3. Combination Principle

In Mary Bauermeister's early work, there are several dominant thematic areas that are crucial for her development as an artist: From her brief periods of study in Ulm and Saarbrücken, a few elements remained as did the desire to take her own artistic path. The spectrum of European postwar art and the situation in the Rhineland in the later 1950s anchored the discourses on abstraction in her first creative phase. Looking beyond the boundaries of her own genre was equally crucial. Bauermeister absorbed stimuli from other artistic disciplines, above all from contemporaneous trends in music and their structural thinking in parameters. Performances and actions, in which Bauermeister was involved primarily as an organizer, were also important during this period; they offered platforms that made artistic experiments possible.

From 1955 to around 1961–62 one phase in her work can be identified that is marked, on the one hand, by unhierarchically selected borrowings from artistic stimuli from all genres but localized in the European, abstract avant-garde with a clear focus on contemporaneous trends. On the hand, several aspects are already being developed here that recur again and again in the following creative phases. Her oeuvre in her early years as a fine artist has, alongside eclectic moments, a clear relationship to her profession; she remained a visual artist. Beyond that, a syncretism with mathematics, natural sciences, and philosophy also emerged in this phase. The totality of the influences on Bauermeister when she was a young artist resulted in a combination principle; that term is intended to summarize her artistic approach prior to the transition to many-valued aesthetics. It does not mean a teleological model of succession or progressive perfection. The combination principle stands on par with many-valued logic as a means of expression; only together do they make it possible to experience what takes place in the works that we are describing here as many-valued aesthetic. The rise of many-valued logic as a point of reference, in the early 1960s and at the latest with *Needless Needles*, does not result in break in Bauermeister's works. It represents rather a shift in focus in which the many elements of the combination principle are continued. Depending on the work, one or the other trend gains the upper hand.

Bauermeister did not develop her own terminology for her approach. In her sketchbook the word "combination" occurs repeatedly; because it is a tenet in her early work, I have added the word "principle." In the same place Bauermeister also mentions "mediations with respect to" and details how the combinations should in theory be designed.[1] She names as its parameters "material, technique, working time, color frequency, outline-size-volume, place, full-empty"—these seven concepts are in turn composed of additional units: they are executed in the "material mediations"; that term covers eight materials and techniques.[2] The following pages of the sketchbook describe in minute detail how the individual "material mediations" are combined and which variations result from that; for example, "straw mediation to relief," of which there are five different realizations.[3] Bauermeister formulated this systematic experiment only for "material"; it is, moreover, only the theory about what the combinations were supposed to look like. In the process of being implemented, the compositions are substantially altered by her and put into an order that seems aesthetic to her—a gap that cannot be planned.[4] The combinations detailed in writing are a cognitive declaration of intention that is intended only for the conceptual process; the level of realization enters into it independently.

The sections that follow will list successively the inspirations, techniques, reference points, and Bauermeister's specific approach to them that together make up the combination principle. This is also in keeping with Bauermeister, who initially employs specific techniques or materials in series of works and retains several elements from them in order to employ them now and again in later groups of works. Her repertoire is first expanded before using it freely. Bauermeister thus created an arsenal of possibilities that are connected as equals in her art and cause ever-new works to result. She took one element and contextualized it in a work with one or more others; this process precedes differently each time in its details; only the principle that something is combined remains the same.

In her early work in general, one detects doubt about the existing categories and their succession. Bauermeister had already studied Whitehead's philosophy by this

1 See Mary Bauermeister, "Skizzenbuch/Quaderno, 1961–1963," unpublished source, paginated by the artist, p. 16.

2 See ibid. The eight terms "stones, dots, straws, pastel structure, relief, ink drawing, rust picture, stillness-void-nothing" are sorted under seven roman numerals.

3 See ibid., 16–21.

4 Here Bauermeister appears to be closer to statements by Duchamp and Willi Baumeister that describe the process of implementation as a productive method, especially because a preformulated plan can never be consistently implemented in the same way. Duchamp described this as "art-coefficient"; Marcel Duchamp, *The Writings of Marcel Duchamp*, ed. Michel Sanouillet and Elmer Peterson (New York: Oxford University Press, 1973), 138–40. For Baumeister, it is the "unknown"; see Willi Baumeister, *The Unknown in Art*, ed. and trans. Joann M. Skrypzak (Berlin: epubli, 2013), 167–76.

time. In a publication that the artist particularly emphasizes he states: "Time, space, matter, material, ether, electricity, mechanism, organism, configuration, structure, pattern, function, all require reinterpretation."[5] For Whitehead, this situation resulted from the scientific revolutions going on around him. He argued, however, that it was necessary to reflect philosophically on the sciences, because without that they would be merely an "anti-rationalistic movement."[6] Before one gets to a revolution and reflection on it, however, the British philosopher believed that it was necessary for a lengthy sequence to have already occurred: first, new ideas, intuitions, and mentalities evolved, which then create the metaphysical preconditions for the subsequent scientific revolutions.

Applied to Bauermeister, this would mean that before a situation of many-valuedness can arise, "preparation" is necessary in order to be able to take that step at all. On the one hand, the autonomy of the steps cannot be ignored, because they recur again and again as such in varying contexts; on the other hand, inherent in every step is also its networking with another. That results in a far-reaching connectedness: none of the phases of her work stands alone; rather, they are interwoven with one another in a constant reaching ahead and back.

3.1 Principles of Education

Mary Bauermeister's academic education was comparatively brief. She began two degree programs at art schools but did not complete them. Documents show that she left secondary school in Cologne in September 1954 and was at the Hochschule für Gestaltung in Ulm in December 1954 at the latest; in April 1955 she was already enrolled at the Staatliche Hochschule für Kunst und Handwerk in Saarbrücken.[7] At some point in the course of 1956, was back in Cologne as a freelance artist with her own studio.

Teaching at the Hochschule für Gestaltung in Ulm began in 1953 in in 1955 it moved into a building on the Oberer Kuhberg designed especially for it. The Constructivist artist and designer Max Bill was rector of the Hochschule from 1953 to 1957, which he emphatically understood to be a successor institution to the

5 Alfred North Whitehead, *Science and the Modern World: Lowell Lectures, 1925* (New York: Macmillan, 1925), 23.

6 See ibid., 22.

7 All of the details are based on archival materials from Mary Bauermeister's studio. One finds there, for example, her diploma from the secondary school in the Kalk district of Cologne, a letter to its former director requesting a monthly stipend for the Hochschule in Ulm, and her student ID card for Hochschule in Saarbrücken.

Bauhaus.[8] The international students were not regarded as artists but as designers who were trained to solve problems in the design of industrial products. Despite the ambition to be democratic that it tried to convey, it was repeatedly criticized because a "formalist thinking in systems" dominated the Hochschule, even going as far as an "obsession with method."[9] In its early years, teaching was essentially shaped by Bill's views of art. He advocated developing "mass-market consumer goods" in which "beauty" was not only supposed to derive from "function" but also took on a task of its very own: "the maximum effect is achieved with the minimum of materials," which had to be achieved by means of constructive design.[10] Artists were supposed to work on everyday productions and give them form. That was the only way to ensure that art can bring to bear its influence on society. Bill formulated his maxim as: "artists must take the responsibility for the real world."[11]

Pastel works on paper by Bauermeister from 1955 to 1957 that were marked by constructional, mathematical thinking have been preserved. *Quadratische Spirale* (Square Spiral) of 1955 was composed using the Fibonacci sequence (fig. 7): Beginning with the four smallest squares—three yellow ones and a violet one—three squares are always added whose dimensions result from adding the previous ones. The fourth square in turn contains the subdivisions into smaller sections, whereby all four together form the size of one of the three subsequent squares. This complex structure, which is concealed by its initially impression of clarity, can be decreased or increased ad infinitum in the imagination, so that the association of a square

8 See Dagmar Rinker, "'Produktgestaltung ist keine Kunst': Tomás Maldonados Beitrag zur Entstehung eines neuen Berufsbilds," in *ulmer modelle—modelle nach ulm: Zum 50. Gründungsjubiläum der Hochschule für Gestaltung Ulm*, exh. cat. Ulmer Stadtmuseum, 2003 (Ostfildern-Ruit: Hatje Cantz, 2003), 38–49, esp. 38.

9 See Brigitte Hausmann, "Experiment 53/68," in *ulmer modelle—modelle nach ulm* (see note 8), 16–33, esp. 31. Bauermeister also complained in a letter to her former drawing teacher at her high school, Günther Ott, that the university was "dangerous" for those who were not Constructivists. In addition, she criticized the view that art should be treated like a form of mathematics. Günther Ott had been essential in introducing Bauermeister to abstract art; in his class he had helped his students to appreciate avant-garde positions of the postwar era; Mary Bauermeister to Günther Ott, [1955], unpublished source, Zentralarchiv für deutsche und internationale Kunstmarktforschung (ZADIK), Cologne, K01_V_002_0010, pp. 1–7. In retrospect, Bauermeister commented on her leaving the Hochschule für Gestaltung in Ulm as follows: "I didn't want to become a designer. I didn't want to design toasters for Braun. I was an Expressionist in that sense." Julia Voss, "Ein Tag bei Mary Bauermeister: Interview," in *Mary Bauermeister: Momento Mary*, exh. cat. Berlin, Villa Grisebach (Berlin: Deutscher Kunstverlag, 2017), 38–44, esp. 42.

10 Max Bill, "Beauty from function and as function" (1949), in Bill, *Form*, *Function*, *Beauty = Gestalt*, trans. Pamela Johnston, Architecture Words 5 (London: Architectural Association, 2010), 32–41, esp. 33 and 37.

11 Max Bill, "A, B, C, D …" (1953), in Bill, *Form*, *Function*, *Beauty = Gestalt* (see note 10), 42–59, esp. 46.

spiral becomes even clearer. Bauermeister underscores this with a second work, *Spirale in Gelb* (Spiral in Yellow), also from 1955 (fig. 8). This spiral runs in the opposite direction as the square version. Here, too, the Fibonacci series determines the composition: the course of the violet passage, which stands out against the bright yellow background, is also calculated.

Fig. 7: Quadratische Spirale, 1955, pastel on paper, 62.5 x 48 cm, Mary Bauermeister Art Estate.

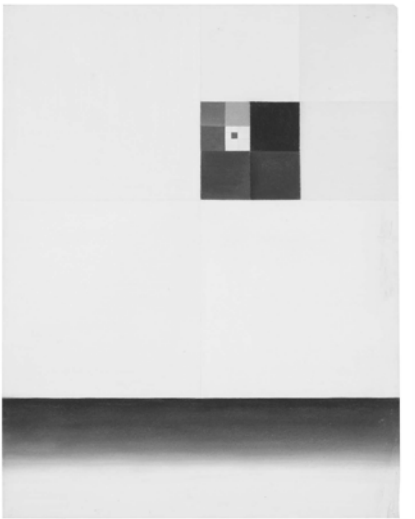
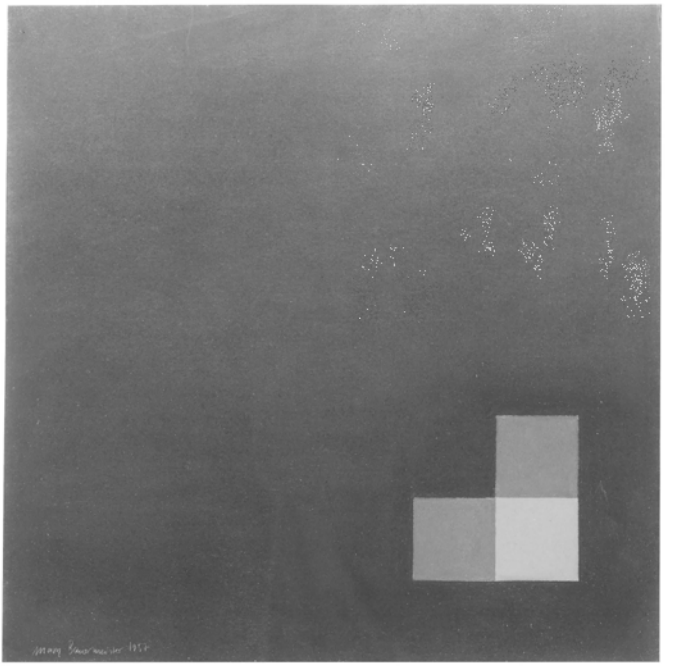


Fig. 8: Spirale in Gelb, 1955, pastel on paper, 62.5 x 48 cm, Mary Bauermeister Art Estate.

The later use of the Fibonacci sequence in *Needless Needles* and as an element in many other works begins here. Bauermeister did not take strictly mathematical approach in her oeuvre, but as conveyed by the assignments at the Hochschule für Gestaltung it was one aspect embodied in it. Detailed calculations in the form of sketches working with the golden section reveal a continuing occupation with these themes even after Bauermeister left Ulm. These sketches were executed as pastel works from 1957 that use mathematical calculation to achieve a harmonious composition (fig. 9). Formulas of natural numbers were based on a mathematical problem such as the golden section of the Fibonacci sequence or could also be a sequence of numbers she thought of herself will continue to be a feature of Bauermeister's work.

Fig. 9: Ohne Titel (Untitled), 1957, pastel on paper, 48 x 48 cm, Mary Bauermeister Art Estate.



The philosopher Max Bense was brought to the Hochschule für Gestaltung by Bill already in 1953. From 1955 to 1957, he headed the Information department and also gave lectures on aesthetics, art, semiotics, and cybernetics.[12] Bauermeister's notes show that while at Ulm she participated in Bense's lectures and seminations on his concepts of aesthetics based on technology and information theory.[13] In addition to

12 See Martin Mäntele, "Magier der Theorie," in *ulmer modelle—modelle nach ulm* (see note 8), 82–87, esp. 83; Elisabeth Walther, "Unsere Jahre in Ulm: 1953 bis 1958, 1965 und 1966," in ibid., 90–93, esp. 90.

13 On one of the manuscripts, the title of a seminar paper that Bauermeister was supposed to write for Bense's course is indicated; it is not known whether she wrote it or whether it preceded her departure from the Hochschule. The theme reveals not only Bauermeister interest in philosophy but also, already at this point, specifically in Aristotle: "Analyse eines klassischen Textes nach aristotelischen Kategorien und Abgleich mit Husserls Seinsthematik" (Analysis of a Classical Text according to Aristotelian Categories and a Comparison with Husserl's Themes of Being); Mary Bauermeister, "Notizen zur Vorlesung von Max Bense über Modernde Ästhetik" (1955), unpublished source, paginated by the artist, Zentralarchiv für deutsche und internationale Kunstmarktforschung (ZADIK), Cologne: K01_IX_002_0014, pp. 1–6; Mary Bauermeister, "Aufzeichnungen zu Vorlesungen und Sem-

presenting models based on semiotic theory, in his lectures Bense also distinguished metaphysical terminologies by contrasting them with the "technical" vocabulary that he preferred.[14] As a young student Bauermeister was confronted with a strict rejection of metaphysical categories. Bense wanted to establish a "scientific aesthetics" in order to eliminate the "speculative cultural prattle" that he considered metaphysical reflection to be.[15] His "aesthetics of information" claimed to create a universally valid foundation for interpretation based on semiotic concepts. To that end he developed an all-encompassing semiotics to observe aesthetic states: "The aesthetic of a text refers not to the object world of its so-called content but also to the world of signs in which it was realized."[16] Bense also advocated a "mathematical aesthetics" that can be used as the foundation for the "generative aesthetics" that is decisively associated with him—because only by means of the universality of mathematical description can be a general "constructiveness of the world" be achieved.[17]

It is reasonable to assume that Bauermeister encountered cybernetic theories thanks to Bense: cybernetics in a general understanding as a "chain of feedback" in which "transmission and return of information" are decisive and are so without human influence could be applied to her works.[18] There has already been one attempt to apply the implications of cybernetics to Bauermeister's works, with a focus on the autonomy of the elements and their connections and relationships.[19] Over the course of the present text, the horizon of circular references back and forward is continually built up; moreover, Günther's reference to cybernetics is notable; through it he came into contact with the formulation of many-valued logic, and it influenced his theory of polycontextuality. Because many-valuedness—or rather Bauermeister's appropriation of it—is crucial to her oeuvre, but she does not employ, either inside or outside of her works, a vocabulary based on technology or communication, cybernetics is rather a peripheral horizon. A direct application of cybernetic theory

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inaren von Max Bense" (1955), unpublished source, paginated by the artist. Zentralarchiv für deutsche und internationale Kunstmarktforschung (ZADIK), Cologne: K01_IX_002_0097, pp. 1–34.

14 See ibid.

15 Max Bense, Einführung in die informationstheoretische Ästhetik: Grundlegung und Anwendung in der Texttheorie (1969), in Bense, *Ausgewählte Schriften*, *vol. 3*, *Ästhetik und Texttheorie*, ed. Elisabeth Walther (Stuttgart: J. B. Metzler, 1998), 251–417, esp. 257–58.

16 Ibid., 377.

17 See ibid., 335–36.

18 See Norbert Wiener, *Cybernetics; or, Control and Communication in the Animal and the Machine*, 2nd ed. (Cambridge, MA: MIT Press, 2013), 96.

19 See Wilfried Dörstel, "Die Zehntausend Wesen haben ihre eigentümliche Struktur, aber sie formulieren sie nicht," in *Mary Bauermeister: All Things Involved in All Other Things*, exh. cat. (Cologne: Galerie Schüppenhauer, 2004), 46–51.

to Bauermeister's oeuvre does not therefore seem appropriate, since it would necessarily shift the focus too much to technical aspects of communication. It cannot be ruled out that she absorbed stimuli for her networking, but cybernetic thinking should not be considered the focus of her work.

In an essay from 1957, Günther, too, was preoccupied with Bense's aesthetics. Günther's assessment of "aesthetics based on information theory" was decidedly positive; he speaks of a "universal, integrative aesthetics," which Bense outlined in order to be able to grasp all aesthetic phenomena worldwide.[20] Here again Günther's interpretation was aimed at rejecting Aristotelian logic, which in his view was too closely tied to Western history. The axioms of Aristoteles are bound to a "regional, cultural a priori logic" and could therefore never be universally valid.[21] Interestingly, Bense's aesthetic approach is interpreted by Günther as turn away from "classical" metaphysics and toward a many-valued view; he sees himself affirmed once again in his challenge to two-valued logic. Bense's explicit marginalization of metaphysics, which he considered unscientific, seems to be less the focus for Günther.[22] Günther considered many-valued logic is fundamental to all processes in the world, so that even a decidedly antimetaphysical aesthetic based on semiotic theory is usurped by it.

Bauermeister referred to specific aspects of Bense's ideas, but she did not name any of his works as having influenced her decisively; certain elements of the "aesthetics of information," especially terms such as "repertoire" and "schema" were certainly integrated by Bauermeister into the design of her (early) works.[23] In none of her works, however, is there any direct reference to it, as there is to non-Aristotelian logic. Not every intellectual stimulation found an immediate application. Rather, Günther's appropriating strategy seems to offer a blueprint for Bauermeister's approach in her works: "radical inclusivity" provides for the inclusion of different elements, among them also (philosophical) theories, but everything passes through the filter of a many-valued metaphysics.

Another correspondence between Bense's writings and Bauermeister's art could be seen in the German philosopher's emphasis on mathematics. The influence of mathematics should be traced back not only to the situation of her education in Ulm

20 See Gotthard Günther, "Sein und Ästhetik: Ein Kommentar zu Max Benses 'Ästhetische Information'" (1957), in Günther, *Beiträge zur Grundlegung einer operationsfähigen Dialektik*, vol. 1 (Hamburg: Felix Meiner, 1979), 353–64, esp. 356–64. In that text Günther states that he is a "passionate party liner in issues of art," this is not reflected in his books or essays; unlike many philosophers, Günther did not write any texts on art; ibid., 362.

21 Ibid., 356.

22 See Max Bense, "kleine abstrakte ästhetik" (1969), in Bense, *Ausgewählte Schriften*, vol. 3 (see note 15), 419–43, esp. 421.

23 See section 3.4.

and the lectures by Bense she attended there; mathematics also has a role that is emphasized in the writings by Whitehead that Bauermeister explicitly mentioned. For Whitehead, it is the "most original creation of the human spirit."[24] His metaphysical determinations of "actual entities" can also be illustrated with mathematical approximations: "The generality of mathematics is the most complete generality consistent with the community of occasions which constitutes our metaphysical situation."[25] In the initial unclarity about which sources Bauermeister used in constructing her oeuvre it can thus be regarded as an amalgam of several. It should not be assumed, moreover, that a new aspect joins in as a result of every point of contact. The levels of references can only be understood down to a microlevel at which it becomes too abstract.

After she switched to the Hochschule für Kunst und Handwerk in Saarbrücken, which was directed by Otto Steinert, Bauermeister came into contact with the medium of photography. During this time she experimented with chemical processes that are used in the context of the practice of photography; she employed them, however, as a painter to create abstract compositions. She also created works with poster paint and transparent films, which were integrated into a geometric, constructional formal idiom. Although she attended a college class in photography, Bauermeister remained a painter or object artist; there are no autonomous photographic works in her oeuvre. The image produced with a camera was simply employed as a material, like the photographic reproductions in the *Needless Needles* light sheet that form the background of *Needless Needles Vol. 5*.

As she had previously in Ulm, Bauermeister continued to make pastels that pursue an organic abstraction: garish colors and intertwining lines intended to convey dynamics and to recall distantly microbic life.[26] Although the time she spent studying in Saarbrücken was longer, the (brief) episode in Ulm had a more enduring influence on the young artist. After returning to Cologne, she produced her last organic, abstract, and brightly colored pastels; from 1958 onward, she was already breaking away from reduced and nonrepresentational works. Bauermeister produced these compositions suggestive of Art Informel in parallel with constructive works in her

24 Whitehead, *Science and the Modern World* (see note 5), 29. Bauermeister had a strong affinity to mathematics already in school; her family even imagined she would have a career in the field.

25 Ibid., 38.

26 See Maria Velte, "Mary Bauermeister: Das Werk," in *Mary Bauermeister: Gemälde und Objekte, 1952–1972*, exh. cat. (Koblenz: Mittelrhein Museum, 1972), V–XIV, esp. V. Einen Überblick über Bauermeisters Kunst in den 1950er Jahren in; *Mary Bauermeister: Die 1950er Jahre*, ed. Renate Goldmann, Leopold-Hoesch-Museum und Papiermuseum Düren, 2013 (Cologne: Schüppenhauer Art + Projects, 2013), In 1956 Bauermeister and a colleague painted a mural in the organic-abstract style in the Landeszentralbank in Saarbrücken.

oeuvre into the late 1950s—thereafter calculations in the form of the Fibonacci sequence and other combinations of numbers continued to be found in her works.

3.2 Facets of Abstraction

The compositions that now make up the majority of her oeuvre were initially works in reduced pastel, usually on black deckle-edge paper. In their appearance they participate, on the one hand, in contemporary trends to abstraction and nonrepresentationalism.[27] These works reveal borrowings from art movements such as Tachisme and Art Informel. On the other hand, parallels to the emerging Zero movement are evident in them. Likewise, from 1958 onward she created her first larger pastel works on canvas, before the artist applied this formal language to works with casein tempera on canvas or wood. By the end of 1958 at the latest, Bauermeister developed her dot structure, which together with the so-called *Wabenbildern* (honeycomb pictures) represents an early characteristic of her oeuvres. This is in general a phase of nonrepresentational painting that will remain determinant until the end of 1962.

Tachisme and Art Informel were two of the dominant art movements in Europe in the middle of the twentieth century; in the history of their evolution and of their terminology, they cannot be sharply distinguished.[28] The term "tachisme" had been used in French two hundred years earlier in art theory for painting employing

27 Martin Schulz points out that nonrepresentational painting is used "usually terminologically in a rather blurry distinction from abstract painting," but that the first means that something was depicted without any equivalent outside of the painting; Martin Schulz, "Imi Knoebel, 'Schwarzes Kreuz': Gegenstandslose Kunst zwischen Malerei und Installation," in *Kanon Kunstgeschichte: Einführung in Werke, Methoden und Epochen*, ed. Kristin Marek and Martin Schulz, vol. 4, *Gegenwart* (Paderborn: Wilhelm Fink, 2015), 109–36, esp. 116–17. "Nonrepresentationalism" should be understood to mean that in this context as well.

28 The two terms are also often used as equivalent; Norbert Schneider, *Theorien moderner Kunst: Vom Klassizismus bis zur Concept-Art* (Cologne: Böhlau, 2014), 225–32. Rolf Wedewer calls Informel a "collective name" that covers "two different forms of expression": "the gestural and texturologies"; Rolf Wedewer, *Die Malerei des Informel: Weltverlust und ICH-Behauptung* (Berlin: Deutscher Kunstverlag, 2007), 10. In the remainder of this text the terms "Tachisme" and "Art Informel" will be used as largely synonymous; both stand for the expressive tendences in Bauermeister's works without her having been an artist would could be categorized in these trends. The concept of Art Informel that Gottfried Boehm proposed applies best. For Boehm, Art Informel is not a "*style*, but methods by which the formless and never formable […] could be tapped to produce configurations of an unprecedented kind." Gottfried Boehm, "The Form of the Formless: Abstract Expressionism and Art Informel," in *Action Painting—Jackson Pollock*, exh. cat. Riehen, Basel, Fondation Beyeler, 2008 (Ostfildern: Hatje Cantz, 2008), 38–46, esp. 40.

chance and passages unrelated to objects; in addition, it was used as an epigonal disparagement of the term "Informel."[29] In retrospect, Art Informel is generally understood to refer to an international art movement of European origin, which from the later 1940s to the early 1960s occupied a dominant position, for which several terms existed in parallel at first, for example, "Abstraction lyrique," "Art Autre," and "École de Paris." Works of Art Informel were characterized by an effort to trigger "static pictorial features": the subjective "trace" of a processual artistic expression was applied to the canvas by means of the material of paint, which brought the act of painting into the foreground.[30] The famous phrase "abstraction as world language," formulated by Werner Haftmann and associated with documenta II of 1959, had a formative influence on Bauermeister.[31] Several years would pass before she reintroduced the representational into her work.

Her pastel works on paper are characterized by a reduced use of materials. Small pastel fragments are dynamically worked into the black surface, so that the artist's gesture finds a correspondence in the composition (fig. 10). In parallel she produced works from the same materials that already undertake an attempt to order: the pastel structures run horizontally across the support, but the streaks of reduced color no longer unfold expressively, instead suggesting a side by side (fig. 11).

29 See Nicola Carola Heuwinkel, *Entgrenzte Malerei: Art informel in Deutschland* (Heidelberg: Kehrer, 2010), 28–31.

30 See ibid., 67 and 329.

31 With documenta II, Art Informel and American Abstract Expressionism came to be differentiated as well; ibid., 112. Haftmann wrote in the catalog to documenta II: "The picture is no longer the field of reproducing a recreated outside world; it is the field of evoking an appearance." In his view, that had universal validity since 1950 at the latest. "Art has become abstract." Werner Haftmann, "Malerei nach 1945 (documenta II Katalog)," in *documenta: Idee und Institution; Tendenzen, Konzepte, Materialien*, ed. Manfred Schneckenburger (Munich: Bruckmann, 1983), 49–54, 53–54. Increasingly, this restricted perspective has been subject to revisions in recent years, for example, in the exhibition project *Postwar: Art between Pacific and Atlantic, 1945–1965* in 2016–17 and at the Haus der Kunst in Munich and also *Art in Europe, 1945–1968* in 2016–17 at the ZKM in Karlsruhe, organized in collaboration with the ROSIZO in Moscow and the BOZAR in Brussels. On the ideological justification for the sole validity of abstraction, see Patrice Neau, "Abstraktion: Weltsprache oder Ausdruck der 'dekadenten westlichen Moderne'?," *ILCEA. Revue de l'Institut des langues et cultures d'Europe, Amérique, Afrique, Asie et Australie* 16 (2012): 1–13, esp. 5–8.

Fig. 10: Ohne Titel (Untitled), 1958, pastel on paper, 49 x 62 cm, Mary Bauermeister Art Estate.

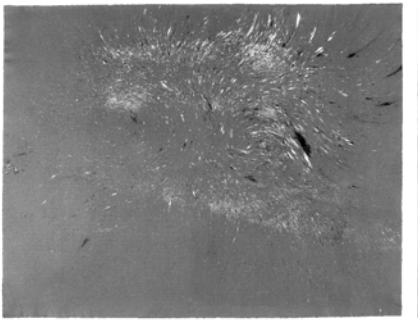
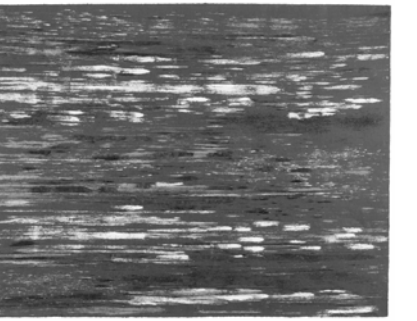


Fig. 11: Ohne Titel (Untitled), 1959, pastel on paper, 49 x 62 cm, Mary Bauermeister Art Estate.

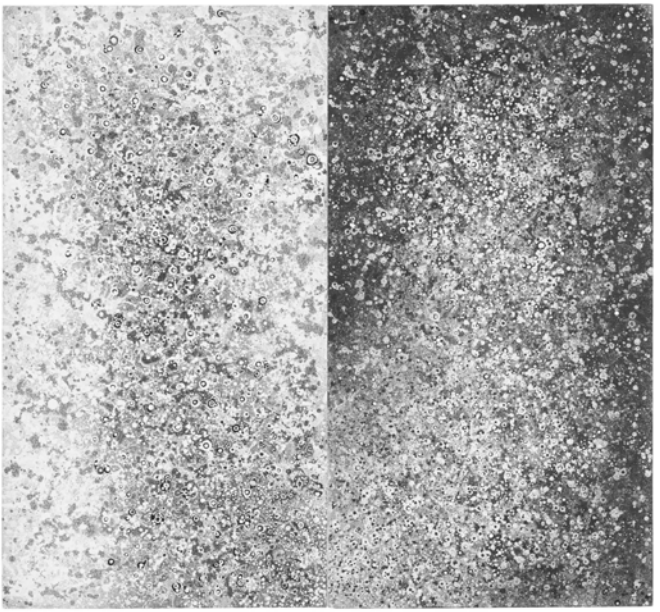


Dot-Structure Paintings

The next step is her dot structures, which combine side by side with a one on top of the other. The "taches" (French for "spots," "stains," or "smudges") that led to the term Tachisme are no longer employed by Bauermeister as an expressive, random design element but rather in an increasingly controlled way: The work *Ohne Titel* (Untitled) of 1958 consists of two vertical-format wood supports joined by a hinge on the bottom (fig. 12). The white "page" and the black one need not remain in the position illustrated here but can be "opened," so that the dimensions of the painting are no longer 64 by 68 centimeters but an accordingly elongated format of 128 by 34 centimeters—and it can just as well stop at every position in between. This provides an ability to alter the composition, but the sequence of black and white creates a connecting transition in each case. Now, however, only the background of the work is formed from "spots"; above it, and especially in the center of each half of the painting, the artist has applied to the dots additional dots that grow ever smaller, usually in colors that contrast with one another. The dots thus undergo a layering in this way. It can also happen that a black dot as ground contains several white dots of different sizes next to one another, into which in turn black dots are added. These passages stand in direct contradiction to the spontaneous gesture of Art Informel, Tachisme, or Action Painting as the American pendant.[32]

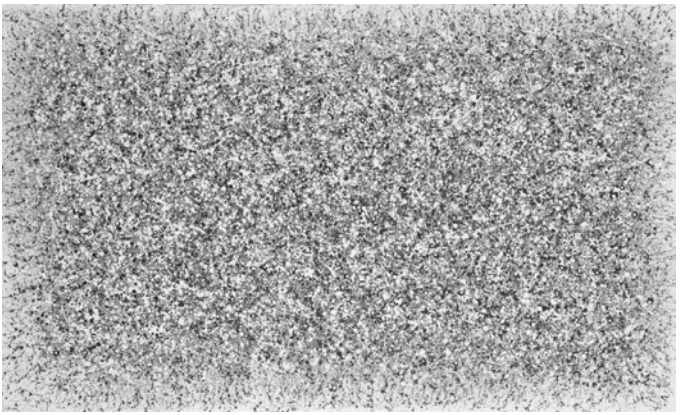
32 See Wedewer, *Die Malerei des Informel* (see note 28), 35–39. Wedewer emphasizes the "common roots" of Art Informel and Abstract Expressionism. An early, distinct turn away from the European tradition in which the canvas is called an "arena" or "event" was may by American critics, among others; see Harold Rosenberg, "The American Action Painters" (1952), in *Art in America, 1945–1970: Writings from the Age of Abstract Expressionism, Pop Art and Minimalism*, ed. Jed Perl (New York: Library of America, 2014), 225–37.

Fig. 12: Ohne Titel (Untitled), 1958, casein tempera, hinge on wood, 64 x 68 cm, Mary Bauermeister Art Estate.



Max Bill once stated about a work on canvas from 1959–60 by his former student paradoxically that it was "constructive Tachisme," which Bauermeister promptly used as the work's title (*Konstruktiver Tachismus*) (fig. 13). On the edges of the canvas, which measures 100 by 165 centimeters, one recognizes a spontaneous, almost random approach to the material paint. Yet even just a few centimeters from the edge the black and white dots are meticulously composed. The further the viewers step back from the work, the more the individual dots blur; stepping closer, however, reveals Bauermeister's "constructive" approach: the background is often filled with black or white dots and then one or more additional dots is painted on several of these dabs of paint.

Fig. 13: Konstruktiver Tachismus, 1959–1960, casein tempera on canvas, 100 x 160 cm, Museumsverein Düren am Leopold-Hoesch-Museum Düren (LHM&PM 2015/0106).



The dot structures placed Bauermeister in the circle of the Zero movement. That artists' association was founded in Düsseldorf but was networked with other artists' groups so that from 1958 to 1966 one can speak of a European art movement that stood for dissociating from and overcoming Art Informel.[33] Zero sought to transcend individual expression—which through the physical working of the material painting took on a "combative" aesthetic—by "striving to overcome."[34] The utopian new beginning it propagated came with the use of monochrome painting, photosensitive materials, and a reduced visual language. Rather than the term "compositions," they preferred words such as "grid" or especially "structure"; they not only stood for a desubjectified approach but were also supposed to lead to "clarity, order,

33 See Dirk Pörschmann, *Evakuierung des Chaos: Zero zwischen Sprachbildern der Reinheit und Bildsprachen der Ordnung* (Cologne: Walther König, 2018), 14. Its founders, Otto Piene and Heinz Mack, were initially members of an Informel artists' association before taken an explicit position against "contaminated" colors and the subjective gesture; see ibid., 38–48.

34 See Ulrike Schmitt, "Der Doppelaspekt von Materialität und Immaterialität in den Werken der Zero-Künstler, 1957–67," PhD diss. Köln 2011. Kölner Universitäts Publikations Server 2013. https://kups.ub.uni-koeln.de/4863/1/SchmittDiss.pdf, p. 199 (accessed June 1, 2020).

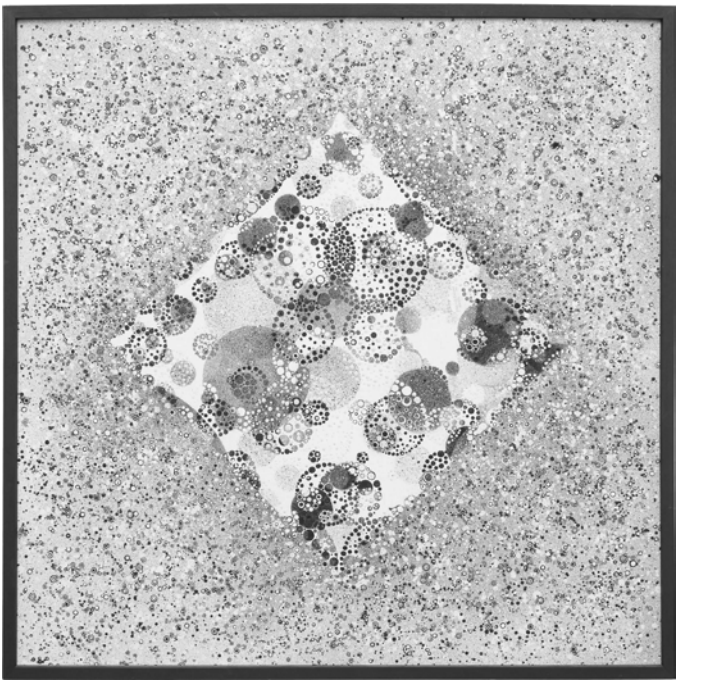
and purity," which promised to objectify aesthetics.[35] Bauermeister was peripherally connected to Zero on an artistic and personal level.[36]

Furthermore, her works around 1960 tend to dot in an equivalent direction: In the work *Gestalt zu Struktur* (Shape to Structure) of 1961, the individual dots are placed according to a structural arrangement (fig. 14). The background, outside the white diamond in the center of the work, is formed by blotches of black or white casein tempera in different sizes; at first, the method seems to be like that of *Konstruktiver Tachismus* or the two-part hinged work *Untitled*. To design the open white area Bauermeister created a stencil from pressed wood with circles of different sizes cut out (fig. 15). The stencil was placed on the diamond in an initial orientation in order to draw in circular structures of individual dots in a controlled way. The bright circular structures in particular are built up into a kind of relief by the paint; there are also several darker circles consisting of delicate sprinkles of paint. Then the orientation of the stencil was changed, creating the effect of several superimposed larger and smaller circles, each of which has a different shape. In these superimpositions, too, Bauermeister retained a structural order; for example, the two larger circles in the top center of the diamond are composed of different dot forms: solid black dots transition into circles of equal size that are white inside and have only a black contour line; the contour lines are contextualized with round shapes composed of spatters of paint; all of it together is framed in a circular form. Despite the different layers, the overall result is a controlled clarity achieved by nesting a simple element like the dot. These structures are actively released by Bauermeister, as the title already implies.

35 See Pörschmann, *Evakuierung des Chaos* (see note 33), 60–61 and 121. The spoken and written statements of the Zero artists are permeated by a metaphysical style with which the works of art contrast visually; the compositions are, however, intended to participate in the "pathos" of the language. Bauermeister did not make metaphysical commentaries in written form but rather attempted to illustrate a metaphysics.

36 Zero cofounder Otto Piene presented one of his "light ballets" in Bauermeister's studio in Cologne on March 26, 1960; she also exhibited works by the Zero artists Alvier Marvignier and Heinz Mack. Bauermeister knew Mavignier from the time they were both studying in Ulm. She did not, however collaborate with Zero until 2015, when Bauermeister participated in the Zero performance night at the Martin-Gropius-Bau in Berlin. The associated Zero survey exhibition at the Martin-Gropius-Bau had not initially included a work by Bauermeister; only after the performance night was one of her light sheets from 1963 integrated into it. Other artists who had participated in the exhibitions of the Zero movement in the 1950s and 1960s— Hal Busse, for example—were not represented in the tour of this retrospective exhibition either; see Petra Gördüren, "'Bin ich dann heute gegenständlich und morgen nicht?' Hal Busses künstlerischer Werdegang zwischen Figuration und Abstraktion," in *Hal Busse: Das Frühwerk, 1950–1970*, exh. cat. (Berlin: Kunsthaus Dahlem, 2019), 13–40, esp. 27–31.

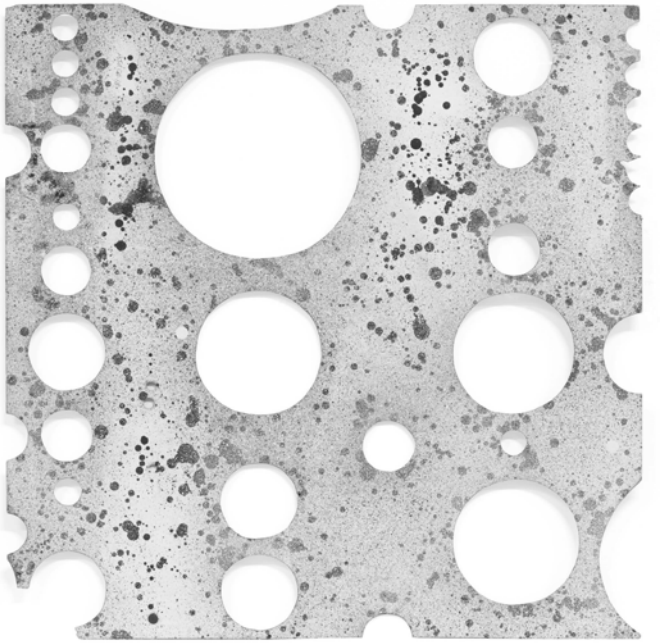
Fig. 14: Gestalt zu Struktur, 1961, casein tempera, ink on canvas, 98.5 x 98.5 cm, Mary Bauermeister Art Estate.



Rather than an expressive statement, her works have "ordering tendencies" that also dominated in the works of the Zero artists.[37] In Bauermeister's case, the combination she decided on is characteristic. That does not usually mean arranging the material into a preestablished pattern that promises a supposed "objectivity" of the artistic design but rather the expressive is integrated in order to form a coexistence in combination with a controlled, preplanned approach. In *Gestalt zu Struktur*, Bauermeister followed neither an Informel idea nor one oriented toward structure but also tried to avoid any dogmatism by incorporating both.

37 See Pörschmann, *Evakuierung des Chaos* (see note 33), 179. With Zero, "the author's subjective dimension of the author" would give way to "autonomy of the work as the concrete object"; Francesca Pola, "The Image Redefined: Poetics of Zeroing in the European Neo-Avant-Garde," trans. Howard Rodger McLean in *Zero: The International Art Movement of the 50s and 60s*, exh. cat. Berlin, Martin-Gropius-Bau, 2015 (Cologne: Verlag der Buchhandlung Walther König, 2015), 191–99, esp. 195.

Fig. 15: Gestalt zu Struktur (Stencil), 1961, casein tempera on wood, 50 x 50 cm, Mary Bauermeister Art Estate.



Because of her frequent use of dots, points, and circles in this phase of her oeuvre, Bauermeister has repeatedly been associated with Wassily Kandinsky's theory of art.[38] For Kandinsky, the point is a "a tiny world," which as a perfect "negative el-

38 His publications *Das Geistige in der Kunst* (The Spiritual in Art) and *Punkt und Linie zu Fläche* (Point and Line to Plane) in particular have been cited, the former also in connection with the influence of music on Bauermeister's art; see Kerstin Skrobanek, "'Die Jacke Kunst weiter dehnen': Mary Bauermeisters Aufbruch in den Raum," PhD diss., Frankfurt am Main, 2009, Univ.-Bibliothek 2014, http://publikationen.ub.uni-frankfurt.de/frontdoor/index/index/year/2014/docId/35011 (accessed April 17, 2019), 128–34; Kerstin Skrobanek, "Worlds in a Box: Mary Bauermeister and the Experimental Art of the Sixties," in *Worlds in a Box: Mary Bauermeister and the Experimental Art of the Sixties*, trans. EGLS Judith Rosenthal, Frankfurt am Main, exh. cat. Ludwigshafen am Rhein, Wilhelm-Hack-Museum, 2010–11 (Bielefeld: Kerber, 2010), 65–80, esp. 72–73; Irene Noy, "Art That Does Make Noise? Mary Bauermeister's Early Work and Exhibition with Karlheinz Stockhausen," *immediations: The Courtauld Institute of Art Journal of Postgraduate Research* 3, no. 2 (2013): 25–43, esp., 38; Irene Noy, "Noise in Painting: Mary Bauermeister's Early Practice and Collaboration with Karlheinz Stockhausen," in Noy, *Emergency Noises: Sound Art and Gender*, German Visual Culture 4 (Oxford: Peter Lang, 2017), 127–60, esp., 159–60; Michaela Geboltsberger, "Die 'malerische Konzep-

ement" symbolizes a self-contained satisfaction.[39] Every single point can already be a fully ample unity in itself, and with its shape it participates in the forms of nature, which as "tiny particles in space" is also made up of points.[40] Kandinsky develops a terminology that defines the point as a counterweight to the line. Both are "primordial elements of painting," yet because of its dynamic the line has an inherent temporal aspect that completely escapes the point as a static element.[41] For Kandinsky, the circle is caught in an ambiguous status: it has properties of the point and of the line at once, and as a self-contained form is caught up in a continuous motion. Circles are therefore the "least stable and at the same time stablest plane figure"; in addition, they contain "simplicity" and "complexity" in equal measure.[42] In Kandinsky's work, statements about the elements of painting are mixed with the effort to illustrate the specifics laid out there in his abstract compositions. The viewers are supposed to be able to understand the calmness and the dynamic that participate in time-based, musical phenomena thanks to the extension of color symbolism.[43]

That Bauermeister incorporates natural phenomena into her works is clear not only from her use of the Fibonacci sequence; her Honeycomb Pictures and her use of natural materials should also be interpreted accordingly. It can also be assumed, moreover, that she read Kandinsky's writings early on, probably during her artistic education.[44] Applying it to her painterly construction of point structures, it would mean, first, a superimposition of individual "small worlds," all of which are self-satisfactory. Together they can, as in *Gestalt zu Struktur*, also form a circle; this results in an ambiguity: a dynamic with a simultaneous standstill made up of forms that are ideally small and ideally round and that, according to Kandinsky, promise that time will be largely absent.[45]

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tion' und der Einfluss von Aleatorik im Werk von Mary Bauermeister—im Kontext zu Karlheinz Stockhausens Kompositionstechnik," thesis, Vienna, 2012, esp. 68–71 and 77.

39 Wassily Kandinsky, *Point and Line to Plane* (1926), in Kandinsky, *Complete Writings on Art*, ed. and trans. Kenneth C. Lindsay and Peter Vergo (Boston: G. K. Hall, 1982), 524–699, esp. 538 and 546.

40 Ibid., 554.

41 Ibid., 565 and 573.

42 Ibid., 599 and 666.

43 See Wassily Kandinsky, *On the Spiritual in Art* (1911–12), in Kandinsky, *Complete Writings on Art* (see note 39), 114–219 esp. 159.

44 The book *Über das Geistige in der Kunst* was reissued in 1952 with Max Bill's involvement. Bill is credited as the editor of *Punkt und Linie zu Fläche*; the foreword is signed by him with the details "Zürich und Ulm, Januar 1955"; the foreword was thus written when Bauermeister was still at the Hochschule für Gestaltung. There is also a work by Bauermeister from 1956–57 titled *Linie wird zu Fläche* (Line Becomes Plane), which suggests she was (again) grappling with Kandinsky's theory.

45 Kandinsky, *Point and Line to Plane* (see note 39), 545.

In connection with her use of dots as a dominant element in her painting, Bauermeister herself referred to *The Monadology* by Gottfried Wilhelm Leibniz.[46] For the philosopher, monads are the atoms of nature that are responsible for the composition of all things: each monad must be individual, because in nature there are no two identical things, unless they are subject to continual change.[47] Monads are, however, imperishable entities what Leibniz calls "incorporeal automata"; even if their composition changes, they continue to exist.[48] Much as in Kandinsky, in Leibniz one also detects a metaphysics that relates to natural phenomena. Bauermeister's dot structures can be harmonized with aspects of nature and its atomic (metaphysical) description.

At the same time, however, her works also show that one cannot stop with this interpretation. In the right corner of the white diamond of *Gestalt zu Struktur*, the artist made diverse fine line drawings. They are found outside of the circles composed of dots made with the stencil. The drawings contain circles painted inside one another that suggest they are "wandering into" the diamond from the field outside it. It is an accumulation of nested monads that stand outside the preestablished ordering structure of the stencil. Yet they are meticulously drawn and seem to stand beyond any gesture of Art Informel. This effect becomes even clearer a few centimeters lower: There, between a grayish-white circle of spatters of paint and a circular form, which is composed of white, slightly relief-like dots, delicate and intertwined lines have been drawn. They look as if they wanted to relate the surrounding circular forms to one another. That detail recalls the dissolving circular structures in the *Needless Needles* drawing and the distortions evoked in the act of observing when lenses are employed.[49] Many-valuedness is integrated into the dot and circle forms, which stand between Tachisme and Zero; the multiple layers of viewing that are illustrated simultaneously begin here. Bauermeister was initially interested in pursuing nonrepresentational painting that could be positioned within contemporaneous discourses. Her interest in materials, forms, and natural phenomena as well as the question of their interpretation—to which the monadology she mentioned offers an approach—adds another level. Following that, it is the effort to combine and refine that determines her art: she called a simple repetition without development "academic and anti-creative."[50]

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46 Artist's personal remark to the author in Mary Bauermeister's studio, June 28, 2019.

47 See Gottfried Wilhelm Leibniz, *The Monadology* (1714), in Leibniz, *The Monadology and Other Philosophical Writings*, trans. Robert Latta (Oxford: Clarendon, 1898), 215–71, esp. 217–23.

48 See ibid., 229 and 259.

49 In Bauermeister's workbook of 1961–62, *Gestalt zu Struktur* is dated November 1961; she had been given the lenses several months before in the summer of 1961.

50 See Mary Bauermeister, "The Artist's Say," *Art Voices* 4, no. 3 (Summer 1965): 64–65, esp. 65.

Honeycomb Pictures

The aforementioned Honeycomb Pictures, which represent a separate group of works in Bauermeister's early oeuvre, are another strategy for incorporating natural processes into art. She executed them from late 1957 to 1961 as autonomous works; after that they continued to exist as one technique to be combined with others.[51] The Honeycomb Pictures are predominately monochrome, like most of Bauermeister's works at the beginning of her artistic career. As in her dot-structure paintings, she employed blue, red, and green as well as white; the mixing of several colors occurs only rarely; black does not occur in the Honeycomb Pictures. The colors that Bauermeister used at the time reveal a closeness to the Zero movement and to Constructivism, which she was taught at the academy.[52] The initial material of the Honeycomb Pictures is a particle board worked with modeling compound. The latter is a commercially available product that can be formed in a soft state and then hardened. Bauermeister has appropriated this craft material and applies it in layers to a wooden support in order to create an interwoven structure of honeycombs of different sizes, then the works are painted.

At 50.8 by 50.8 by 6.3 centimeters, *Ohne Titel (Wabenbild)* (Untitled [Honeycomb Picture]) of 1957–58 is one of the largest square Honeycomb Pictures (fig. 16). There are both rectangular and round ones: *Rundes Wabenbild* (Round Honeycomb Picture) of 1960, for example, has a diameter of 75 centimeters and contains, in addition to honeycomb, round or "distorted" relief-like structures (fig. 17).[53] These works are not attempts to spatialize an abstract pictorial color as a kind of relief; rather, the artist is making a natural process visible: a bee colony performs the organized building of honeycombs; their hexagonal form is often found in natural structure because it is highly stable.[54] In contrast to the regularity of the hexagonal form in natural processes, the Honeycomb Pictures reveal several shifts in focus, ranging from changes in size and the nesting of several honeycombs to the breakdown of the honeycomb form. The Honeycomb Pictures are also framed by an ambiguity: more clearly than in Bauermeister's reference to point and circle, not only is the formal language of nature imitated but also the process of creation. The artist applies layer upon layer and associates this with the techniques of monochrome painting. The Fibonacci sequence as well as the use of points or honeycombs refer to phenomena outside of

51 After the honeycomb technique had occurred only sporadically for decades, Bauermeister completed several new Honeycomb Pictures in 2016.

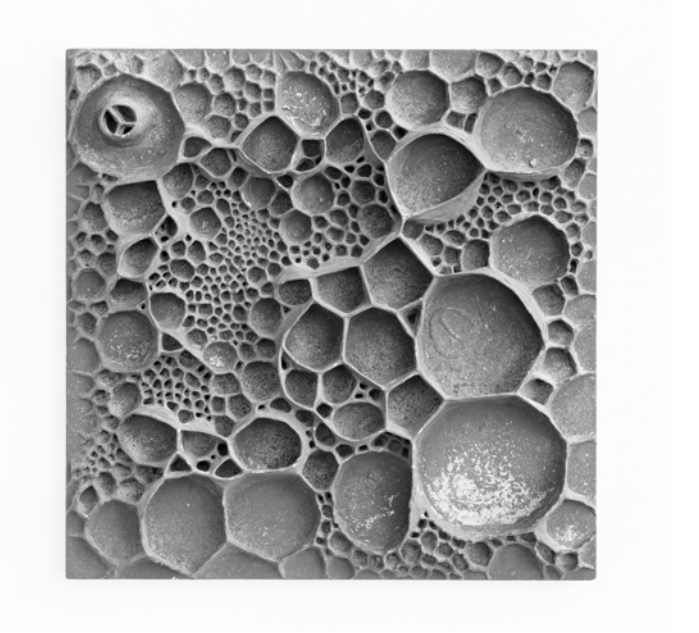
52 See Pörschmann, *Evakuierung des Chaos* (see note 33), 45–48.

53 Bauermeister also experimented with curved lines and gridlike structures that used materials similar to the Honeycomb Pictures.

54 See Marcus du Sautoy, *Finding Moonshine: A Mathematician's Journey through Symmetry* (London: Fourth Estate, 2008), 10–15.

the artistic and are combined with other elements. Moreover, Bauermeister's honeycombs are not only created artificially but were also integrated into paintings years later as a found material.[55]

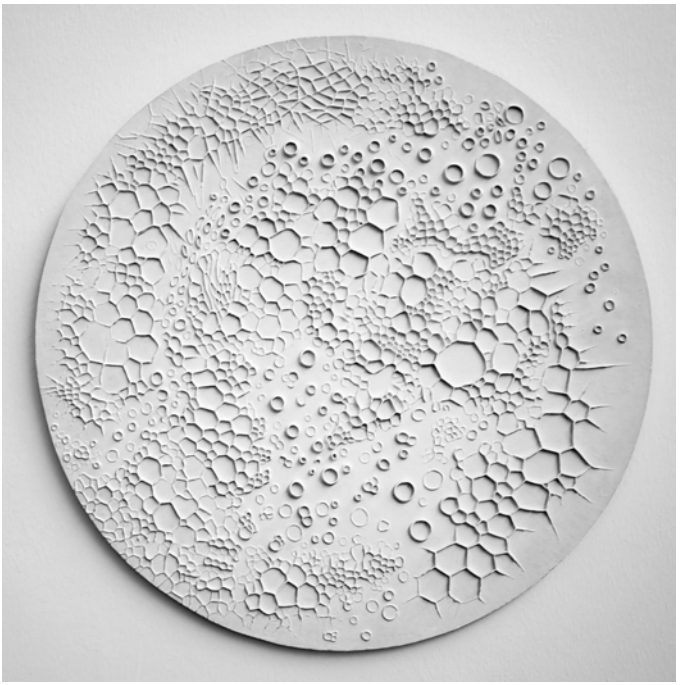
Fig. 16: Ohne Titel (Wabenbild), 1957–1958, modeling compound, casein tempera on particle board, 50.8 x 50.8 x 6.3 cm, Michael Rosenfeld Gallery LLC, New York, NY.



Bauermeister's phase of abstract work, which at times evolved into nonrepresentationalism, continued to be something that could be integrated over the course of her oeuvre—another element of her "radical inclusivity." Moreover, it is an ironic commentary on her own (early) approach that occurred again and again in her works, especially in the system of reflexive commentary of the Lens Boxes. This also occurred in other works, as has already been shown using the example of the *Needless Needles* light sheet; here a drawing of a heart has been labeled "bad": something representational with romantic connotations is rejected—a reflexive reference to her own approach in her early work.

55 For a more detailed interpretation of the honeycomb as a natural element and its application to compositions, see section 4.1.

Fig. 17: Rundes Wabenbild, 1960, modeling compound, casein tempera on particle board, 75 cm (diameter), Museum Ludwig, Köln/Cologne (ML 10364).



3.3 Musical Parameters

The compositional techniques of dodecaphony, so-called "twelve-tone music," and their extension into the total serialism of New Music were integrated by Bauermeister into her visual art. That should not be understood to mean that she intended to convert writing or series of numbers into music or, conversely, the writing of music into a diagrammatic form.[56] Rather, she appropriated forms of musical composi-

56 See Birgit Mersmann, "Schriftikonik: Musikalische Notation und Diagrammatik in den Schreibarbeiten von Hanne Darboven und Jorinde Voigt," in *Musik und Schrift: Interdisziplinäre Perspektiven auf musikalische Notationen*, ed. Carolin Ratzinger, Nikolaus Urbanek, and Sophie Zehetmayer (Paderborn: Wilhelm Fink, 2020), 107–33. Mersmann clarifies these two strategies using the artists Hanne Darboven and Jorinde Voigt as examples; Darboven's tendency to form rows and to work with serial patterns of signs can be mostly easily associated with Bauermeister; ibid., 130.

tion as an (additional) element in order to create works. In addition, Bauermeister incorporated the basic attitude of total serial music:

> "Serial music results from a worldview that assumes continuous courses between extreme poles and makes the gradual mediation between them its constructive tool. Seen in this way, the color white represents a gradation of black and vice versa."[57]

In addition to mediation, it was also the attempt to treat individual entities equally and to reveal the translation of musical parameters. Of a whole series of works in her early phase, the Magnet Pictures and *Malerische Konzeption* (Painterly Conception) represent this effort.[58]

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57 Elena Ungeheuer, "Schriftbildlichkeit als operatives Potential in Musik," in *Schriftbildlichkeit: Wahrnehmbarkeit, Materialität und Operativität von Notationen*, ed. Eva Cancik-Kirschbaum, Sybille Krämer, and Rainer Totzke (Berlin: Akademie, 2012), 167–82, esp. 171.

58 In the 1960s musical references were incorporated into her works again and again: written notes or instructions from scores especially from graphic notation can be found in her Writing Drawings and Lens Boxes. In addition, there are works in which music is decidedly a primary reference, such as the joint work *Notenbaum* (Note Tree) 1963–64 with Karlheinz Stockhausen, into which an excerpt from a score by the composer is integrated. There are also two Lens Boxes with the title *Music Box* of 1965 and 1966–68 and a Lens Boxes called *This Has Nothing to Do with Music* of 1969. The scholarly literature on musical references in Bauermeister's work is the most extensive of all, which results not only from her many references to musical terminology or structures but also from her connection to Karlheinz Stockhausen; Paul V. Miller, "Mary Bauermeister and Karlheinz Stockhausen: A Collaboration in Sound and Space," in *Mary Bauermeister: The New York Decade*, exh. cat. (Northampton, MA: Smith College Museum of Art, 2014), 87–97; on the aforementioned distinguishing or mutual influence, see Noy, Siano, and Skrobanek. *Malerische Konzeption* and Stockhausen's terminology is contextualized in Geboltsberger, "Die 'malerische Konzeption' und der Einfluss von Aleatorik" (see note 38), 25–31. The influence of Stockhausen should recede into the background here, since concentrating on points of contact between her famous partner and later husband do not do justice to the works. As already shown, a large number of levels are united in Bauermeister's art. The exhibition *Vom Klang der Bilder: Die Musik in der Kunst des 20. Jahrhunderts* at the Staatsgalerie Galerie Stuttgart included two works that were categorized under the heading "Bildpartituren – graphische Musik" (Visual Scores—Graphic Music): *Music Box* of 1965 and a work on canvas using the point technique from 1961 with titled (with a term from musical terminology *Kontrapunkte* (Counterpoints); Karin von Maur, ed., *Vom Klang der Bilder: Die Musik in der Kunst des 20. Jahrhunderts*, exh. cat. Stuttgart, Staatsgalerie, 1985 (Munich: Prestel, 1985), 306.

Magnet Pictures

Bauermeister produced a total of four Magnet Pictures in the years 1958 and 1959. The first is *Magnetbild Schwarz-Weiss* (Magnet Picture Black-and-White); like every Magnet Picture, it has a square ground of 75 by 75 centimeters and is executed in Bauermeister's point technique (fig. 18).[59] The makeup of the Magnet Pictures is also identical; they consist of four wooden boards—two square ones of different size and two rectangular ones of equal size. The "magnet" of the title refers to the magnets on the back of the four particle boards that provide a magnetic ground for the wooden elements. Viewers thus have in principle the opportunity to take down one of the four boards, rotate it ninety degrees, and reinsert it in the picture, changing the composition. This is possible in all directions with all four boards; moreover, the positions of the boards can be switched, resulting in a large number of possible appearances (figs. 19 and 20).

They were determined by Bauermeister in sketches and calculations, emphasizing the serial aspect and revealing the inherent potential of the Magnet Pictures: the *Möglichkeiten Serieller Malerei* (Possibilities of Serial Painting) portfolio consists of thirty-four A4 sheets with sketches shown all the possibilities for changing the composition; the nineteen sheets of *Flächenvariation* (Planar Variation) are A5 format and contain series of numbers arranged vertically that run through all the variations. Both portfolios were created by Bauermeister in 1959, that is, after the first Magnet Picture.[60] Accordingly, they are no preparatory sketches or a theoretical conceptualization that are applied to a work but rather a retroactive attempt to use notation to document one's own composition in order to get an overview of the possibilities that result from changes of equal validity.

59 The other Magnet Pictures are: *Magnetbild Rot*, *Magnetbild Blau-Lila*, *Magnetbild Grün*, so also named after their colors.

60 See Frederik Schikowski, "Interview mit Mary Bauermeister: 'Was macht es mit euch, wenn ihr was ändert?'," in *Spielobjekte: Die Kunst der Möglichkeiten*, exh. cat. Basel, Museum Tinguely, 2014 (Heidelberg: Kehrer, 2014), 34–43, esp. 37.

Fig. 18: Magnetbild Schwarz-Weiß, 1958, casein tempera, magnets on wood on magnetical surface, 75 x 75 cm, Museum Ludwig, Köln/Cologne (ML 10363).

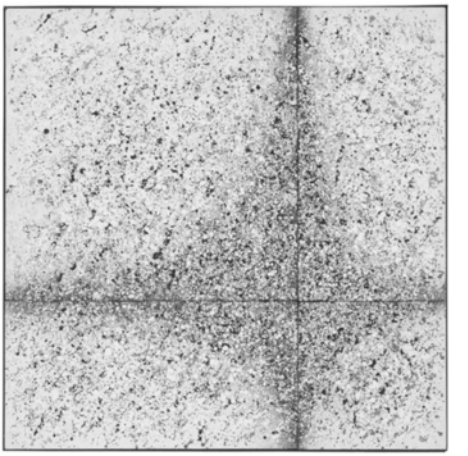


Fig. 19: Magnetbild Blau-Lila, 1959, casein tempera, magnets on wood on magnetical surface, 75 x 75 cm, Mary Bauermeister Art Estate.

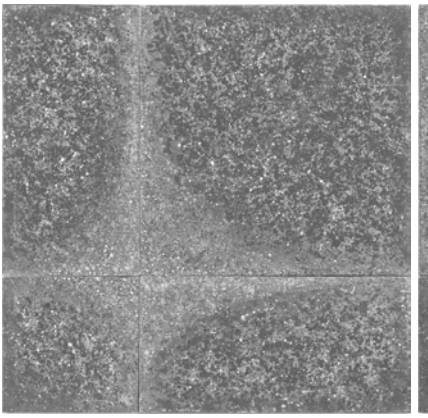
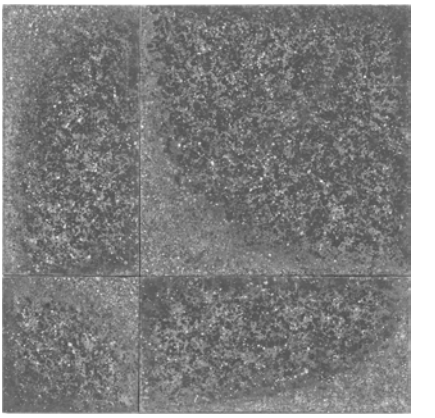


Fig. 20: Magnetbild Blau-Lila (Variation), 1959, casein tempera, magnets on wood on magnetical surface, 75 x 75 cm, Mary Bauermeister Art Estate.



Bauermeister began making compositions dynamic with the aforementioned hinge painting *Ohne Titel* of 1958, which makes two ways of presenting it possible, if one counts the intermediate steps as merely a transition. With *Magnetbild Schwarz-Weiss*, the possible variations were expanded: the first two pages of *Möglichkeiten Serieller Malerei* describe the structure of the Magnet Pictures and determine how the

course of the point pattern results (figs. 21 and 22).[61] The following pages are strewn with sketches; each one shows a new variation of the Magnet Picture. The four elements of the picture are numbered and are rotated ninety degrees one after the other. It is always indicated which of the four image elements remains in which position and how the others are rotated. When it comes to a composition that overlaps with a previous one, Bauermeister drew the sketch anyway and then crossed it out. The sheets thus show all 256 variations that result when the small square picture element is in the lower right field. Now the arrangement of the boards can be switched, opening up even more variations (1,024 in all). It is also possible to hang the Magnet Pictures in a diamond shape, as other sketches by Bauermeister show. So a large number of possible compositional appearances are compressed in one picture; moreover, the Magnet Pictures are an early example of explicitly integrating viewers, since the changes to the work are supposed to be introduced by their intervention.[62]

61 The pattern is a quarter-circle expanded to the size of a semicircle, so that with a particular orientation of the four magnet boards a closed circle results. On the second page of *Möglichkeiten Serieller Malerei* this is also adopted as the initial composition for the variation. Bauermeister's archive has a ten-page carbon copy from an attorney who was hired to patent this pictorial structure; in this document the composition is described in detail in a legal tone. The patent application was never submitted, but this shows how much Bauermeister's thinking of the late 1950s was dominated by the spirit of the avant-garde inventor, of creating something "new" and at the same time a fear of becoming the victim of epigones. The title *Möglichkeiten Serieller Malerei* was employed again by Bauermeister in 1960 for a four-part painting consisting of oblong elements that can be rearranged; only one of those four parts survived.

62 The Magnet Pictures were at least originally constructed in a way that viewers were allowed to try out new compositions; with the Magnet Picture in the Museum Ludwig in Cologne and that in the Staatliches Museum in Schwerin, this is not permitted for conservation reasons. For a study of the multiplicity of the image that is potentially inherent in any work of art, see David Ganz and Felix Thürlemann, "Zur Einführung: Singular und Plural der Bilder," in *Das Bild im Plural: Mehrteilige Bildformen zwischen Mittelalter und Gegenwart*, ed. David Ganz and Felix Thürlemann (Berlin: Reimer, 2010), 7–39.

Fig. 21: Möglichkeiten Serieller Malerei (Sheet 1), 1959, pencil, ink on paper, 29.7 x 21 cm, altogether 34 sheets, Museum Ludwig, Köln/Cologne, acquisition made possible by Initiative Perlensucher, permanent loan by Gesellschaft für Moderne Kunst am Museum Ludwig Köln e.V. 2019 (Dep. ML/Z 2019/026/01-34).

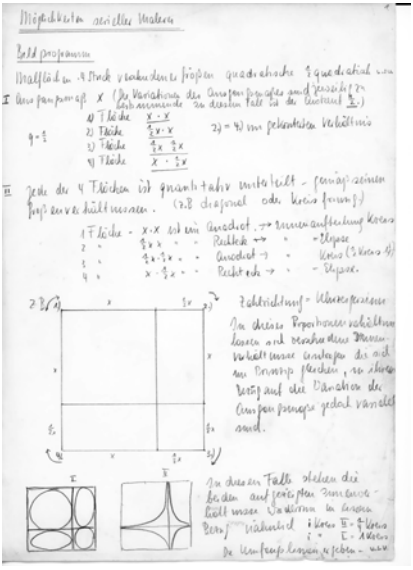
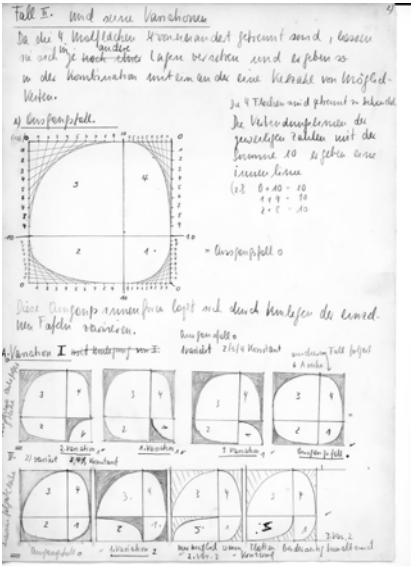


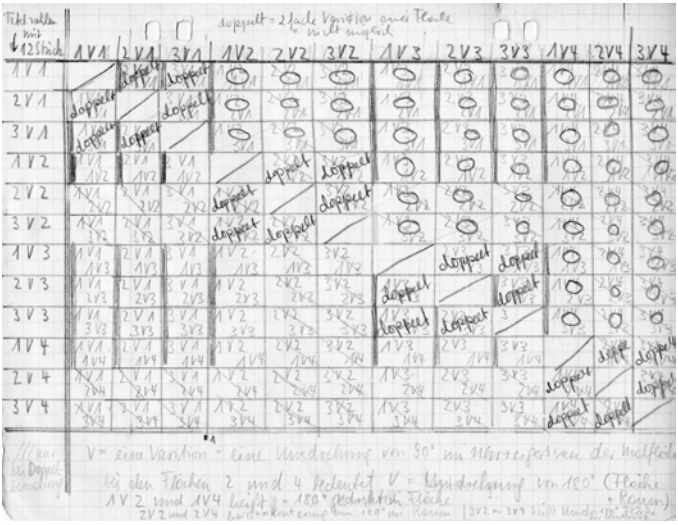
Fig. 22: Möglichkeiten Serieller Malerei (Sheet 2), 1959, pencil, ink on paper, 29.7 x 21 cm, altogether 34 sheets, Museum Ludwig, Köln/Cologne, acquisition made possible by Initiative Perlensucher, permanent loan by Gesellschaft für Moderne Kunst am Museum Ludwig Köln e.V. 2019 (Dep. ML/Z 2019/026/01-34).



The sheets of the *Flächenvariation* consist entirely of rows of numbers; only the first two pages have sketches that clarify the structure of the Magnet Pictures and the system of rows (fig. 23). The sequence "2V1/3V2," for example, says that the first board is rotated ninety degrees twice and the second ninety degrees three times; thus it indicates a specific composition. As she did with the sketches, Bauermeister later crossed out the compositional doublings.[63]

63 We address here only a few aspects of the Magnet Pictures that are important for Bauermeister's procedure in the rest of her oeuvre; for a more detailed examination of the Magnet Pictures and especially of the structure of the two portfolios of sketches, see Hauke Ohls, "Mary Bauermeister und die Möglichkeit serieller Malerei," in *Mary Bauermeister: Die 1950er Jahre* (see note 26), 33–46.

Fig. 23: Flächenvariation (Sheet 7), 1959, pencil on paper, 22 x 17 cm, altogether 19 sheets, Mary Bauermeister Art Estate.



The Magnet Pictures thus participate in dodecaphony with their four picture elements that can be turned with equal validity. In this compositional technique, developed by Arnold Schönberg and taken substantially further by Anton Webern, the pitches are no longer arranged according to motifs or themes but in rows.[64] An element in a musical composition is employed unhierarchically. Bauermeister became familiar with twelve-tone music via the radio; after World War II the medium was controlled by the Allied occupation forces and used for "reeducation."[65] Thinking in rows has a metaphorical correspondence in the four wooden boards: each of the possible appearances of the work has an equivalent status, like the individual tones in musical compositions that have been released from the structuring model of thirds, fourths, fifths, and tonics. Thanks to the design of the point structure, the Magnet Pictures have two "harmonious" initial positions, both of which are also used in the sketches: first, the closed circular form and the structure in which the corners meet with the four semicircles. Painterly means are used to attempt to transfer a musical

64 See Ungeheuer, "Schriftbildlichkeit als operatives Potential" (see note 57), 172. On the development of modern music, its compositional techniques, and its schools, see Alex Ross, *The Rest Is Noise: Listening to the Twentieth Century* (New York: Farrar, Straus and Giroux, 2007), esp. 33–73, 355–410, and 444–72.

65 Andreas Hagelüken, "Eine originäre Kunst für das Radio," in *Sound Studies: Traditionen, Methoden, Desiderat; Eine Einführung*, ed. Holger Schulze (Bielefeld: transcript, 2008), 29–55, esp. 39–40. Bauermeister has also said that there was also sheet music of Schönberg and other composers of the Second Vienna School in her parents' home.

principle to a picture, but in the face of the Magnet Pictures a medium-specific "remnant" is left behind: the equality of pitches and the equality of pictorial composition cannot be completely harmonized. This recalls Theodor W. Adorno's description of relations between music and painting: "The moment one art imitates another, it becomes more distant from it by repudiating the constraint of its own material."[66] For him the arts "converge" only where each one remains in its principle.[67] To an extent, Bauermeister seems to follow that idea, in that she pursues no syncretism of musical and painterly phenomena but rather adopts a compositional principle from music and applies it to her works. In the Magnet Pictures, only one composition can ever be seen at a time, while all the others are inscribed based on the structure of the works and systematically recorded by the sketches.

The mutual reference of music and visual art, which is framed in an extensive, reciprocal discourse, seems to play no overarching role for Bauermeister; it is rather an aspect that is adopted into the combination principle.[68] The very title *Möglichkeiten Serieller Malerei* already makes Bauermeister's reference to music clear. Nevertheless, it need not be seen as a rapprochement with electroacoustic (serial) music, since in the Magnet Pictures only one parameter was treated as equal, which is equivalent to twelve-tone music. The term "serial" was still used for Schönberg's compositional technique until the end of the 1940s and can be observed in the Magnet Picture and in the sketches or rather in the series of numbers that serve as a starting point.[69]

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66 Theodor W. Adorno, "On Some Relations between Music and Painting," trans. Susan Gillespie, *Musical Quarterly* 79, no. 1 (Spring 1995), 66–79, esp. 67.

67 Ibid. In his essay Adorno appears to be uncertain how to evaluate the relation of music and painting, since convergence can, in his view, also lead to "crass infantilism." He is indebted to the idea that the "natural" differences in the arts should not be undermined by the "unraveling" he describes; ibid., 76–78.

68 The determination of time and space, respectively, is an obvious difference between a painting and a piece of music. For insights into the complex connections between the two professions of music and visual art and their hybridizations, see Hans Emons, *Komplizenschaften: Zur Beziehung zwischen Musik und Kunst in der amerikanischen Moderne*, 2nd. ed. (Berlin: Frank & Timme, 2017); Hajo Düchting and Jörg Jewanski, *Musik und Bildende Kunst im 20. Jahrhundert: Begegnungen, Berührungen, Beeinflussung*en (Kassel: Kassel University Press, 2009); and even exhibitions such as *A House Full of Music: Strategies in Music and Art*, ed. Ralf Beil and Peter Kraut, exh. cat. Darmstadt, Institut Mathildenhöhe 2012 (Ostfildern: Hatje Cantz, 2012) and *Sound of Art: Musik in der bildenden Kunst*, exh. cat. (Salzburg: Museum der Moderne, 2008).

69 See Mark Delaere, "Auf der Suche nach serieller Stimmigkeit: Goeyvaerts' Weg zur Komposition Nr. 2 (1951)," in *Kontexte: Beiträge zur zeitgenössischen Musik*, ed. Orm Finnendahl, vol. 01, *Die Anfänge der seriellen Musik* (Hofheim: Wolke, 1999), 13–35, esp. 16. Serial structures were also important to the Zero movement as a way of create new pictorial inventions beyond Art Informel; see Pörschmann, *Evakuierung des Chaos* (see note 33), 103.

Painterly Conception

The three pages of *Malerische Konzeption* contain only a few sketches; it consists overwhelmingly of numbers and text that have been arranged in rows and columns (fig. 24).[70] This work was created in 1961 in a composition course taught by Karlheinz Stockhausen at the Darmstädter Ferientage für Neue Musik (Darmstadt Summer Course for New Music). The typewritten explanations at the beginning of Bauermeister's manuscript were added retrospectively.[71] In contrast to the Magnet Pictures, *Malerische Konzeption* explicitly refers to the total-serial compositional techniques of New Music, which apply thinking in multidimensional to musical parameters: not only is pitch employed without hierarchy but also duration, articulation, dynamics, frequency, and timbre are placed in mathematically calculated rows in order to exclude subject influence for the most part. Serial composition of electroacoustic music recedes behind "generative logic" that is a "complex conceptualization."[72] Another difference from the Magnet Pictures is that *Malerische Konzeption* is a completely written plan without any visual realization, as if only the two paper portfolios had been created with sketches and rows of numbers and not the four Magnet Pictures.

70 As with the Magnet Pictures, I address here only several aspects of *Malerische Konzeption*. For insights into the structure, the individual parameters, and the "events" that are to be described by them, see Hauke Ohls, "The 'Malerische Konzeption': A Conceptual Tool of Cognizance," trans. Simon Stockhausen, in *Mary Bauermeister: Signs, Words, Universes*, exh. cat. Bergisch Gladbach, Kunstmuseum Villa Zanders, 2017–18 (Dortmund: Kettler, 2017), 77–83.

71 The reproduction was prepared for the catalog of the exhibition at the Stedelijk Museum in 1962. Presumably Bauermeister had written on A4 paper in very small handwriting.

72 See Elena Ungeheuer, "Ist Klang das Medium von Musik? Zur Medialität und Unmittelbarkeit von Klang in Musik," in *Sound Studies* (see note 65), 57–76, esp. 67. Serial techniques led to an "intellectualization and mathematization of musical parameters"; Hagelüken, "Eine originäre Kunst für das Radio" (see note 65), 43.

Fig. 24: Malerische Konzeption (Sheet 2), 1961, ink on paper, 40.6 x 29.6 cm, altogether 3 sheets, Exhibition Files Stockhausen/Bauermeister, Stedelijk Museum, Amsterdam, 1962 (2006.5.0149).

It must be said that there is probably no way to perform *Malerische Konzeption*: it defines eleven parameters in the left column that are refined on the next two pages.[73] For example, the parameter "time" refers to the "duration of the performance," that is to say, the time Bauermeister takes producing a work. It is defined on a scale of "1–5,"

73 The parameters include frequency, intensity, volume, time, material, number, proportion, quality, organics, movement. The formulations of the parameters contain duplicates, some of which contradict themselves. That alone shows that *Malerische Konzeption* cannot be implemented literally.

which Bauermeister called "potentials": "1" is "the least time," which is defined on the second page as "found material" and "approximately 0 hours"; "5" is "very slow"; the specification on the second page indicates "circa 1797 hours." The goal of *Malerische Konzeption* is to create works of art that are always composed of the eleven parameters, each of which has to be assigned one of the gradations "1–5"; the result should on principle total 36. The gradations of parameters are distributed in such a way that every "event," as Bauermeister called the works in the plan, arrive at the same number of points; everything else can be combined freely. With regards to a realization, however, several problems are immediately evident; for example, the technique to be used is not specified on the first page. If Bauermeister's Point Structures, Honeycomb Pictures, or Lens Boxes are stipulated, then for every technique there would be a potential of 11^5 or 161,051 works; moreover, several parameters cannot be implemented; new chemical bonds would have to be synthesized for them—for example, in order to realize gradations of "reaction to temperature" in the parameter "material."

With *Malerische Konzeption*, it is less about physically creating a new work than about the possibility of combining predefined parameters on a conceptual level: Bauermeister initially wanted to apply "parameter analyses and the serial composition technique" to "optical composition."[74] In keeping with the context of the making of *Malerische Konzeption*, strict serialism is more clearly evident in it than in the Magnet Pictures. The degrees of gradation between the parameters also reveal the mediation between extremes that constitutes the serial "worldview."[75] If we attempt to understand the individual parameters and their gradations in order to connect them in a way that their sum is 36, it reveals the number of possible combinations that results from the structure of *Malerische Konzeption*. This is, however, merely an (extreme) example Bauermeister's strategy of connection individual elements in order to use the potential of links. *Malerische Konzeption* cannot be regarded as the endpoint of the development of the combination principle; Bauermeister's oeuvre does not have one, and the works always participate in this fundamental strategy in a specific way. Her effort to approximate serial compositional technique let to a written notation whose (anticipated) results are not bound to the laws of time and space.

74 These two brief quotations are from the typewritten text on the work, which is signed "Mary Bauermeister." *Malerische Konzeption* is categorized as conceptual art in Ohls, Die 'Malerische Konzeption'" (see note 70), 77–83.

75 See Ungeheuer, "Ist Klang das Medium von Musik?" (see note 72), 67.

Notationality

The "events" described in *Malerische Konzeption* must be distinguished from the material basis of the plan that produces them: It is written with ink on paper and contains letters that form sentences, numbers that form rows, and small sketches. The individual elements are arranged in a structured way that makes it possible to read them horizontally and vertically.[76] Both *Malerische Konzeption* and the two portfolios on the Magnet Pictures can be viewed in the context of score and notation.[77] They participate in the revolutions in the area of musical notation that led to the emergence of graphic notation of music: Over the course of the 1950s an "aesthetic autonomy" of the notation over the performance developed.[78] Liz Kotz sees John Cage as the crucial initiator of this development, out of his experiments with chance operations and writing them down and out of his teaching activities evolved methods of notation such as the "word piece" and the "event score."[79] Artists such as George Brecht, Yoko Ono, and La Monte Young formulated instructions that were at once a call to action, poetic material, and autonomous work of art. These instructions are laden with potential for open meaning, which requires that the performer actively complete it. By transferring the principle of musical notation as instructions for ac-

76 The theme of notational iconicity in Bauermeister's oeuvre will be examined in greater detail in section 5.1; the material marginalization of writing and number will also be challenged in the process.

77 The word "score" stands here for the fixed result and "notation" for the method of achieving it. Because both terms have been admitted into a field of fixed rules, in order to achieve general readability Christian Grüny proposed using the English term "score" in German specifically for "language-based notation"; Christian Grüny, "Scores: Notationen zwischen Aufbruch und Normalisierung," in *Musik und Schrift* (see note 56), 135–58, esp. 136–37. One only employs the English word "scores" in German in connection with proper names if there is a connection to artist works. The more neutral term "musical graphics" seems open enough to apply it to many experiments and is therefore primarily used here. Karlheinz Stockhausen also emphasized the emancipation of musical graphics from performance in a lecture in which the *Schriftbild* (notation) takes on its own aesthetic quality; Karlheinz Stockhausen, "Musik und Graphik," in Stockhausen, *Texte zur elektronischen und instrumentalen Musik*, vol. 1, *Aufsätze, 1952–1962, zur Theorie des Komponierens*, ed. Dieter Schnebel (Cologne: DuMont, 1963), 176–188.

78 See Liz Kotz, *Words to Be Looked At: Language in 1960s Art* (Cambridge, MA: MIT Press, 2010), 48.

79 See ibid., 59–65. Experimental extensions of notations can also be found in the work of Earle Brown, Sylvano Bussotti, Christian Wolff and compositions of electroacoustic music. Matteo Nanni refers to a development since the 1960s with a "profound dovetailing of the auditory and the iconic" as well as the "performative and written"; Matteo Nanni, "'Quia scribi non possunt': Gedanken zur Schrift des Ephemeren," in *Die Schrift des Ephemeren: Konzepte musikalischer Notation*, ed. Matteo Nanni (Basel: Schwabe, 2015), 7–14, esp. 11.

tion, the way the time structures are recorded in the works also changes; they are no longer indicated in strictly rhythmic units of measure.[80]

On the one hand, Bauermeister participated in these experimental extensions to liberate the score from its subordinate, ancillary function and grant it contingency and autarchy. On the other hand, she did not take the step of directly addressing the audience members who are necessary as one crucial level. Both *Möglichkeiten Serieller Malerei* and *Flächenvariation* are retroactive notations that record the use of a principle of musical composition. With reference to Nelson Goodman, both these portfolios can be said to be closer to a notational system than they may at first seem. For Goodman, anything can be a score that has fixed characters and complaints: which is crucial is that a score identifies a particular work from performance to performance.[81] If the performance differs from a note set in the score, their connection breaks down, so that it must be considered a different work; accordingly, he calls Cage's way of writing down a piece an "autograph diagram," since its semantic openness cannot be transferred to any "work"; what happens is rather "copies *after* and performances *after* that unique object."[82] In this view, the two writings on the Magnet Pictures are (retroactive) scores in Goodman's sense, since the visual possibility of distributing the four boards is laid out in them. Here an expanded concept of the score comes in that can no longer be reduced to the writing down of notes and a temporal sequence of sounds. A temporal aspect is inscribed in the fixed composition of a Magnet Picture, since it no longer has the opportunity to adopt other appearances but these are already formulated in the sketches and rows of numbers. The viewers' own responsibility is limited to the point at which the four boards are switched: Bauermeister systematically described only the situation in which the smallest wooden board is in the bottom right corner. Notationality identifies 256 possibilities; the other variations are possible if the viewers do more themselves; nevertheless, they stand outside the score.

For Goodman, many aspects in a score always remain unexecuted; precise prescriptions are impossible as well—except when using numbers.[83] *Flächenvariation* demonstrates not only Bauermeister's interest in an approach with numbers, as the calculations on the constructive works and the use of the Fibonacci sequence have already shown, but by means of its concentration on the formation of rows a more explicit effort to get closer to the compositional technique of twelve-tone music.

80 See Gabriele Brandstetter, "Schriftbilder des Tanzes: Zwischen Notation, Diagramm und Ornament," in *Schriftbildlichkeit* (see note 57), 61–77, esp. 61; Kotz 2010 (see note 262), 71.

81 Nelson Goodman, *Languages of Art: An Approach to a Theory of Symbols* (Indianapolis, IN: Hackett, 1976), 177–84.

82 Ibid., 190.

83 See ibid., 190–91.

For mathematics, the "unambiguous and uncontradictory definition" is essential.[84] It is a structure that does not permit any "causalities," "explanations," and "interpretations," since otherwise they would fall outside of the self-referential system.[85] Bauermeister sometimes uses a form of recording whose nature is impossible for the performers to interpret themselves. In the case of the Magnet Pictures, the two portfolios *Möglichkeiten Serieller Malerei* and *Flächenvariation* are autonomous and yet stand in a notational connection to the Magnet Pictures. Produced as a retrospective reflection, the resulting two works are on a part with the Magnet Pictures.

In the case of *Malerische Konzeption*, the situation is different. There is neither a realized equivalent nor the possibility to create one. This work, too, is only peripherally connected with contemporaneous trends of easily performable instructions in notational style. It has an aesthetic autonomy in written form and can be considered an autonomous work of art. It would perhaps even be conceivable to perform individual parts but not incorporating all of the parameters and their refinements. The sketchbook has a note: "Darmstadt project can be performed like this." The associated sketch and the descriptions, however, show a nested work of a variety of Bauermeister's techniques that are supposed to enter into structure relationships on a microlevel (fig. 25).[86] The sketched work was never realized; this page from sketchbook shows, however, that for Bauermeister the emphasis in *Malerische Konzeption* was on the possibility of combining and networking individual techniques. It also shows the impossibility of performing it is inherent in the work, since even the sketch for a realization does not implement the parameters or the potential of 36.

Malerische Konzeption can best be interpreted as a work that draws inspiration from techniques for composing music in order to create a work of visual art. Its appearance is close to that of graphic music, but its content refers to painting.[87] The aforementioned instructions in the *Needless Needles* drawing can also be understood in that context: They also derive from the world of graphic music, and Bauermeister also applied them in earlier works. Faithful execution is no more intended in *Needless Needles* than in *Malerische Konzeption*; it is rather the reference to a technique

84 Dieter Mersch, "Die Geburt der Mathematik aus der Struktur der Schrift," in *Schrift: Kulturtechnik zwischen Auge, Hand und Maschine*, ed. Gernot Grube, Werner Kogge, and Sybille Krämer (Munich: Wilhelm Fink, 2005), 211–33, esp. 215.

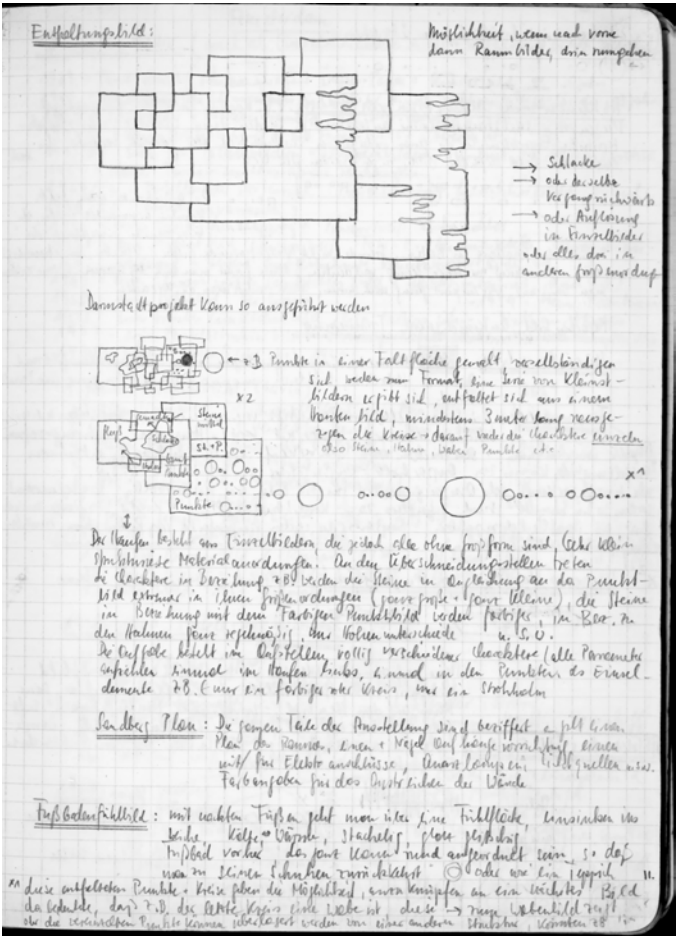
85 Ibid., 217.

86 See Bauermeister, "Skizzenbuch/Quaderno" (see note 1), 11–12.

87 In the context of graphic music Elena Ungeheuer also speaks of "realization scores" that recall "circuit diagrams" Ungeheuer, "Schriftbildlichkeit als operatives Potential" (see note 57), 174. Skrobanek calls *Malerische Konzeption* a "score for painters"; Skrobanek, "Die Jacke Kunst weiter dehnen" (see note 38), 34–35. Geboltsberger calls the work a "score for fine artists"; Geboltsberger, "Die 'malerische Konzeption' und der Einfluss von Aleatorik" (see note 38), 4.

originally used to compose music as an element to make it possible to create a drawing. Notation is one parameter of the combination principle that Bauermeister used alone for works in her early phase and later incorporated as just one aspect.

Fig. 25: Skizzenbuch/Quaderno, 1961–1963, unpublished source, paginated by the artist, p. 11.



Beyond Fluxus

Describing Bauermeister as an explicitly interdisciplinary artist, and especially the idea that she belonged to the Fluxus movement, derives from a misunderstanding based on the events in her studio at Lintgasse 28 in Cologne from 1960 to 1962.[88] In her studio in those years there were exhibitions, concerts, performances, and actions with international and interdisciplinary participation. The artists documented were, among others, Nam June Paik, John Cage, David Tudor, Morton Feldmann, Carolyn Brown, La Monte Young, Merce Cunningham, Mauricio Kagel, George Brecht, Sylvano Bussotti, Cornelius Cardew, Benjamin Patterson, Pyla Patterson, Otto Piene, and Almir Mavignier.[89] These intermedia performances before an audience included, for example, Paik's *Hommage à John Cage* from June 16 to 18, 1960, and *Originale*, a work of musical theater, also grew out of these events. The latter was a joint production by Bauermeister and Karlheinz Stockhausen and was performed from October 26 to November 6, 1961, at the Theater am Dom in Cologne.[90] Both the actions and performances and the contact to Fluxus have led to Bauermeister being described as part of that international artists' movement or at least her work being contextualized in similar categories.[91] One can only agree here with Wulf Herzogenrath's assessment: on the one hand, he emphasizes the "performance possibilities" that Bauermeister made possible for "that which was

88 In January 1960 Bauermeister moved into an attic apartment in Cologne's old town belonging to the architect Peter Neufert; she paid her rent with works of art.

89 For profound insight into the individual events at the studio on Lintgasse, including a chronology and historical categorizations, see *intermedial, kontrovers, experimentell: Das Atelier Mary Bauermeister in Köln, 1960–62*, ed. Historisches Archiv der Stadt Köln (Cologne: Emons, 1993). Despite the widespread rumor, Joseph Beuys was never in Bauermeister's studio.

90 See Wilfried Dörstel, "Situation, Moment, Labyr, Fluxus; oder, Das verbrannte Original: Das Musiktheater 'Originale' von Karlheinz Stockhausen," in ibid., 186–205. Stockhausen is listed in the program as "composer" and Bauermeister as "painter," among the performers is Nam June Paik, who is announced as presenting "Actions."

91 In newspaper articles, interviews, and exhibition announcements since the 1990s, Bauermeister has been described as a Fluxus artist; before that she was considered a sculptor. She is not usually included in survey exhibitions of the Fluxus movement; cf. *Fluxus at 50*, exh. cat. Wiesbaden, Museum Wiesbaden, 2012 (Bielefeld: Kerber, 2012). Wulf Herzogenrath used the more general expression "performances" for the events in Bauermeister's studio, and he observes that they created the "art metropolis of Cologne" in the first place; Wulf Herzogenrath, "The Birth of the Art Metropolis Cologne in 1960 in the Studio of Mary Bauermeister," in *Worlds in a Box* (see note 38), 145–48.

later called Fluxus or Neo-Dada"; on the other hand, he describes Bauermeister's own artistic work independently of those art movements.[92]

As an organizer Bauermeister was in contact with George Maciunas, a decisive Fluxus spokesman; a concert under Maciunas's aegis was planned in her Cologne studio but never came to pass. In his often extremely polemical manifestos Maciunas writes, among other things, of rejecting aspects of professionalism of art and its commercialization that he hoped would achieve a living, universal understanding:

> "The 'anti-art' forms are directed primarily against art as a profession, against the artificial separation of a performer from [the] audience, or creator or spectator, of life and art; it is against the artificial forms or patterns or methods of art itself."[93]

Strategies associated with Fluxus such as collective authorship, the marginalization of the (art) object to the point of its dissolution, a reduction that is based on everyday actions and simple gestures or that makes a social utopia of participation possible, while blurring the lines between "art and life," are all inapplicable to Bauermeister's oeuvre.[94] She incorporates quotidian materials as a means of composition but does not use that to critique the uniqueness of the concept of art.

Bauermeister has remained a visual artist. She appropriates elements from other disciplines, for example, from music, literature, and philosophy, but transfers them into the context of her own profession. In doing so she certainly pursues an "integrative concept" when creating her works of art and according challenges categories of media and disciplines.[95] The individual elements do not, however, synthesize into a new understanding of unity beyond the supposed dichotomies of

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92 See Wulf Herzogenrath, "1960: Mary Bauermeister," in *Deutschland: Globalgeschichte einer Nation*, ed. Andreas Fahrmeir (Munich: C. H. Beck, 2020), 710–14, esp. 712.

93 George Maciunas, "Neo-Dada in Music, Theater, Poetry, Art" (1962), in *Art in Theory, 1900–2000: An Anthology of Changing Ideas*, ed. Charles Harrison and Paul Wood (Oxford: Blackwell, 2003, 727–29, esp. 729.

94 See Dorothee Richter, *Fluxus: Kunst gleich Leben? Mythen um Autorschaft, Produktion, Geschlecht und Gemeinschaft* (Ludwigsburg: On Curating Publishing, 2012), 15–93. Bauermeister is mentioned here as one of the early meeting places, but her work is not addressed; ibid., 75–76.

95 See Joachim Paech, "Intermedialität: Mediales Differenzial und transformative Figuration," in *Intermedialität: Theorie und Praxis eines interdisziplinären Forschungsgebiets*, ed. Jörg Helbig (Berlin: Erich Schmidt, 1998), 14–30, esp. 17. The description of an explicit intermediality does not seem appropriate either, since here "a large number of these reciprocal effects between apparatuses of dispersal, processes of symbolizing, codes of communication, and physical media" would be necessary to operate from an "in-between space" that itself encourages a media development; Michael Manfé and Josef Paier, "Facetten der Intermedialität: Eine mediologische Annäherung," in *MedienJournal Intermedialität: Positionen und Facetten* 31, no. 4 (2007): 5–16, esp. 6–10.

art and life. Even the Lens Boxes should still be analyzed in the line of tradition of painting and sculpture. Concerning the use of elements from musical composition such as notation, the difference between Bauermeister's strategies and those of the Fluxus movement are even clearer: the brief instructions of Brecht, Ono, and Young are easily implemented and a challenge to the performers. *Malerische Konzeption* is a complex condensation of interwoven parameters whose implementation is unrealistic and was not the artist's focus.

3.4 (Many-Valued) Combinations

One example of a cumulation of the combination principle is the *Sand Stein Kugel Gruppe* (Stand Stone Sphere Group) of 1962 (fig. 26). It was conceived as a nine-part work but only seven of its parts are presented today. The original conception is found in Bauermeister's sketchbook from that period, in which the work is still called *Sandbildgruppe* (Sand Picture Group).[96] The arrangement of all its elements is variable, or at least that was Bauermeister's original intention; its current form of presentation took shape after just a few years.[97]

Against the backdrop of the combination principle, the combining of materials and techniques and their arrangement on the parts of the picture are significant. The elements open up a perspective on Bauermeister's previous working methods and how they are combined: the point structures occur repeatedly, for example, in ordered black and white points on a square section at top right or as points, circles, and wooden spheres on the left element of the picture. On the main picture, one sees several round cutouts of various sizes made with the technique Bauermeister

96 See Bauermeister, "Skizzenbuch/Quaderno" (see note 1), 34–36. Each of the nine parts is written on individually. The sketches with the originally intended arrangement show that only five of the planned parts have survived or been executed. The two smaller objects, which today hang on the right, were not planned initially. It is no longer possible to reconstruct whether Bauermeister did not execute all nine parts, some were lost, or in the process of realizing the plan she had already decided on two different elements. The section of the picture described as I.8 at least exists as a work but has not remained in the *Sand Stein Kugel Gruppe*. Exhibition photographs from 1962 show that the work was presented in seven-parts; the accompanying exhibition catalog illustrates the nine parts planned in the sketchbook; to do so, the two missing elements were graphically cut our of other works, reworked, and inserted; see *mary bauermeister (schilderijen) & karlheinz stockhausen (electronische muziek)*, exh. cat. Amsterdam, Stedelijk Museum, 1962.

97 The work *Sand Stein Kugel Gruppe*, the placement of its separate parts, and the connections to Stockhausen are a focus in Skrobanek's dissertation; see especially the interview with Bauermeister on the work; see Skrobanek, "Die Jacke Kunst weiter dehnen" (see note 38), 186–90 and 219–20.

applied in *Konstruktiver Tachismus*, among other works: that is, a deliberate introduction of a phase in her work that was already over at that time. The honeycomb technique is also found again in the section above the main picture; relief-like structures were formed here with Bauermeister's modeling compound.

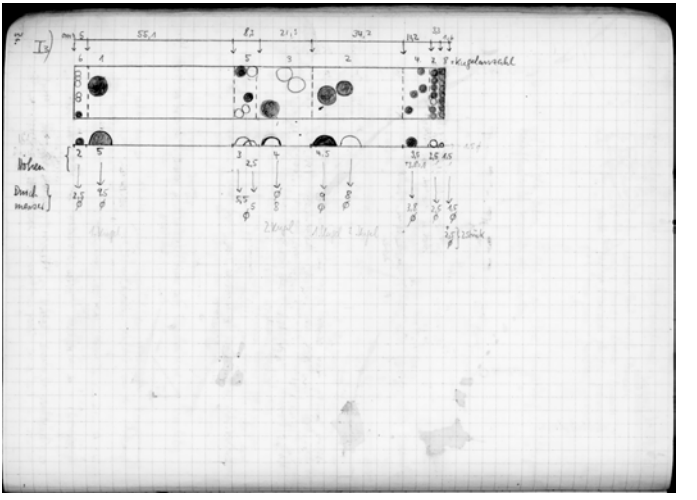
Fig. 26: Sand Stein Kugel Gruppe, 1962, modeling compound, casein tempera, stones, ink, sand, wooden sphere, glass sphere, natural objects on canvas and wood, 218.4 x 261 x 9.5 cm, Michael Rosenfeld Gallery LLC, New York, NY.

The thinking in rows that defines the composition techniques of dodecaphony and total serial music and the Fibonacci sequence are contained in the long section on the left. In her sketchbook she describes very precisely the structure, numbers, and proportions (fig. 27).[98] The strip is divided into eight numbered sections; the numbers are first placed in an arbitrary series (6, 1, 5, 3, 2, 4, 7, 8). Then each number was assigned a value from the Fibonacci sequence. The lowest number has the highest value in the series, and it indicates in centimeters how wide the section should be. Accordingly, the number 6 has the Fibonacci value 5 centimeters; 1 is 55.1 centimeters; 5 is 8.5 centimeters, and 3 is 21.3 centimeters. The number after the comma indicates the number of rows; it also corresponds to the number of wooden spheres inserted in that section. That is not always strictly followed, for example, the first

98 See Bauermeister, "Skizzenbuch/Quaderno" (see note 1), 36.

section (6) contains six spheres, but the value indicated is just 5 and not 5.6.[99] The next row formation is the height of the spheres and their diameter; both are also recorded in writing and drawing; here Bauermeister is striving for the multidimensional thinking in rows of total serial music. It becomes an extension of the "simple" assignment of numbers and a value from the Fibonacci sequence that indicate centimeters and number of spheres, and twelve-tone music can still be seen as a point of reference. Deviations from the exact construction of rows, which can already be observed in the distribution of the planes, appear to be a break that Bauermeister employs consciously. Occasional variations are built into it to keep from falling too much into a codified dogmatism. Moreover, the compositional appearance is just as important as the approach in the artistic process—conceptions are always implemented with the visual result in mind.

Fig. 27: Skizzenbuch/Quaderno, 1961–1963, unpublished source, paginated by the artist, p. 36.



Bauermeister chose sand as the material in all the sections of the painting; it is a material that she uses in the 1960s much as she used pastel in the 1950s: to create monochrome planes, structured transitions, and isolated, abstract patterns. The element composed of stones is the first employed exclusively for a self-contained

99 In the Fibonacci values, drops the one and the two that in fact belong to the sequence; moreover, the pendant to 4, which according to the system suggested should actually be 13,4, is listed as 11,2. The reason for this is not clear; it shows, moreover, that Bauermeister deliberately integrated deviations.

section. Later she will produce numerous pure stone pictures; previously the small stones were simply one material for compositions that Bauermeister used in 1960 and 1961. The *Sand Stein Kugel Gruppe* is thus not only a bringing together of the combination principles but also a transition to a new group of works.

Chance and Indeterminacy

Additional elements employed by Bauermeister using the combination principle concern chance and indeterminacy. Both concepts had a strong influence on the circle of artists who met in Bauermeister's studio. Accepting methodic change in the creation of art is not possible according to Hans Ulrich Reck; there are at best "strategies of outwitting" that can increase "potentialities" and "contingencies."[100] Chance or incorporating aleatoric elements into a composition merely says that certain results of a process cannot be completely anticipated.[101] This methodical use of chance processes is found often in details of Bauermeister's oeuvre. She did not create a complete artistic work by means of a predetermined process that participates in the creation of chance. The chance is integrated, for example, when it occurs during artistic activity: spilled paint, dripping glue, or stains are not removed but integrated into the composition and often also commented out, pointing out their chance origin. In addition, the lenses have an inherent potential for chance: although they were composed by Bauermeister and repeatedly compared in the process of creating the work, not all eventualities about what the cutouts will look like in the composition can be determined in advance. Especially where there are several layers of glass in the Lens Boxes influencing one another, the viewers are constantly changing their focus in the act of reception.

The term "indeterminacy" was initially adopted by Bauermeister from John Cage, especially from his lecture at the Darmstädter Ferientage für Neue Musik in 1958.[102] In it Cage analyzes musical compositions of his own and by others, differentiating which aspects cannot be spoken of as indeterminacy and to which extent they suit his views of the terms: "Indeterminacy when present in the making of an object […] is a sign not of identification with no matter what eventuality but simply of carelessness with regard to the outcome."[103]

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100 See Hans Ulrich Reck, "Aleatorik in der bildenden Kunst," in *Die Künste des Zufalls*, ed. Peter Gendolla and Thomas Kamphusmann (Frankfurt am Main: Suhrkamp, 1999), 158–95, esp. 184–91.

101 See ibid., 166; see also Holger Schulze, *Das aleatorische Spiel: Erkundung und Anwendung der nichtintentionalen Werkgenese im 20. Jahrhundert* (Munich: Wilhelm Fink, 2000), 26–36.

102 The section "Indeterminacy" was the second part of the three-part lecture "Composition as Process"; John Cage, "Composition as Process. II. Indeterminacy" (1958), in Cage, *Silence: Lectures and Writings* (Middletown: CT: Wesleyan University Press, 2011), 35–40.

103 Ibid., 38.

It is not permitted to alter the result at the end of an indeterminate process. When performing a composition that works with indeterminacy, a singular event therefore results.[104] In the prologue we already cited Paik's statement that Bauermeister managed to introduce indeterminacy into the medium of painting; in the same text he continues that Cage, Jean-Paul Sartre, and Werner Heisenberg each did so in his own profession: "Imagine the niche carved for Mary in art history."[105] Paik does not identify any specific examples of indeterminacy in his text; before that statement he refers to several "experiments" by Bauermeister, such as the so-called Phosphorous Pictures, works created using Bauermeister's point technique. The paint is replaced by a phosphorous material, which under ultraviolet light first reacts by changing color, stores energy, and then remains fluorescent for an unpredictable time (fig. 28). The process of the composition slowly faded can be considered indeterminate—even though that is just one aspect of these works.

The *Sand Stein Kugel Gruppe* suggests indeterminacy because it is possible to choose freely the arrangement of the individual parts of the painting. Although it is possible to put the elements in a different arrangement Bauermeister drew on position in the sketch, which has since changed only minimally. *Malerische Konzeption* seems to work more comprehensively with indeterminacy. The individual parameters are precisely specified as are the possibilities of combination and the potential of 36, but the (visual) "event," as it is called in the plan, is not crucial. The focus is rather on the concept of bringing several steps together; it is not the fault of indeterminacy that they cannot be exactly implemented but it is part of the spectrum of the concept. To a lesser extent the Magnet Pictures can also be considered in this way. The composition is not predetermined by their structure, at least not within a certain frame. The two documents on the Magnet Pictures undermine this effect in turn: because the compositions for a distribution of the picture areas can be described exactly, indeterminacy is removed from this starting position.

104 See ibid., 39. On distinguishing chance and indeterminacy in Cage's oeuvre, see Barbara Nierhoff-Wielk, "'A purposeful purposelessness': Zufall in der Kunst von John Cage," in *"John Cage und …": Bildender Künstler; Einflüsse, Anregungen*, ed. Wulf Herzogenrath and Barbara Nierhoff-Wielk, exh. cat. Berlin, Akademie der Künste, 2012; Salzburg, Museum der Moderne, 2012 (Cologne: DuMont, 2012), 254–70.

105 Nam June Paik and Mary Bauermeister, *Letters Mary Bauermeister*, ed. Sang Ae Park (Yongin: Nam June Paik Art Center, 2015), 162.

Fig. 28: Rotglühend, 1961, fluorescent color on canvas, 200 x 50 cm, Mary Bauermeister Art Estate.

That indeterminacy on microlevels can be found continuously in Bauermeister's oeuvre from around 1960 onward is probably not due exclusively to Cage's influence. The artist herself referred to a book by the German physician Viktor von Weizsäcker on biological views of time and form.[106] For him indeterminacy is a "rule-based uncertainty" of nature.[107] Something not predetermined and chance together form a "methodological indeterminacy," which must be introduced as the normal case: "As long as an event lies ahead, it is undetermined; once it has happened, then it is determined."[108] Rules can only be derived in retrospect, when an event has already occurred. That an event of whatever sort will occur is already expected; its occurrence methodologically anticipated. Von Weizsäcker's descriptions also combine a view of chance that is used as a void without it ever being possible to be completely random with Cage's understanding of indeterminacy, which is focused more on the process than the result.

The mediations of materials that Bauermeister conducted in her sketchbook could be described as indeterminant, but they are never carried out in such strictness. In Bauermeister's work, the theoretical concept is always distinct from the result, since the process of execution contains its own dynamic. In her works the distinction of chance and indeterminacy is not fully possible, because von Weizsäcker forges links between the two concepts. It is, however, possible to distinguish a (chance) mishap while working that Bauermeister then incorporated into the work from a conscious (indeterminant) gesture or conception of the work that completely accepts the visual result. Against this horizon, the placing of wooden and glass spheres in the main picture of the *Sand Stein Kugel Gruppe* can be indeterminant or chance: depending on whether Bauermeister let them roll on the canvas and then glued them were they stopped or they fell and obtained their positioning that way.

(Many-Valued) Combination Principle

If several of Bauermeister's forms of expression are traced back to their origin, where they usually occur alone, it becomes clear that they usually determined an entire group of works for a brief time. Thereafter the transition goes into the arsenal

106 See Viktor von Weizsäcker, *Gestalt und Zeit* (1942; Göttingen: Vandenhoeck & Ruprecht, 1960). A publication by a German physician in 1942 calls for general concern about his relationship to National Socialism and the party. Although Weizsäcker was close to National Socialism and subject to the rehabilitation process after the war, scholars have not been able to identify any "race-based" argumentation in his book; see Cora Penselin, "Bemerkungen zu den Vorwürfen, Viktor von Weizsäcker sei in die nationalsozialistische Vernichtungspolitik verstrickt gewesen," in *Anthropologische Medizin und Sozialmedizin im Werk Viktor von Weizsäckers*, ed. Udo Benzenhöfer (Frankfurt am Main: Peter Lang, 1994), 123–37.

107 See Weizsäcker, *Gestalt und Zeit* (see note 106), 21.

108 Ibid., 22–23 and 25.

of possibilities that can result in a work. In the combination principle, then, various techniques and materials can be employed for a work on equal footing.

A large number of examples can be cited to clarify this course: The works *Flächen Gefaltet* (Planes Folded) of 1962 and *Sandwaben* (Sand Honeycombs) of 1963 both combine the point technique, the use of stones as a compositional means, line drawings, and the honeycomb technique; in addition, the monochrome properties of sand are used. *Flächen Gefaltet* also includes cut straws and an insect shell on the surface of the picture (fig. 29). The two sections that hang down into the exhibition space undermine the standardized form a two-dimensional support, on the one hand, and encourage changing the conventionalized reception of art, on the other, since the form adapts to one corner of the floor.[109]

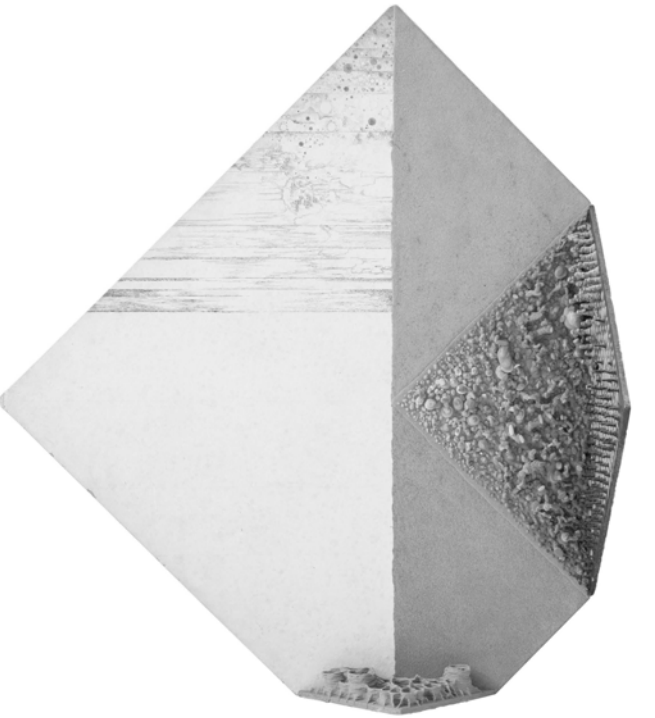
Integration of 1964 and the Lens Boxes *Four Quart-er-s* of 1965 already represent an extension of the combination principle, since many-valued logic is already integrated in them. In their details both works also clarify the difference that results from the development of the many-valued aesthetic. *Integration* not only combines different techniques but also takes up other works and integrates them as well: on the surface of the painting round cutouts of reproductions of the works *Rechts Draussen* (Outside on the Right), *Ordnungsschichten* (Ordering Layers), *Felder und Zentren* (Fields and Centers), *Sandhalme* (Sand Straws), and *Progressions* have been inserted. These works created between 1961 and 1963 are worked into the group so that in some places they fuse. The delicate lines and point structures of *Ordnungsschichten* are continued outside the reproduction on the support of *Integration* or complete a drawn quarter wooden sphere into a hemisphere, as if the older work were a cast shadow within the newer one.

Not only are reproductions of her own works inserted but old techniques are also imitated. In the section consisting of straws glued on there are round open areas that Bauermeister has painted in her early style suggestive of Tachisme. They contrast with the inserted reproductions and accurately drawn circles, some of which are beginning to break up. The earlier technique seems like a foreign body in the new work and clarifies evolution and connectedness: the painting style should be imagined as the foundation in the works that follow as well, but it is no longer combined with other techniques in a homogenous-looking composition but rather contrasts in a juxtaposition. It is, moreover, an aspect of many-valuedness; not only are older, already executed works contained in the works now being executed and hence visualized at the same time, but the general painting style, which cannot be assigned to a specific work of art she has produced, is also reflected in it. The reproductions of the stone picture *Progressions* can also be interpreted similarly; the photographed material stone is inserted into a conglomerate of drawn and real stones. The three

109 In the first exhibition in which *Flächen Gefaltet* shown, at the Stedelijk Museum in Amsterdam in 1962, it was presented in this way.

forms of visualization offer different perspectives on an element that is held by identity of reflection in a position of metaphysical suspense. They are different facets of one material that can, according to the many-valued aesthetic, also by changed by the object itself.

Fig. 29: Flächen Gefaltet, 1962, plastic straws, casein tempera, sand, graphite, beetle, ink, stones on wood, 123 x 106 x 37 cm, Mary Bauermeister Art Estate.



In *Four Quart-er-s*, processes can be identified that point in a comparable direction (fig. 30): The background of the Lens Boxes contains not only a reproduction of *Ordnungsschichten* but also diverse cutouts from the *Needless Needles* light sheet. This networking of works is supplemented by round areas of the black-and-white (Tachiste) point technique of the 1950s. This special section in the point technique should not be thought of in the horizon of the combination principle, since Bauermeister strives for a homogeneous composition in all works based on the combination principle—for example, in *Sandwaben* the techniques are adjusted to one an-

other and not deliberately contrasted. *Four Quart-er-s* still participates in the idea of bringing together individual elements in a combination, but many-valued logic is added in the execution. The (metaphysical) extension of the visual has become more important than a (homogeneous) reuniting of techniques.

Fig. 30: Four Quart-er-s, 1965, ink, offset print, glass, glass lens, wooden sphere and painted wood construction, 76.2 x 76.2 x 12.7 cm, Collection Albright-Knox Art Gallery, Buffalo, New York; Gift of Seymour H. Knox, Jr., 1968 (K1968:15).

Both works—*Integration* and *Four Quart-er-s*—have parts designed by indeterminacy, as Bauermeister understod the concept following Cage and von Weizsäcker. In an open area the artist made uncontrolled strokes. She then worked the interwoven and interrupted lines into the composition by drawing small points and circles that connect the lines or turns several round structures into faces. This methodic chance and spontaneous gesture, which are indeterminant with regard to the result, are thus redesigned as a determinant event in a retrospective process.

The transition from designing the work using the combination principle to many-valued aesthetics is formulated in a lecture on contemporary art that Bauer-

meister gave in the summer of 1962 in Jyväskylä, Finland.[110] The text was written in German and was translated by an interpreter; to illustrate it Bauermeister showed around eighty slides of her own works and of works by other artists.[111]

The lecture also reveals aspects of Bauermeister's conception of art: in her view, artists of the first half of the twentieth century prepared the ground with "abstraction, reduction, destruction, simplification" for her and her contemporaries to "take these achievements as an obvious point of departure"; today the focus should be on "complexity, differentiation, diversity of relationships."[112] Bauermeister speaks in this context of "combinations" or "attempts to link" as being essential and explains this using the example of the *Sand Stein Kugel Gruppe*. The "combining" or "linking" of "elements" always leads to ever-different "optical forms," whereby "style" can be avoided. Bauermeister mentions here Bense's "information theory" as well as its essential concepts of "pattern, model, and schema"[113]: "In every process that produces art there is a physically determined repertoire of material elements (such as colors, sounds, syllables, tones, and such means in general) that is selectively creatively converted into a medium of aesthetic states by means of a code of semantic determination that is capable of communication."[114]

Every statement by Bense seems to be appropriate for a specific point in time in Bauermeister's career—but in a specific understanding of it. The artist did not refer to Bense's semiotic understanding in her works and statements but instead to the concept of the "repertoire" and how its "manipulated distribution" could make an extension of aesthetics possible.[115] As with Günther, she appropriated and in part reinterpreted his theoretical statements. Bense tries to describe the process of artistic production: For him, "the *infinite schema* of probability distribution," which he also calls the "repertoire," has to be "converted into an innovative, original order in the aesthetic, artistic process."[116] Initially, there is a "chaogenetic" disorder in the as-

110 This lecture is preserved in the archive and consists of six handwritten pages; Mary Bauermeister, lecture on contemporary art, Jyväskylä, Finland, summer 1962, unpublished source, pp. 1–6.

111 The selection shows that Bauermeister was very well informed about the field of contemporary art. She discusses only male artists; by Bauermeister's own account, it was difficult to get illustrations from female artists. The eighteen artists are all from North America or Europe and, although many of them were still at the beginning of their careers then, they have all entered the art historical "canon." None of the artists treated were ever present in Bauermeister's studio on Lintgasse and were at that time, if at all, at best superficially known to Bauermeister personally. Her friendships with Jasper Johns and Robert Rauschenberg, for example, began only after moving to New York.

112 See ibid., 1. All of the quotations that follow are from the lecture, pp. 1–2.

113 See ibid.

114 Bense, *Einführung in die informationstheoretische Ästhetik* (see note 15), 289.

115 See Bense, *kleine abstrakte ästhetik* (see note 22), 422–23.

116 Bense, *Einführung in die informationstheoretische Ästhetik* (see note 15), 270–71.

sembled repertoire; using the "creation schema," this is then brought into aesthetic states that Bense describes as "states of order."[117] Bauermeister's appropriations of these descriptions contributed substantially to the combination principle: Whereas Bense strives to find a formula to describe works of art and the process of their creation that is as universally valid as possible, Bauermeister took parts of his discussions, with which she was clearly familiar, and reinterpreted them for her concerns: "Points, strokes, text are for me elements that I utilize; whether to use found, natural, or artificial material is decided anew for each composition."[118]

Toward the end of the lecture Bauermeister then formulates the transition to many-valuedness and its interpretation. Works of art are not tied to "natural consequences": "What interests me is showing several solutions that in reality contradict each other and stand side by side in the painting more or less peacefully."[119] Then she speaks of the "dualism of Aristotelian logic," of which she explains that "if something is not x, it cannot be not x at the same time," and this view is no longer "valid."[120]

The combination principle is applied not only within one work of art but can even include entire spaces and also art by others; this becomes clear in Bauermeister's first institutional solo exhibition at the Stedelijk Museum in Amsterdam. The museum's director at that time, Jan Willem Sandberg, invited her for the summer of 1962, and they came up with the idea of supplementing the presentation with compositions of electroacoustic music conducted by Stockhausen.[121] In her sketchbook Bauermeister planned a spatial concept intended to bring her works together into a combination with the music as an additional level that would be played back throughout the duration of the exhibition: the individual works of art have, according to Bauermeister, an "area of radiating out and one of radiating in," by which she means that a point picture and a straw picture can be seen together in spatial proximity, so that even if each one consist of just one technique, it is nevertheless possible to bring them into a connection of combination.[122] The combination takes on in this case a temporary dimension, since the individual works of art, the great majority of

117 Ibid., 289–91.

118 Bauermeister, lecture in 1962 (see note 110), 5.

119 Ibid.

120 Ibid., 6.

121 Jan Willem Sandberg became aware of Bauermeister when the German music critic Dirk Leutscher gave him a copy of *Malerische Konzeption*, and he then contacted Bauermeister. The exhibition at the Stedelijk Museum in Amsterdam went on a tour that took it to the Stedelijk van Abbemuseum in Eindhoven, the Stedelijk Museum Schiedam, and the Groninger Museum from 1962 to 1963. The composers whose works were performed included, among others, Stockhausen, Henri Pousseur, Mauricio Kagel, Luciano Berio, György Ligeti, and Bruno Maderna; *mary bauermeister (schilderijen) & karlheinz stockhausen (electronische muziek)* (see note 96), n.p.

122 On the spatial concept for the exhibition, see Bauermeister, "Skizzenbuch/Quaderno, 1961–1963" (see note 1), 23–27 and 47–48. Bauermeister had also planned to paint the floor

which were produced using the combination principle, are related to one another for the duration of the exhibition and expanded by means of the aesthetic products of others—various pieces of music: the entire exhibition space can thus be understood as the result of a combination.

The catalog for the traveling exhibition includes a Dutch translation of a text by Stockhausen on Bauermeister's works; in it he analyzes her works of visual art using terminology for music.[123] Stockhausen describes the radical equality of forms and elements in Bauermeister's art and relates it to his own compositional approach. That several works of art pointedly refer to techniques of musical composition has already been described; beyond that, however, there are a large number of influences that were all introduced into a system of combination and networking; merely using the parameter thinking of serial music would be too simple. The techniques, styles, and materials preferred by Bauermeister and several multimedia or transdisciplinary approaches were also applied singly in the 1950s, sometimes over an extended period of time, and entire groups of works resulted in that way.

After 1962, the combination principle did not disappear but fed into the composition as one part. Many-valued logic cannot, however, be seen as another part of the combination principle; rather, it causes a completely new category to emerge, one that is influenced above all by previously developed techniques and is described there as her many-valued aesthetics. From this point forward, Bauermeister was concerned with depicting a reality based outside of the logical principles of Aristotle and no longer with bringing together forms of artistic expression in ever-new combinations.

The materials used are of particular importance; this becomes especially clear from the fact that the mediations on materials are the only application of the combination principle that is laid out completely in her sketchbook. This is joined by her employment of a wide range of materials, including traditional artistic ones and those foreign to art. The relevant works, which combine synthetic and natural materials to create their horizon of meaning, were produced in the years after 1961. Works such as *Flächen Gefaltet* and the *Sand Stein Kugel Gruppe* are the earliest examples. These dimensions in Bauermeister's oeuvre still build on the combination principle and are at the same time another aspect of many-valued aesthetics.

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so that the footprints of the viewers would create a connection between the paintings in the room, but this was never realized.

123 In the exhibition catalog, this text was titled "nieuwe formen" (new forms); it was published in German in Velte, "Mary Bauermeister: Das Werk" (see note 26), V–XIV, esp. IX–XI. Its final sentence—"Bilder, die keinen Lärm machen" (Pictures that make no noise)—is challenged by Noy; see Noy, "Art That Does Make Noise?" (see note 38).