June 2021.[4] After a joint trip to the exhibition *Negative Space: Trajectories of Sculpture* at ZKM Karlsruhe (2019), the idea was born to organize an event discussing sculptural boundaries and phenomena dealing with computer technologies, with digitality and virtuality. Based on these two days, the present publication brings together essays, art-historical and methodological perspectives, that go beyond the symposium and its topics, including historical, partly analogue precursors, material reflections, monumentalities and corpo-realities, feedback loop systems, and the aesthetics of the (post-)digital. Through systematic, historical, interdisciplinary dialogue, the contributions rethink the medium of sculpture in relation to our technological present. The publication thereby also builds on our previous research focus, namely Ursula Ströbele's habilitation on the sculptural aesthetic of the living, *Expanding the Sculptural: Analyses and Theories of Current Border Phenomena: Nonhuman Living Sculptures since the 1960s: Hans Haacke and Pierre Huyghe* and Mara-Johanna Kölmel's PhD, *Sculpture in the Augmented Sphere: Reflections at the Intersection of Corporeality, Plasticity, and Monumentality* which both examine how digital technologies configure our understanding of the sculptural.[5]

Sculptures are objects in the world that point beyond themselves. At the same time, they insist on an inescapable physicality. The facticity of the three-dimensional and the actuality of representation and perception of a sculpture stand in a special tension, which is even increased in digital, virtual sculptures. For a theory of sculpture, Rosalind Krauss's "Sculpture in the Expanded Field" (1979) still forms a central point of reference.[6] After the 1977 monograph *Passages in Modern Sculpture*, which had still argued largely in terms of developmental history in view of a temporalization (time-based forms) of the medium, Krauss

"Pygmalion als Betrachter: Die Rezeption von Plastik und Malerei in der zweiten Hälfte des 18. Jahrhunderts," in *Der Betrachter ist im Bild: Kunstwissenschaft und Rezeptionsästhetik*, ed. Wolfgang Kemp, 2nd extended edition (Berlin: Reimer, Dietrich, 1992), pp. 183–224. Victor Stoichita I., *Der Pygmalion-Effekt: Trugbilder von Ovid bis Hitchcock* (Munich: Wilhelm Fink, 2011).

4 See the Zentralinstitut für Kunstgeschichte's Online-Symposium *The Sculptural in the (Post-)Digital Age*, https://www.zikg.eu/aktuelles/veranstaltungen/2021/das-skulpturale-im-post-digitalen-zeitalter/#the-sculptural-in-the--post---digital-age (accessed July 7, 2022).

5 Forthcoming, Mara-Johanna Kölmel, *Sculpture in the Augmented Sphere: Reflections at the Intersection of Corporeality, Plasticity and Monumentality*, PhD diss. (Leuphana University Lüneburg, 2021) and Ursula Ströbele, *Erweiterung des Skulpturalen: Analysen und Theorien aktueller Grenzphänomene: "Non-human Living Sculptures" seit den 1960er Jahren: Hans Haacke und Pierre Huyghe*, Habilitation (Heinrich-Heine-Universität Düsseldorf, 2020). Both are in the process of being published.

6 Rosalind E. Krauss, "Sculpture in the Expanded Field," *October*, no. 8 (1979): 30–44.

later turned to a reframing and expansion of sculpture in the art of the 1960s and 1970s.[7] She then considered sculpture as "historically determined and not a universal category" and develops a structural understanding of sculpture that simultaneously takes the argumentative step from sculpture to the sculptural in a post-medium condition, as one could argue.[8] Krauss's perspective was directed against a narrow, essentialist or media-specific concept of sculpture, as it had been formulated in Clement Greenberg's modernist art criticism. Her expanded field of a post-medium condition can first be understood literally as a spatial expansion, because the sculpture, Process Art, and Land Art of the 1960s and 1970s opened up new spaces—vast, walkable landscape spaces such as by Alice Aycock, Mary Miss, Robert Morris, and Richard Serra. The field also opens up in terms of temporal extension, insofar as she considers the sculptural actions of the artists as well as the changed processes of reception. In place of an essentialist analysis—one that positively names (essential) features of sculpture—she sets up a negative framework that unfolds in her diagram around the poles of architecture/non-architecture and landscape/non-landscape. In fact, the term "sculpture" is only mentioned twice, as Michael Lüthy has noted: firstly, it denotes objects defined by non-architecture and non-landscape, such as Robert Morris's *Mirror Cubes* and Donald Judd's *Specific Objects*.[9] Secondly, it is included in the title of her essay, namely as a general category of the whole diagram. Whereas Krauss's argumentation in the context of extended photography explicitly pleaded for speaking of *the photographic* (in the sense of the indexical as artistic practice) instead of photography, she only formulates this step for sculpture between the lines. So, it would be consistent with this to no longer speak of "sculpture in the expanded field," but of the "expanded field of the sculptural" and the sculptural as a methodological, structural approach, as Martina Dobbe and Ursula Ströbele argue.[10]

Leaving behind medium-specific restrictions, the sculptural also includes digital and virtual sculptural phenomena (that Krauss does not mention for obvious reasons), which will be discussed in the present publication. The expansion into virtual space as well as the emergence of digital sculptures as an essential form of the dissolution of boundaries in the sculptural is already anticipated in Jack Burnham's survey work *Beyond Modern Sculpture: The Effects of Science and Technology on the Sculpture of This Century* (1968).[11] Burnham includes tech-based and computer-based sculptural works in his systems aesthetics—by Nicolaus Schöffer, Enrique Castro-Cid or Nam June Paik for example—even if art history until today continues to pay little attention to this kind of work, i.e., at the intersection of the natural sciences and computer technology. In the same year as Burnham's book, Robert Mallary published his article *Computer Sculpture* in *Artforum*, referring to the

7 Rosalind E. Krauss, *Passages in Modern Sculpture* (New York: Viking Press, 1977).
8 Krauss, "Sculpture in the Expanded Field," 1979. See also Martina Dobbe and Ursula Ströbele, "Introduction," idem, *Gegenstand Skulptur* (Paderborn: Wilhelm Fink, 2020), pp. 1–16.
9 Michael Lüthy, "Expanded Field/Rosalind Krauss," in *Skulptur Projekte Münster 07*, ed. Brigitte Franzen, Kasper König, and Carina Plath (Cologne: Walther König, 2007), pp. 356–57.
10 Dobbe and Ströbele, *Gegenstand Skulptur*, 2020, pp. 4–5.
11 Burnham, *Beyond Modern Sculpture*, 1968.

book.[12] He seems to be critical, still bound to the physical facticity of sculpture, and thus offers evaluative criteria for this kind of "*transductive art*." Mallary considers the computer as "*portentous*, because for the first time the sculptor has access to a tool which can be used not only for executing a work, but conceiving as well."[13] As a consequence, he differentiates between "computer-*aided* sculpture" and "computer-*generated* sculpture."[14] Around the same time, together with his students, he wrote the computer program *TRAN2*, which was able to calculate forms that might then be printed, even if the transfer process was still dependent on humans. PROSA, another program, generated three-dimensional solid forms out of a reduced given repertoire (for Mallary's *QUAD* sculptures, see the article by Michael Rottmann, pp. 58–79). At the same time, early computer art of the 1960s by, e.g., Herbert W. Franke, Vera Molnár, Frieder Nake, and Lillian F. Schwartz, as well as feminist media art by Lynn Hershman Leeson, is characterized by a "synergistic, or symbiotic" relationship between the sculptor and the computer. The artwork is not created in a classical studio any longer but in the (seemingly) immaterial sphere of the digital that also (eventually) provides the corresponding channels of distribution.

Meanwhile, there have been a few attempts to expand Krauss's diagram in different directions, being discussed, for example, in *Retracing the Expanded Field: Encounters between Art and Architecture*, edited by Spyros Papapetros and Julian Rose in 2014.[15] Miwon Kwon sums up the state of the discourse as follows: "It is actually quite partial—as it tells only one story about sculpture among many others that could be told … along the lines of commodity culture, or the body, or the phenomenological, for instance."[16] One concept stemming from Krauss's diagram is developed by the artist Joe Scanlan together with Claire Bishop concerning a structural model of "walking" as artistic practice, and a further development in 2015 by Andreas Greiner and Ursula Ströbele that includes axes for time, space, and sense that tries to describe living, virtual, and digital phenomena of the sculptural.[17]

From the perspective of geography, Martin Zebracki examines public sculptures such as Paul McCarthy's *Tree*, a twenty-four-meter-high, inflatable, butt-plug-shaped sculpture that was erected on Place Vendôme in Paris, which fell victim to an act of vandalism and triggered a controversial debate in the press and social media. Even if the destroyed sculpture survived in digital images that were distributed via social media channels, Zebracki

12 Robert Mallary, "Computer Sculpture," *Artforum* (May 1969), pp. 29–35.

13 Ibid., p. 1.

14 Ibid., p. 13.

15 Spyros Papapetros and Julian Rose, eds., *Retracing the Expanded Field: Encounters between Art and Architecture* (Cambridge, MA: MIT Press, 2014).

16 Miwon Kwon, in "The Expanded Field *Then*: A Round Table Conversation: Rosalind Krauss, Yve-Alain Bois, and Benjamin Buchloh, moderated by Hal Foster," in Papapetros and Rose, *Retracing the Expanded Field*, 2014, p. 33.

17 Joe Scanlan in cooperation with Claire Bishop, "Reponses," in Papapetros and Rose, *Retracing the Expanded Field*, 2014, pp. 226–27. Ursula Ströbele and Andreas Greiner, "24h Skulptur: Notes on Time Sculptures," in Ursula Ströbele, Andreas Greiner, and Jan-Philipp Sexauer, eds., *24h Skulptur: Notes on Time Sculptures* (Berlin: Distanz, 2015), pp. 31–37.

considers this pictorial multiplication as part of the work, and one that relativizes the binary boundaries of public space between online and offline, digital and analogue, reality and virtuality. He sees "queering" as a situational-qualitative method: "a means to transform the static of a noun—*queer*—into the action of a verb—*queer[y]ing* … moving theory into methodological activism."[18] This fruitful approach, i.e., "a synergistic rather than confrontational approach" and "orientation toward nonalignment" also allows, following Donna Haraway, potentially uncovering hidden, hitherto silent and implicit knowledge practices, in that the conceptualized clusters serve to subvert and de(con)struct traditional narratives and sculpture-theoretical categories.[19]

Relating to such reflections, Mara-Johanna Kölmel expands Krauss's sculptural field toward an augmented sphere, understood here as an expanded, multi-axial matrix in which life unfolds and becomes the object of artistic and sculptural form.[20] Spheres open up spaces of coexistence in which different tendencies in sculpture can be related to each other. *Sculpture in the Augmented Sphere*, as Kölmel argues, no longer only operates around formal-aesthetic questions internal to art-historical discourse; rather, it is informed by the very fabric and challenges of our contemporary life. The shift from sculpture to the sculptural as discussed in this volume may then also represent the need for a qualitative transformation of research and thinking methods within sculptural discourse. Such critical posture no longer reproduces the same old chronological narratives of sculpture and technological progress, but rather opens them up for alternative perspectives and ways of recounting history.

Research Challenges in the Field of Computer-Based Sculpture since the 1950s

If artists now model their sculptures with software, how can we make sense of the works' spatiality, plasticity, and materiality? When an object can no longer be grasped in a tactile sense, which modes of perception are addressed? What ontological status do such computer-aided works possess that can be experienced both physically (e.g., 3D-printed objects) and virtually (on screen)? How does this experience affect the "aesthetic limit" ("Ästhetische Grenze")?[21] How are concepts of monumentality and site-specificity altered when sculptures easily circulate as files online and can be 3D-printed at any time? How can we think of an

18 Martin Zebracki, "Queering Public Art in Digitally Networked Space," in *ACME: An International Journal for Critical Geographies* 16, no. 3 (2017): 440–74, here 445, https://www.acme-journal.org/index.php/acme/article/view/1354 (accessed August 15, 2022).

19 Ibid., 446; Martin Zebracki, "Public Art and Sex(uality): A 'Wonky' Nexus," in *Public Art Dialogue* 10, no. 1 (2020): 1–10, here 7. Donna Haraway, "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective," in *Feminist Studies* 14, no. 3 (Autumn 1988): 575–99; and Donna Haraway, *Primate Visions: Gender, Race, and Nature in the World of Modern Science* (New York: Routledge, 1989).

20 See Kölmel, *Sculpture in the Augmented Sphere*, forthcoming.

21 See Ernst Michalski, *Die Bedeutung der ästhetischen Grenze für die Methode der Kunstgeschichte* (Berlin: Mann, 1996; orig. 1932).

object that arises from an algorithm and appears as pixels on a screen without sharing the same spatial conditions as the viewer? How do we experience objects that only become visible through an app? How can we interpret concepts of authorship in times of digital coproduction and artificial intelligence? Which forms of participation or interaction does the respective interface address? These are some of the questions this publication seeks to address.

The German research networks *Theorie der Skulptur* (Theory of Sculpture) and *Virtualisierung von Skulptur: Rekonstruktion, Präsentation, Installation* (Virtualization of Sculpture: Reconstruction, Presentation, Installation) have made significant contributions to an expanded conception of sculpture.[22] Other noteworthy publications in this context include *Inquiries into Contemporary Sculpture,* edited by Mary Ceruti and Ruba Katrib, the conference series and publications under the title *Sculpture Unlimited,* edited by Eva Grubinger and Jörg Heiser, the publication *Skulptur – Zwischen Realität und Virtualität* (Sculpture—Between Reality and Virtuality), the exhibition and catalogue *Lens-Based Sculpture,* the German Kunstforum *Unbegrenzte Skulptur: Ein Überblick über das Skulpturale heute* (Unlimited Sculpture: An Overview of the Sculptural Today) as well as *The Uncertainty of Objects and Ideas: Recent Sculpture*.[23] These publications conceptualize sculpture as a malleable, heterogenous, and accommodating category, and thus confirm the shift from sculpture toward what we like to term "the sculptural." They also touch upon sociocultural consequences of the information age and the impact of digital technologies on the art in general. However, in-depth studies that carefully look at the conception, production, and reception of contemporary sculpture while also considering an historical lineage and precursors of the employed technologies are still scarce. This is surprising insofar as computers became an artistic medium from the 1950s onward. CNC technologies were already being introduced

22 See Martina Dobbe and Ursula Ströbele, "Theorie der Skulptur | Projekt," http://theoriederskulptur.de/projekt/ (accessed August 15, 2022); Manfred Bogen, Jens Schröter, and Gundolf Winter, "DFG – GEPRIS – Virtualisierung von Skulptur: Rekonstruktion, Präsentation, Installation," https://gepris.dfg.de/gepris/projekt/5365644?context=projekt&task=showDetail&id=5365644& (accessed July 26, 2022).

23 See Mary Ceruti, *Where Is Production?: Inquiries into Contemporary Sculpture*, ed. Ruba Katrib (London: Black Dog Publishing, 2017); Mary Ceruti, *How Does It Feel?: Inquiries Into Contemporary Sculpture*, ed. Ruba Katrib (London: Black Dog Publishing, 2016); Mary Ceruti, *What About Power?: Inquiries into Contemporary Sculpture*, ed. Ruba Katrib (London: Black Dog Publishing, 2015); Eva Grubinger and Jörg Heiser, eds., *Sculpture Unlimited,* (Berlin: Sternberg Press, 2011)*;* Grubinger and Heiser, eds., *Sculpture Unlimited 2—Materiality in Times of Immateriality* (Berlin: Sternberg Press, 2015); Sabine B. Vogel, ed., "Grenzenlose Skulptur: Ein Überblick über das Skulpturale heute," *Kunstforum International* 229 (2014). Adriano Pedrosa, Laura Hoptman, and Jens Hoffmann, *Vitamin 3-D: New Perspectives in Sculpture and Installation* (London/New York: Phaidon Press, 2009); Johanna Burton and Anne Ellegood, *The Uncertainty of Objects and Ideas: Recent Sculpture*, exh. cat. Hirshhorn Museum & Sculpture Garden (New York: Hirshhorn Museum & Sculpture Garden, 2007); Bogomir Ecker and Raimund Kummer, Akademie der Künste, and Kunstmuseum Liechtenstein, eds., *Lens-Based Sculpture: Die Veränderung der Skulptur durch die Fotografie = The Transformation of Sculpture Through Photography*, exh. cat. Akademie der Künste, and Kunstmuseum Liechtenstein (Cologne: Walther König, 2014); Christian Spies, Jens Schröter, and Gundolf Winter, eds., *Skulptur – Zwischen Realität und Virtualität* (Munich: Wilhelm Fink, 2006).

in the 1960s and had important precursors in early centuries, such as the photo-sculpture in France in the 1850s (see the article by Buket Altinoba, pp. 37–57), 3D-scanning and -printing processes were used by artists such as Karin Sander since the 1990s (see pp. 26–33).

One should also highlight that there are important overviews that focus on the conception and production of contemporary post-digital objects at the intersection of design, architecture, and decorative or applied arts. Publications including *Post-digital Artisans*, *Digital Handmade*, *Out of Hand*, or *Digital Crafts* go hand in hand with increasing research into prototyping technologies and digitally driven materialization processes at art schools.[24] These contributions, however, do not specifically relate to sculptural discourse or ground their work in historical trajectories of sculpture.

Although a plethora of conceptual terminologies have been developed to describe the dynamics of "media objects" or "digital objects" in virtual environments, theoretical approaches under the heading of "aesthetics of the digital" tend to discuss such developments from the perspective of image-theoretical and screen-based phenomena.[25] The digital image continues to serve as the focal point for theoretical discussions on digitality.[26]

Notes on the Post-Digital

Counter to such assumptions, we argue that it is necessary to reflect on the implication of such "media change" in the context of sculptural discourses by departing from the physical object and its modes of production. The impetus for this publication is thus also motivated by an approach that considers often parallel discourses in the field of sculpture and new media together, combing them under the post-digital. Today, most aspects of our lives are mediated by digital parameters. The digital has become an inherent feature of our living environment, infrastructures, and production processes, and has thus seeped into the very substance of our reality. This development can be traced through the scientific and technological developments of the last seventy years. It is, however, only in recent years that artistic discourse has disassociated itself from terms such as "new media," "digital" or "net art." Art

24 Lucy Johnston, *Digital Handmade: Craftsmanship in the New Industrial Revolution*, 2nd edition (London: Thames and Hudson, 2017); Jonathan Openshaw, *Postdigital Artisans: Craftsmanship with a New Aesthetic in Fashion, Art, Design and Architecture* (Amsterdam: Frame Publishers, 2015); Ronald Labaco, ed., *Out of Hand: Materializing the Postdigital*, exh. cat. Museum of Arts and Design, New York (London: Black Dog Publishing, 2013); Ann Marie Shillito, *Digital Crafts: Industrial Technologies for Applied Artists and Designer Makers* (London: A & C Black Visual Arts, 2013); Wolfgang Fiel and Ruth Schnell, eds., *Bits to Pieces* (Vienna: University of Applied Arts Vienna, 2013).

25 For the discourse on the aesthetics of the digital, see Claudia Giannetti, *Ästhetik des Digitalen: Ein Intermediärer Beitrag zu Wissenschaft, Medien- und Kunstsystem* (Vienna: Springer, 2004); Katja Kwastek, *Aesthetics of Interaction in Digital Art*, reprint edition (Cambridge, MA: MIT Press, 2015).

26 See Wolf Lieser, *The World of Digital Art* (Potsdam: Ullmann Publishing, 2010); Sean Cubitt, Paul Thomas, Zhang Ga, Brogan Bunt, and Darren Tofts, *Relive: Media Art Histories* (Cambridge, MA: MIT Press, 2013); Sean Cubitt and Roger F. Malina, *The Practice of Light: A Genealogy of Visual Technologies from Prints to Pixels* (Cambridge, MA: MIT Press, 2014); Christiane Paul, *A Companion to Digital Art* (Malden, MA: John Wiley & Sons, 2016).

incorporating digital technologies is not a discrete cultural entity anymore. In the process, discussion has developed in the direction of a fundamental reorientation of Western culture through the digital. In an attempt to define a period after the initial upheaval from digital technologies, scholars have come to refer to our era as "post-digital." As Florian Cramer points out, referring to Hegel, the prefix "post" in this context is not understood in the sense of a Hegelian idea of progress, as in postmodernism or *posthistoire*.[27] Rather, the term refers to a cultural shift within the digital (including the internet) in a Heideggerian sense, from an event to a state of being.[28] Consequently, the post-digital describes a persistent mutation rather than the end of the digital. It refers to a condition in which the logic of the digital has given rise to a digital mindset and permeates nearly every aspect of human existence.

In 2000, the Australian composer Kim Cascone used the term "post-digital" to characterize an aesthetic of glitches in electronic music. Cascone positioned the notion in opposition to the strict perfectionism of high fidelity. In his essay "The Aesthetics of Failure: 'Post-Digital' Tendencies in Contemporary Computer Music," the musician highlights what he considers to be productive instances of failure in digital technology, such as "glitches, bugs, applications errors, system crashes."[29] According to Cascone, these instances highlight the medium, its autonomy outside of human control, and the potential beyond the typical functions and applications of software.[30] Cascone's contribution describes a disenchantment with the novelty of "new" media. Two years prior, Nicholas Negroponte, founder and chairman emeritus of the MIT Media Lab, had captured a similar sensation in his well-known statement: "Face-it! The digital revolution is over."[31] Negroponte, however, didn't intend to declare the end of the digital age; rather, he was trying to describe a world that is completely permeated by digital technology and in which "like air and drinking water, being digital will be noticed only by its absence, not its presence."[32] Rather than celebrating the idea of technological progress inherent in the "new" of new media or its capacity for subversion that had come to characterize much of the 1990s discourse, Cascone and Negroponte had captured a shift within the debates around digital technology.[33]

In 2006, the artist Marisa Olson coined the phrase "post-internet" to characterize her creative process, which she defined as "making art after being online."[34] Her performances,

27 Florian Cramer, "What Is 'Post-Digital'?," *A Peer-Reviewed Journal About Post-Digital Research* 3, no. 1 (June 1, 2014): 10–24, here 13, doi: https://doi.org/10.7146/aprja.v3i1.116068.

28 Ibid.

29 Kim Cascone, "The Aesthetics of Failure: 'Post-Digital' Tendencies in Contemporary Computer Music," *Computer Music Journal* 24, no. 4 (2000): 12–18, here 16.

30 Ibid., 17.

31 Nicholas Negroponte, "Beyond Digital," *Wired* (December 1998), https://web.media.mit.edu/~nicholas/Wired/WIRED6-12.html (accessed July 21, 2022).

32 Ibid.

33 Cascone, "The Aesthetics of Failure," 2000, 16.

34 Marisa Olson, quoted in Lauren Cornell, "Net Results: Closing the Gap between Art and Life Online," *Time Out New York* (February 9–15, 2006), p. 69.

poems, and music made use of materials found online, which she then assembled offline.[35] Her works' aesthetics no longer adhered to typical net art aesthetics. Instead, it fed off of the mundane, which had long held sway on the web. Olson's statement also highlighted the distinction between the perception of time spent online *and* offline—since the advent of internet-enabled smart phones, this perceived boundary has become ever more elusive. Today, the prefix "post" does not, as it once did, stand for a period of time after being online. Instead, "post" refers to an "internet state of mind, to think in the fashion of the network," as the result of a "complete embeddedness in a ubiquitous network culture."[36] At its best, post-internet art analyses the ramifications of a digital online culture and intends to give equal weight to the material and the immaterial, the physical and the digital, concept and object, form and content.[37] Due to their roots in online visual cultures, "post-internet" artists recognize and, at best, critically scrutinize the material history of the artistic technologies and networks they use. The artist Mel Alexenberg already characterized a similar development in his 2011 book *The Future of Art in a Postdigital Age*, but referring to a post-digital state. Here, he speaks of an interplay between digital, biological, cultural, and spiritual systems: between "cyberspace and real space, between embodied media and mixed reality in social and physical communication, between high tech and high touch experiences."[38]

The diverse research perspectives contributing to post-digital and post-internet discourses intersect in the observation that the digital now frames all facets of cultural life. Digital and networked technology are constantly and covertly present in the post-digital era. According to Kerstin Stakemeier, they have evolved into a "production paradigm" and "meta-medium."[39] In recent years, numerous exhibitions and publications have addressed this changing state of being through an examination of the arts in the age of the internet.[40]

35 See Marisa Olson, "Interview with Marisa Olson," interview by Regine, *We Make Money Not Art* (blog), March 28, 2008, https://we-make-money-not-art.com/how_does_one_become_marisa/ (accessed October 28, 2022).

36 Karen Archey and Robin Peckham, "About the Exhibition *Art Post-Internet*," at UCCA Center for Contemporary Art, February, 2014, https://ucca.org.cn/en/exhibition/art-post-internet// (accessed August 15, 2022).

37 See Artie Vierkant, "The Image Object Post-Internet" (2010), on the website *Jstchillin.org*, http://jstchillin.org/artie/vierkant.html (accessed August 15, 2022).

38 Mel Alexenberg, Mel, *The Future of Art in a Postdigital Age: From Hellenistic to Hebraic Consciousness* (Bristol and Chicago: Intellect Books and University of Chicago Press, 2011), p.10.

39 Kerstin Stakemeier, "Prothetische Produktionen: Die Kunst Digitaler Körper: Über 'Speculations on Anonymous Materials' im Fridericianum, Kassel," *Texte zur Kunst,* no. 93 (March 2014), p. 168.

40 See Eva Respini, *Art in the Age of the Internet, 1989 to Today* (Boston and New Haven: Yale University Press, 2018); Susanne Pfeffer, ed., *Speculations on Anonymous Materials* (London: Walther König, 2018); Nicolas Bourriaud, ed., *Crash Test – La Revolution Moleculaire* (Montpellier: La Panadee, 2018); Franz Thalmair, "Postdigital 1: Allgegenwart und Unsichtbarkeit eines Phänomens," *Kunstforum International* 242 (2016), pp. 38–53; Melissa Gronlund, *Contemporary Art and Digital Culture*; Omar Kholeif, Emily Butler, and Seamus McCormack, eds., *Electronic Superhighway: From Experiments in Art and Technology to Art after the Internet*, exh. cat. Whitechapel Gallery (London: Whitechapel Gallery, 2016); Omar Kholeif, ed., *You Are Here: Art After the Internet* (Manchester and London: Cornerhouse Publications, 2015); Gene McHugh and Domenico Quaranta, *Post Internet* (Link Editions, 2012).

Parallels can be drawn here with discussions from the 2000s that used the terms "post-media" and "post-medium." In Rosalind Krauss's concept of the post-medium—i.e., the proliferation of art forms with heterogeneous materials and production conventions (including installation art/assemblage, happening, installation, performance, etc.)—challenges the status of specific media such as painting or sculpture. According to Krauss, this leads to the overthrow of the traditional understanding of a medium.[41] In contrast to Krauss's post-medium notion, which is linked to Aristotle's reflections on artistic means of expression, Peter Weibel and Lev Manovich's term "post-media" has a different origin. It connects back to Isaac Newton's theory of the ether, which served as the foundation for theories of mass media put forth by Friedrich Kittler, Marshall McLuhan, and others. Lev Manovich and Peter Weibel's concepts of the post-media, which are based on these traditions, seek to characterize a state brought about by technological advancement. This condition is the all-encompassing impact of digital media on society, including the visual arts. Manovich argues that the fact that artists began to use the technologies of mass media to make art (whether it be photography, film, radio art, video art, or digital art)—and thus use the same tools of production, storage, and distribution—led to post-media aesthetics.[42] According to Weibel, the developments also characterized by Krauss and Manovich culminate in the digital revolution of the 1980s and 1990s—the convergence of all media under a universal medium, the computer, and thus a post-media state of life.[43] Weibel underlines the expansion of the media concept: "There is no longer a sculpture outside and beyond the medial experience."[44] This state of post-media is characterized by the equivalence of all media, its entangled appearance, and the emancipation of the viewer.

There have been important contributions to the discussion of the post-digital by Kim Cascone, in relation to electronic music, Alessandro Ludovico, with reflections on publishing, as well as more recently edited journal issues such as *The Post-Digital Condition: A Peer-Reviewed Journal About Post-Digital Research* and the German *Kunstforum International Post-digital 1+2* that link to important debates around new media and the net art of the late 1980s and 1990s.[45] At the same time, they address a fundamental shift in contemporary art by illuminating the impact of network and computer technology in established institutional and mainstream contexts as well as discourses. Post-digital can also be understood as a form of intermedial action. For Joachim Paech and Jens Schröter, intermediality means "more than the hybridisation of the arts… . Intermediality, as we understand it today, knows

41 Rosalind E. Krauss, *Under Blue Cup* (Cambridge, MA: MIT Press, 2011), p. 16ff.

42 See Lev Manovich, "Postmedia Aesthetics," in *Transmedia Frictions*, ed. Marsha Kinder and Tara McPherson (Berkeley: University of California Press, 2014), pp. 34–44.

43 Peter Weibel, "Die Postmediale Kondition," in Elisabeth Fiedler, Christa Steinle, and Peter Weibel, eds., *Postmediale Kondition* (Graz: Neue Galerie, 2005), pp. 9–13, here p. 11.

44 Ibid. p. 12.

45 See Cascone, "The Aesthetics of Failure," 17, Alessandro Ludovico, *Post-Digital Print: The Mutation of Publishing Since 1894*, 2nd edition (Eindhoven: Onomatopee, 2013); Thalmair, "Postdigital 1," 2016; Christian Ulrik Andersen, Geoff Cox, and Georgios Papadopoulos, eds., *A Peer-Reviewed Journal About Post-Digital Research 3*, no. 1 (June 1, 2014).

about the simulability of every form of medial properties through their digital programming. It reconstructs forms in a symbolic representation that refer to the interplay of different media that formulate themselves in it."[46] Similarly, in this volume Verena Kuni coins the term "analogital" to describe the various entanglements of analog and digital material(itie)s and media in the arts since the 1990s (pp. 102–118). As digital technologies have moved from the margins of our society to the center of our daily lives, the focus of artistic and critical discourse has also changed significantly. Art and culture that include digital technologies in their horizons of reflection are now no longer categories in their own right. They no longer occupy a niche that can be ignored by the art market or curators, as was still the case with net art and large parts of media art in the 1980s and 1990s. In a post-digital cultural sphere, the digital is not to be understood as a medium but as an act of interplay or a mode of configuration. It consequently does not lead to a subordination of existing media but to their hybrid transformation.[47]

The contributions in this volume demonstrate how today analog and digital as well as online and offline spaces naturally overlap. They thereby imply a post-digital perspective while also acknowledging that discourses on post-internet or the post-digital have short half-lives and a clear distinction between digital and post-digital cannot always be maintained. More importantly, the sculptural approaches discussed here show how the digital is today fully embedded in the mechanisms of contemporary art. Work of artists featured in this volume including Morehshin Allahyari, Mary Ellen Carroll, Shirin Fahimi, or Skawennati also demonstrate how the debates on post-digitality can no longer be subsumed under the sovereignty of Western media discourse or follow a rhetoric of the "new" in the sense of a linear chronological reading of "progress" (see for example the contributions by Sasha Sobrino, pp. 119–137, and Elizabeth Anne Johnson, pp. 184–197). Today, a post-digital mindset no longer exclusively addresses the technology-based expansion of reality and the interplay between digital and analog life; it can also mark a critical, political, polyphonic or subversive stance.[48] Feminist and decolonial approaches have contributed to imagining digital technology in inclusive ways, to building alternative (infra-)structures, or to providing open-source toolkits for self-organized action. In this sense, a post-digital mindset can also be understood as a gesture toward decolonializing digital space. Far from being neutral technology, it is shaped by its contexts. Different media ecosystems and media natures in turn affect and shape our living environment. As Daphne Dragona points out, the idea is to overcome the "separation of technology and ecology, of the human and the non-human

46 Joachim Paech and Jens Schröter, "Intermedialität analog/digital – ein Vorwort," in *Intermedialität analog/digital: Theorien, Methoden, Analysen,* ed. Joachim Peach and Jens Schröter (Munich: Wilhelm Fink, 2008), pp. 9–12.

47 Ludovico, *Post-Digital Print*, 2013, p. 7.

48 For further reflections on the post-digital in this context, see Mara-Johanna Kölmel and Denise Sumi, "(Post-)Digitalität in den Künsten," in *Handbuch Kulturpolitik*, ed. Johannes Crückeberg et al. (Heidelberg/Berlin: Springer, 2023).

world. The alternatives offered cannot constitute an excuse for continuing to exhaust the earth's natural resources."[49] In contemporary art, one could add, cyber-ecology, eco-fiction, and sculpture are closely linked to each other, as in the work by Tamiko Thiel, Jakob Kudsk Steensen, or Sofia Crespo & Feileacan McCormick.[50] These artists engage with new computer technologies and visual forms of representation to develop a sculptural, fictional aesthetic of the living and to unfold speculative futures of potential worlds in digital images beyond the dominant discourse of the Anthropocene. Against the background of these developments, the heterogenous and trans-historical contributions in our book discuss such important transformation processes in regard to the sculptural.

The Structure of the Book

Unfolding across four sections, the contributions focus on the analysis of sculptural phenomena and their configuration through digital technologies. Through a trans-historical and interdisciplinary perspective, the contributors discuss artistic positions that question sculptural concepts and expand on them. At the same time, they develop and refine methodological approaches that capture sculptural phenomena that have so far been addressed in largely isolated discourses. The shifts and expansions of sculptural discourse in the (post)-digital age can thus be traced. The book is opened by an artistic intervention by Karin Sander, pp. 26–33. Based on her keynote lecture "Arts Meets Science and Technology" from our symposium, she develops a kaleidoscopic picture board of her own sculptures as well as from artistic companions, including Richard Serra, Rachel Whiteread, and Erwin Wurm. These images, selected from her archive, represent various technological processes of today's sculptural field, such as rendering digital data, scanning, and 3D-printing, alongside the sculptural artifacts themselves. Sander's contribution thus offers the ideal backdrop against which the shifts and expansions of sculptural discourse in the (post)-digital age can be traced.

Historical Precursors

The idea of delegating image production to machines can be found in an age before the computer and its various potentials of automation and reproduction. In the nineteenth century, pioneers such as John Isaac Hawkins, James Watt, Benjamin Cheverton, and François Willème developed sculpture reproducing machines leading to questions of originality, authorship, authenticity, scalability, and (artistic) labor. In her essay "'Curious Machines':

49 Daphne Dragona, "Can Art Do the Work? From Narratives to Protocols, from Habit to Ethics," *Springerin*, Digital Ecology, no. 3 (2021), pp. 44–48, here p. 47.

50 See, for example, the unauthorized exhibition *Augmented Species: Invasive Sculptures in Hybrid Ecologies*, curated by Tina Sauerländer and Ursula Ströbele, 2021–22, https://www.zikg.eu/aktuelles/veranstaltungen/2021/ausstellung-augmented-species-invasive-sculptures-in-hybrid-ecologies and http://www.peertospace.eu/blog/2021/9/10/augmented-species-invasive-sculptures-in-hybrid-ecologies (accessed August 1, 2022).

Reproducing Sculpture via Machine and Its Modus of Display in the Nineteenth Century," **Buket Altinoba** takes up modern technologies for reproduction in the arts, especially in the field of sculpture. Already in 1802, the American portraitist and museum owner Charles Willson Peale presented a "curious machine" from Europe that enabled the production of two-dimensional profiles of living models through mechanical invention: the "Physiognotrace" (p. 38). During industrial exhibitions, fairs, or public demonstrations, these historical precursors were presented as humanlike acting machines evoking their magic character and curiosity through a specific display aesthetic. The author examines the relationship between sculpture, craft, and industry through these reproduction machines, and their relevance in today's discussions about sculpture machine installations or 3D-printing.

Following the historical innovations during the nineteenth century, **Michael Rottmann**'s contribution "Aesthetics of (Digital) Machine Sculpture: Automatization, Mechanization, and Mathematization in Minimal, Serial, Conceptual, and Computer Art" focuses on the 1960s. Using case studies of pioneers Robert Mallary and Charles Csuri, he elaborates on the "Otherness of Computer Sculpture(s)" (p. 63), respectively their computer-based production, reception, and specific ontology. Against the background of Minimal Art, these early computer sculptures are still in the tradition of modernity, close to construction-sculpture in the sense of Clement Greenberg. They are mainly based on an object aesthetic, evoking statuary and hapticity. Rottmann thus differentiates between computer-calculated and computer-generated forms, and analyzes correspondences between digital and non-digital arts, such as the significance of mathematization, the creative process with machines, automatization, mechanization, and the shift from 2D to 3D. He argues that digital and non-digital art forms in the 1960s are only understandable in relation to each other and their common historical, political, and cultural context: cybernetics, systems theory, the Cold War, and computerization. Rottmann calls non-digital art forms which make digitality and technology a subject, e.g. Sol LeWitt's Conceptual Art, "co-digital art" (p. 76).

Between the Virtual and the Physical: Material Reflections

Today, hybrid forms of reality coexist. They overlap in technologies that offer augmented or mixed reality and can open new ways of perception. The body of the viewer is involved in an immersive, often multisensory experience. The expanded field of sculpture has also been impacted by digital technologies since the 1960s, although an art history of digital sculpture is still missing. In her article "Sculpting Digital Realities: Notes on Truth to Materials, the Aesthetic Limit, Site-Specificity and 3D-Printing" **Ursula Ströbele** discusses what specific terminology in art history corresponds to these works given their post-medium condition and infrastructural accessibility, their various materialities, immateriality (or rather "neomateriality"), their aesthetic limit, interactive features, and real-time processes. Following the paradigm of *the sculptural in the expanded field* and by using examples such as Franke's early computer sculptures, Shaw's analogue virtual sculpture, Banz & Bowinkel's and Allahyari's references to Antiquity, she asks how media-specific parameters, e.g., *truth to materials*, scalability, and site-specificity are altered when sculptures circulate online and

lose their so-called *siteness*. What ontological status do such computer-aided works possess that can be experienced physically and virtually?

Verena Kuni explores contemporary conditions of the sculptural with a focus on the oscillating relationship and transformations of and between analog and digital material(itie)s and media. In "(IM)MATERIALS—(IM)MATERIALITIES—(IM)MATERIALIZATIONS: Some Thoughts on the Analogital Condition(s) of the Sculptural," she proposes to capture these conditions with the overarching concept of the "analogital." Kuni thus elaborates on the key terminology of "sculptural," "analogital," and "(im)materials," the latter inspired by Jean-François Lyotard, in order to "take up his considerations about the mutual interpenetration of media and matter, material and immaterial" (p. 110). She states that these reflections have changed the relationship between humans and material(s), and also to the sculptural in an ongoing, dynamic process, and illustrates this with artistic projects from the mid-1990s to present, including Aram Bartholl's series *Map* (2006–19). These sculptural materializations of Google Map's iconic pins are set up at the exact spot where the search engine assumes the city center to be. Besides the physical (graphical) sculpture in (analog) public space and the digital images, Kuni suggests that the aerial photographs rethink the powerful entanglements between imagination and image, digital and analog realities.

The multimedia artist **Skawennati** discusses themes of futurity and history as both an urban Kanien'kehá (Mohawk) woman and a cyberpunk avatar. She is known for her work in virtual environments and as cofounder of Aboriginal Territories in Cyberspace (AbTeC), an indigenously determined research-creation network in Second Life codirected by her and Jason Edward Lewis. Her artistic practice moves fluidly across the digital and physical divide. The curator **Sasha Sobrino** has been working with Skawennati on several projects. In "Considering Skawennati's Celestial Trees—Sculpture Between the Virtual and the Physical," she examines Skawennati's *Celestial Tree* sculptures—both virtual and physical—as public sculpture. Led by Skawennati's avatar xox, Sobrino traveled to AbTeC Island with her own avatar, engaging with these participatory sculptures. She explores how these works challenge traditional understandings of materiality and expanded concepts of virtuality and accessibility (p. 120). Art that has been created to be experienced exclusively virtually causes an ontological crisis, argues Sobrino. This prompts conversations on digital materiality, respectively neo-materiality, embodiment, imaginative experience, dematerialization, and the behavior of the recipients. Referring to Patrick Lichty, she describes Skawennati's tree sculptures as "cybrid" as they exist concurrently between various modalities.

Alexandra Weigand, too, is interested in the oscillation processes between the virtual and the physical, between simulation and fact. Her contribution "When the Virtual Becomes Tangible: Tracing Design, Architecture, and Art at the Beginning of the Twenty-first Century" departs from the cultural shift in our experience and perception of reality brought about by computerization. Weigand explores how the aesthetics of contemporary visual and material cultures have changed through digital technology. As a trained designer and art historian, she is particularly interested in the "feedback loops" (p. 139) that result from the increasing digitalization of visualization and design processes. Through the careful study of examples

from the field of art, architecture, and design, including Iñigo Manglano-Ovalle's *Phantom Truck,* contributions by Ronan & Erwan Bouroullec or Julian Mayor and Front Design, she traces how tangible items exhibit the aesthetics of the (digitally) virtual. Weigand investigates a change in aesthetic qualities. She demonstrates how a "tangible virtuality" as a "new spatial experience, that of a materialized, walk-in 'virtual' space" not only questions our habits of perception, but also challenges us to redefine "our position in relation to materiality, object, and space" (p. 158).

Reclaiming Monumentality

When artists approach the sculptural through 3D technologies, it is not only the works' specific materiality or corporeality but also questions of monumentality that have to be fundamentally reconsidered. The third section places the history of sculpture and its deep links to the monument at its center. With the possibilities of immersive digital technology and the internet, the twenty-first-century monument has expanded toward the unmonumental, the immaterial, and the virtual. **Mara-Johanna Kölmel**'s text "The Twenty-First-Century Monuments: Reflections on Intermedial and Nomadic Monumentality" focuses on two Iranian artists living outside of Iran that use digital technologies to reveal the problematic power structures inscribed into sculptural and monumental forms. Morehshin Allahyari and Shirin Fahimi engage with the sculptural codes of monuments to propose novel ways to make and mark a space for painful, diasporic, suppressed, or erased memory. They counteract a monumental aesthetic linked to solidity, permanence, and stiffness with a monumentality that is participatory, generative, mutable, and unfolds between actual and physical spaces. Rethinking the function of sculpture as a monument vis-à-vis its expansion via 3D technologies, expanded reality, and the internet, Kölmel explores a transmedial and nomadic monumentality emerging in recent sculptural discourse.

From heroic, self-aggrandizing, national gestures celebrating ideals and triumphs, the idea of what a monument is, had shifted throughout the twentieth century toward ephemeral, conceptual interventions marking national ambivalence and uncertainty. While monuments today are "born resisting the very premise of their birth," public spaces all over the world are still burdened with the weight of problematic figures, looted artifacts, or trophies of war.[51] **Elizabeth Anne Johnson**'s contribution "Confederate Monument 2.0: Mary Ellen Carroll at *Prospect.3*" on the artist Mary Ellen Carroll demonstrates how artists can offer innovative and imaginative solutions to address the problematic history of public monuments critically without necessarily removing them. In preparation for the *Prospect.3* contemporary art triennial in New Orleans in 2014, Carroll proposed to convert a monument to Robert E. Lee into a transmitter for free, long-range, high-speed wireless internet, which was ultimately not realized. Johnson suggests that Carroll's proposal to repurpose the Confederate monument was a "post-digital choice" (p. 188) that envisaged a radical

51 James E. Young, "Twentieth-Century Countermonuments," in *Encyclopedia of Aesthetics*, ed. Michael Kelly (Oxford: Oxford University Press, 1998), pp. 276–78, here p. 278.

solution to internet inequity while mobilizing the monument's symbolism to attend to the history of structural discrimination shaping unequal internet access in contemporary New Orleans. The contributions in this section thus speak of an artistic reclaiming of monumental structures that goes hand in hand with a general expansion of the very idea of the sculptural monument toward the virtual and digital spheres.

The Expanded Field of Digital Sculpture and the Cybernetic Condition

In a similar vein, the final section of the book casts light on the outward expansion of sculpture through cybernetic theory, computerization, and virtual sculptural models throughout the twentieth and twenty-first century. Claudia Giannetti's essay "Media Sculpture: The Cybernetic Condition" explores the impact of cybernetics on sculptural production employing electronic and digital media. From its emancipation from material, mass, volume, and space to its dematerialization, Giannetti carefully reconstructs sculpture's conceptualization as process and system. Her contribution introduces artists such as Abraham Palatnik, Nicolas Schöffer, Les Levine, and Shigeko Kubota who applied the principles of cybernetic theory to sculptural production. Turning information into electronic-visual creations, their works overcome the dichotomy between materiality and immateriality, between the tangible and the intangible, and introduce notions of feedback, variability, pluri-mediality, and indeterminism into the field of sculpture. Giannetti situates these artistic positions alongside important exhibitions organized throughout the 1960s as well as aesthetic theories such as informational aesthetics, cybernetic aesthetics, and generative aesthetics that developed after World War II up until the 1970s. She shows how these earlier artistic, curatorial, and theoretical advances paved the way for the use of the computer in the arts: from the computer-generated sculpture by George Nees or José Luis Alexanco to the computer-aided sculpture by Analívia Cordeiro.

While Giannetti focuses on the fundamental shift in sculptural production aided by cybernetic theory, Jens Schröter's text expands on Rosalind Krauss's essay "Sculpture in the Expanded Field." By connecting the sculptural to the virtual, Schröter aims to formulate a comparable systematic of "Sculpture in the Digitally Expanded Field" (following the title of his essay). His text is based on the premise that computers are capable of creating virtual sculptural models, namely as mathematical descriptions of spatial objects that lack materiality. In this sense, some forms of computer graphics have a fundamentally sculptural component as they are described with *spatial* coordinate systems. Since digital technology can create virtual representations of media, Schröter argues, the somewhat outdated paradigm of characterizing art as a reflection of medium specificity may be having a comeback. He describes such phenomena as "digital modernism" (p. 223) in the sense that simulation, virtualization, and modeling allow for reposing modernist questions around medium specificity. Schröter closes his reflections on sculpture in the digitally expanded field by speculating how sculptural phenomena such as virtual, 3D-printed, and AR sculpture could qualify as a "virtual-modernist" (p. 234) expansion of the field of sculpture.

Circling back to the publication's beginning, the final section provides additional frameworks for the conceptual shift away from a fixed notion of sculpture and toward the sculptural. The multitude of interdisciplinary and trans-historical contributions that make up this volume then not only enable us to shed light on historical constellations from the perspective of contemporary developments, they also encourage alternative readings of contemporary artistic practices in conversation with their historical forebears. The goal is thus to establish a field of research on sculpture in the (post-)digital age and, in an interdisciplinary dialogue, to continue thinking about the artistic medium of sculpture in relation to our technological present.