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Colorful Dialogue:

Vilém Flusser, Karl Gerstner, and *Casa da Cor*

Might it be that colors were assigned secondary
status because little was known about them?[1]

Karl Gertstner

In 2022, a group of interdisciplinary researchers published a paper arguing that the current mathematical models demonstrating how the eye perceives color, introduced a century ago by Bernhard Reimann and furthered by Hermann von Helmholtz and Erwin Schrödinger, are not correct. Using a hybrid of biology, psychology, and mathematics, the contemporary researchers argued that a paradigm shift in color mapping that would affect everything from computer imaging and processing to digital storage and energy consumption.[2] Vilém Flusser, I imagine, would have relished this information. It confirms what he and his cohorts in the *Casa da Cor* (House of Color) project in the 1980s claimed: that color was an overlooked but important part of human culture and its impact and effects needed to be examined and recodified. In this regard, his dialogues with Karl Gerstner, a Swiss artist, designer, author and color expert, served as a significant chapter in Flusser's engagement with color. One can see the effects of his dialogue with Gerstner throughout the 1980s, from his essays in *Artforum* and *European Photography* to his philosophy of design. Like Flusser, Gerstner was interested in everything from television to typography, mass communications to information aesthetics, and the merger of art and science. He was a formidable interlocutor who, expanding on Max Bill's ideas, fundamentally changed printed writing: the unjustified, ragged-right text in typography was his contribution, as well as the idea that the *form* of a text conveyed messages and information. Gerstner's painting practice, carefully

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[1] Karl Gerstner, "The Color-Form Continuum," in *The Spirit of Colors: The Art of Karl Gerstner*, ed. Henri Stierlin (Cambridge, MA and London: MIT Press, 1984), 187.

[2] Roxana Bujack, Emily Teti, Jonah Miller, Elektra Caffrey, Terece .L. Turton, "The non-Reimannian nature of perceptual color space," *Proceedings of the National Academy of Sciences* (PNAS), ed. Brian Wandell (Stanford University), received October 28, 2021; accepted March 13, 2022, www.pnas.org/doi/pdf/10.1073/pnas.2119753119. A mathematical model that better predicts human distinction between colors would allow, for instance, manufacturers of video imaging to discard data and save significant bandwidth – for instance, as much as 15% of the estimated 500 million GB of video streamed by Netflix each day in 2019. See Jesus Dias interview with Roxana Bujack, *Fast Company*, August 22, 2022, https://www.fastcompany.com/90780869/it-could-take-20-more-years-for-scientists-to-truly-understand-color.

theorized in his writings, several books of which are in the Vilém Flusser Archive in Berlin, is yet another key to understanding Flusser's thinking about color, design, technical and synthetic images, and culture in the information age.

Designing Programs / Programming Design

Gerstner was born in Basel, Switzerland in 1930 and spent the early part of his career working in design, after studying with Emil Ruder at the Allgemeine Gerwerbschule (General Trade School) in Basel. He was part of a wave of Post-World War II Swiss graphic designers including Max Bill, Ruder, and Josef Müller-Brockmann who championed clarity, neutrality, objectivity, and the purported anonymity of the designer (despite later calls for its impossibility). The other major contribution was the idea of transforming earlier avant-garde ideas into formal methods, systems, and "programs."

In the late fifties, he cofounded Gerstner + Kutter (later GGK, Gerstner Gredinger Kutter) with public relations specialist Markus Kutter in Basel. The firm created advertising campaigns and corporate identities for Geigy, Swissair, Citroën, Ford, and IBM, and his systems-based approach was laid out in *Designing Programmes: Instead of Solutions for Problems, Programmes for Solutions* (1964), a collection of four essays that became a cult classic.[3] The idea was that computation could be mapped onto design – but also that design, such as Gothic cathedral windows, had always followed the logic of programming and permutation.[4] Designing meant picking out determining elements and combining them, Gerstner wrote, and a tool for doing this was using what he called a "mobile grid" for arranging text and image. "The grid is a program *par excellence*," he argued, an "almost inexhaustible as a program."[5]

These ideas were being articulate throughout Euope. In 1962, the Italian designer Bruno Munari had organized *Arte Programmata*, an exhibition with "art generating machines" for Olivetti, the typewriter manufacturer turned information technology company. In the catalogue, Munari argued that programmed art resulted in a "multitude of images in continual variation" – or "mutations" – rather than a single, subjective image.[6] Umberto Eco also contributed to the catalogue, formulating his idea of the "open work," influenced by the information theory of U.S. mathematician Claude Shannon,

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[3] Karl Gerstner, *Designing Programmes* (New York: Hastings House, 1964). See also *Graphic Design Theory: Readings From the Field,* ed. Helen Armstrong (New York: Princeton Architectural Press, 2009), 58.

[4] Later, influenced by the Swiss mathematician Andreas Spieser, Gerstner would explore the Islamic and Egyptian ornament.

[5] Gerstner, *Designing Programmes,* 12.

[6] From the *Arte Programmata* catalogue, quoted in *Digital Design Theory: Readings from the Field*, ed. Helen Armstrong (New York: Princeton Architectural Press, 2016), 11.

and which he saw offering "fields of possibility" to the artist. (Gerstner even saw photography in this light, in *Designing Programmes*: the way that a car is photographed from different angles were part of a phenomenological program: two eyes moving around inside a moving body.) Like several of the *Arte Programmatia* participants, Gerstner was involved in New Tendencies, the 1960s Zagreb-based publishers of *bit international* who saw research and the computer as a medium for artistic innovation.[7] Programmed art was seen by these artists as, paradoxically, *more* free and subjective. Gerstner wrote: "The criterion: the more universal the formula, the more original the picture. The more versatile its unity, or the more uniform its versatility, the more it can convey to the viewer as an object of the most personal perceptions."[8]

Writing, Typography, and Textolatry

Flusser was also impacted by Gerstner's work as a typographer. Drawing initially from Max Bill's ideas, Gerstner's *The New Graphic Art* (1959) offered a book-length analysis of text and image, starting with shop signs in which there was no text and moving into sophisticated twentieth-century design. Gerstner was interested in how surfaces and lines were handled (obviously a Flusser concern, recalling his seminal 1973 essay "Line and Surface"), but in an applied way: in advertising, posters, books, album covers, and a world in which style and messages were being globally transmitted and received.[9] "The street becomes a picture gallery"[10] He wrote, emphasizing the democratic nature of design – as well as its collective process, with an art director, graphic designer, and typographer. Gerstner's examples included avant-garde practitioners like El Lissitsky, neo-plasticism, the Bauhaus, Man Ray, Jan Tschichold, Herbert Beyer, and Max Bill, and his argument was that the *form* of a text message

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[7] See Karl Gerstner, "What is the Nouvelle Tendance?" in *A Little-Known Story about a Movement, a Magazine, and the Computer's Arrival in Art. New Tendencies and Bit International, 1961–1973*, 162-163. Gerstner originally wrote the text for an exhibition at the Palais du Louvre, Paris in 1964. See Karl Gerstner, "Qu'est que la Nouvelle Tendance?" in *Propositions visuelles du mouvement international Nouvelle Tenance,* exhibition catalog, Musée des Arts Décoratifs, Palais du Louvre, Pavillon de Marsan, Paris, 1964.

[8] Karl Gerstner in *A Little-Known Story about a Movement, a Magazine, and the Computer's Arrival in Art. New Tendencies and Bit International, 1961–1973*, ed. Margit Rosen, exhibition catalogue, Neue Galerie Graz am Landesmuseum Joanneum, Graz, and ZKM, Center for Art and Media Karlsruhe, ZKM (Karlsruhe, London, and Cambridge, MA: MIT Press, 2011), 82. Elsewhere, Gerstner asserted that "our goal is to make you a partner. Our art is based on reciprocity. It does not strive after perfection. It is not definitive; it leaves the space between the work and you permanently open. More precisely, our art relies on your active participation." Gerstner, "What is the Nouvelle Tendance?" in in *A Little-Known Story about a Movement*, 163.

[9] Karl Gerstner, *Die Neue Graphik.The New Graphic Art.Le nouvel art graphique* (Teufen, Switzerland: A. Niggli, 1959). See Vilém Flusser, "Line and Surface," *Writings,* ed. Andreas Ströhl (Minneapolis and London: University of Minnesota Press, 2002), 21-34; originally published in *Main Currents in Modern Thought,* Vol. 29, No. 3 (1973): 100-106.

[10] Gerstner, *The New Graphic Art,* 100.

conveyed information. Optics and form were central to the *sans serif* typeface Gerstner championed in *Designing Programmes* – and would be important in his color theory. Clarity, readability, and avoiding monotony were the goals in typography, for important reasons. Eerily echoing Flusser's later thoughts on the "universe of technical images" and the *Bilderflut* (image flood) of photographs, Gerstner wrote that "as the flood of printed matter grows in volume, copywriters and typographers must look for ways and means of making what printed easier to read. The typeface is the medium of communication and typography the packing."[11] Individual characters, or letters, were the "elementary particles" of the written language, and the typographer's aim was to make a cohesive whole out of the parts.

Flusser, likely impacted by Gerstner, wrote about typography near the end of his life. Typically, he approached the word etymologically and as a philosophical rather than applied task. However, his conclusions were similar to Gerstner's. In the essay "On Typography," Flusser considered Gutenberg, with whom he saw typography suddenly existing in abstract form: the handling of linguistic "symbols" as objects and units of information.[12] Humans had surpassed the contemplation of forms and were now engaging in the *manipulation* of forms. Late in the essay, Flusser ruminated on the origins of the word, examining the Greek *typos* as a "trace" and *graphein,* "to engrave" or "to print," resulting in a pleonasm: a term that used too many words to describe its meaning. "What we write down (the types we engrave), are not really traces left by the world, but traces of the way our own thinking functions. (That we do not discover the so-called 'laws of nature,' but that we project the rules of our way of thinking into the world, and then re-discover them and call them 'laws of nature')."[13] From his perspective, the "present crisis of typographical thinking" was not whether to use serif or sans serif typeface – one of Gerstner's big concerns – but the fact that abstract thinking was being pushed to the "particle" level, ultimately resulting in the disappearance of text. Typography, in other words, was instrumental in pushing writing towards extinction.[14] However, in a later lecture for the Typographic Society in Munich in 1991, Flusser argued that typographers could affect this demise: working on the

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[11] Gerstner, *The New Graphic Art,* 34.

[12] Vilém Flusser, "On Typography," manuscript in English in the Vilém Flusser Archive, Berlin. See also "Typography" in *Flusseriana,* 420-422 (see also http://www.flusserstudies.net/sites/www.flusserstudies.net/files/media/attachments/flusser-on-typography.pdf)

[13] Flusser, "On Typography," 4.

[14] "Modern scientific thought, brought about by typography and expressing itself typographically, is about to be overcome by post-modern, post-scientific thought, brought about by electromagnetic images and expressing itself, (as yet very tentatively), in those images. This transition from one mentality to another will no doubt be at least as slow and difficult as was the transition provoked by the invention of printing. This is the reason why we can do nothing more but try to vaguely intuit what lies in store for our children. But one thing seems to be certain: the world view which underlies typing, (including this text, which is being typed), will not survive the transition." Flusser, "On Typography," 5.

level of characters, like a geneticist working on the cellular level, in order to avoid a stagnant society prototype, stereotype, and clone.[15]

Gerstner, like Flusser's "photographer who works against the program" in his technical image writings, had been thinking about typography in radical ways for decades. (Albeit, in his day job designing for corporate clients who might be seen at the forefront of creating consumable "stereotypes.") In *Designing Programmes*, Gerstner cited John Cage's *Variation I* (1958) for its algorithmic-like sequence of lines and dots and typography in the vein of Morgenstern, Schwitters, the Dadaists, El Lissitsky, and the concrete poets Eugen Gomringer and Flusser's friend Theon Spanudis, who treated words and letters as "constellations." Gerstner wasn't interested only in print media, however: he had worked with television in his artworks and, in the early sixties, he began using Plexiglass displayed over television monitors to distort the image. In 1964 in Berlin, he created *Crazy Vision*, an installation of twelve televisions in a darkened room with lenses he called "glasses" for televisions, which distorted the image and create abstract patterns. This was followed up by a work titled *Auto Vision* in which viewers could select lenses to place over monitors, but Gerstner gave up working with television after the sixties, seeing it as a kind of dead end.[16]

In 1974, he published *Compendium for Literates: A System of Writing*, with text running at a ninety-degree angle from the usual linear layout of a page.[17] Here, he explored typography, but linked it to astrophysicist Fritz Zwicky's method for constructing a system that allows for all possible variables. Chapters were divided into "parameters" and further into "components." Gerstner also admitted up front that the book was inspired by Saussure and his systematic approach to language. (Flusser, on the other hand, once wrote: "Saussure did not impress me.")[18] "Compendium" was described as a predictive system since – nodding to Marshall McLuhan – Gerstner felt "the television set supplants the book; the day of the alphabet is over."[19] Nonetheless, the book is a rigorous undertaking, fusing history – code systems from cuneiform to Chinese characters – with graphic design, media theory, and integral solutions for designers working in the soon-to-be-digital age. What Flusser and Gerstner shared at this point was an obsession with language and systems, which were changing in the information age. Moreover, both were interested in *transparency*. Affected by the propaganda of Nazi Germany and Brazil, as well as burgeoning mass media and communications systems, both men were interested not just in

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[15] Vilém Flusser, "Typen und Charaktere" (Types and Characters), lecture delivered to the Typographic Society of Munich on October 8, 1991. In German. Vilém Flusser Archive, Berlin.

[16] See Christine Mehring, "Television Art's Abstract Starts: Europe circa 1944-1969," *October* 125 (2008): 29-64.

[17] Karl Gerstner, *Compendium for Literates: A System of Writing* (Cambridge, MA: MIT Press, 1974).

[18] Flusser, *Writings,* 201.

[19] Gerstner, *Compendium for Literates*, 13.

what was said, but the way it was said, shaped, arranged, and disseminated. "The relation between a photograph and what it represents is curiously opaque," Flusser wrote, "Techno-images are different from traditional 'hand-made' images in that they look as if what they represent is somehow representing itself."[20] Gerstner argued the same in terms of the shape and form of text and design.

Color and Form: *The Forms of Color*

Where Flusser and Gerstner ultimately connected, however, was not around text or design, but color and the São Paulo initiative *Casa da Cor.* Gerstner retired from advertising at the age of forty and spent his time writing and making art – but also focusing on the field of color. His early works included a series of abstract geometries from the 1950s titled *Aperspectives,* after Jean Gebser, whom Flusser and Mira Schendel read in the sixties. (Gerstner was interested in Gebser's idea of the present as an "aperspective" age, following the "unperspectival" and "perspectival" ages and impacated by Einstein's Theory of Relativity, which changed our understanding of time and space.) In 1957, Gerstner published his first book on art: *Kalte Kunst? Zum Standort der heutigen Malerei* (Cold Art? On the Position of Today's Painting), which argued that rationally conceived Constructivist and Concrete art weren't "cold," and used examples from Max Bill, Camille Graeser, Verena Loewensberg, and Richard Paul Lohse to a younger generation including Marcel Wyss, Mary Vieira and himself.[21] Gerstner (along with the painter Richard Paul Lohse) was making serial paintings in which the size and color were dictated by mathematical laws, and rather than variations on a theme, the system that generated the permutations was important.[22] "Just as the mathematician creates conceptual models which are logically self-contained," Gerstner wrote, "the artist must be able to create sensuous models which are logically self-contained."[23]

Gerstner touched upon color in *Designing Programmes,* arguing that a picture-structure was reliant on proportions – but mostly "a system which comprises the totality of all colors" and that "the richest one I have encountered is the color-system of Wilhelm Ostwald (Basic Colour, an

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[20] Vilém Flusser, "How Should Photographs Be Deciphered?" in *Philosophy of Photography,* Vol. 2 No. 2 (2011): 213. Previously unpublished manuscript in the Vilém Flusser Archive, Berlin.

[21] Karl Gerstner, *Kalte Kunst? Zum Standort der heutigen Malerei* (Teufen, Switzerland: A. Niggli, 1957).

[22] See, for instance, Lohse's *Fifteen Systematic Color Rows with Vertical Condensations* from 1950-68, in which a vertical "fault-line" is produced by the progressive compression of color scales, which is governed mathematically. Hans Joachim Albrecht, Rudi Fuchs, et. al, *Richard Paul Lohse: Modulare und serielle Ordnungen, 1943–84 / Modular and Serial Orders, 1943–84* (Zurich: Waser Verlag, 1984).

[23] Quoted in *The Spirit of Colours: The Art of Karl Gerstner,* eds. Karl Gerstner and Henri Stierlin (Cambridge, MA: MIT Press, 1981), 24-28 and "Cold Art," Grove Art Online, published 2003. See also Karl Gerstner, *Kalte Kunst?* (Teufel, Switzerland: Arthur Niggli, 1957) and *Der Geist der Farbe: Karl Gerstner und seine Kunst*, ed. Henri Stierlin (Stuttgart: DVA, 1981).

Interpretation of the Ostwald Colour System by Egbert Jacobson, Paul Theobald, Chicago, 1948)."[24] Gerstner's *carro* (after *carré,* or square) series of paintings served as examples, since the paintings were comprised of squares or "cubes" of color that made up a grid, and the "beholder makes his own constellation," with obvious echoes here to Eugen Gomringer's concrete poetry and the "open work" of Umberto Eco, in which the viewer participates in "finishing" the picture.[25] "What is original," Gerstner wrote, "is the idea and not the picture as a single item."[26]

Inspired by artists like Claude Monet, Wassily Kandinsky and Josef Albers, for whom color was a central focus, Gerstner continued to research and explore color. He created works like the *Color Sound* (1968-73) paintings which he called an "homage to [Albers's] *Homage to the Square*" – except that, where Albers was interested in the *interaction* of color, Gerstner was interested in *impact*: "Albers starts from the phenomenon of color. I start from its effect."[27] He was included in exhibitions like *The Responsive Eye* (1965), *documenta* 4 (1968), and *Word and Image* (1968) at the Museum of Modern Art in New York and in 1973 MoMA mounted a show to his work that, according to curator Emilio Ambasz, offered "a systematic approach for analyzing in design terms the conceptual and emotional aspects of form and color."[28] (The *generative* nature of his approach was also stressed – a buzzword often applied to programmed or computer art in the sixties, including the information aesthetics of Max Bense and Abraham Moles, New Tendencies artists, and Flusser's friend Gottfried Jäger's generative photography.) Gerstner even made works – see the *Apparatus* and *AlgoRhythms* series – that generated color *without* pigment: through prisms, polarization, lenses, rotating propellers, and refraction. (Two problems, Gerstner noted, with kinetic works is that they were costly and trouble-prone: a work created for New York's Time Square shut down after a few minutes due to a voltage miscalculation.)[29]

A landmark in Gerstner's color journey was *The Forms of Color* (1986), a book which, following Wassily Kandinsky's theories, proposed a system in which individual colors could be expressed and

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[24] Gerstner, *Designing Programmes*, 69. Ostwald's color system consisted of a circle with twenty-four hues divided into eight groups of three, starting with yellow, orange, red, purple, blue, turquoise, seagreen, and leafgreen. The more widely used Munsell system is simpler, but both systems are subjective. The Munsell system measures hue, chroma, and value, while the Ostwald measures dominant wavelength, purity, and luminance.

[25] Gerstner, *Designing Programmes*, 96. Also, "Production and distribution of paintings on an industrial basis, therefore a / social art / For everyone / Especially for the spectator, who wants to be a partner in a work of art." Gerstner quoted in *A Little-Known Story about a Movement,* 122.

[26] Gerstner, *Designing Programmes*, 96.

[27] Gerstner pointed out other distinctions: "Albers starts with the material … I start with the idea … Albers never mixes his colors … I always mix my colors." *The Spirit of Colors: The Art of Karl Gerstner*, 162.

[28] See MoMA's press release for *Designing Programs/Programming Designs: An Exhibition by Karl Gerstner* (1973) at www.moma.org/documents/moma_press-release_326827.pdf?_ga=2.52685416.1709187689.1674410507-1635953745.1674410507. See also *Flusseriana,* 514.

[29] *The Spirit of Colors: The Art of Karl Gerstner*, 149.

transformed in their own simple and symmetrical shapes.[30] (For Kandinsky, a circle was blue; a square was red; and a triangle was yellow.) Color, for Gerstner, was an interdisciplinary inquiry – just as it would be for *Casa da Cor*: "Color is light, that is it is the visible spectrum of electromagnetic waves; it therefore has to do with physics. Color is substance, that is, the material with which we can represent it; it therefore has to do with chemistry; Color is perception, that is, the process taking place in our eyes; it therefore has to do with physiology. Color is sensation, that is what our brain makes out of perception; it therefore has to do with psychology. Color also involves another science: mathematics, which deals with color as a structural problem. It orders the multiplicity of colors according to objective parameters, and devises models in which each individual hue has its place."[31]

Gerstner was rigorous in tracking the history of color, from Aristotle to Goethe and Max Lüscher to recent chemistry and physics. He was interested in color as a "liberal" science rather than a "natural" one, and he was interested in how this paralleled and intersected with mathematics - particularly geometry – in Pythagoras, Brunelleschi, Kepler, Descartes, Gauss, and Mandelbrot, and in examples from the Islamic motifs at the Alhambra in Spain to graph theory and topology. How, he wondered, does geometry shape physical and color space? How can color be *represented*: through cylinders (*per* Munsell), spheres (Wyszekci), or networks (Ostwald)? And how does one account for the discrepancies in primary colors used by painters, as opposed to photographers or printers?[32] Unlike musical notion, there were, historically, no absolute correspondences between color and form, although it was becoming an issue in television and digital screens. Ultimately, in the same way Gerstner was drawn to Ostwald's color system in the sixties, he would settle upon German-Canadian physicist Günter Wyszecki's theories of color and "Uniform Color Space." Where Ostwald asked if humans see anything *other* than color (overturning Descartes and others, who emphasized form, or the seventeenth-century art debates between *Poussinistes* and *Rubenistes* around line and color), Gerstner was interested in form, feeling that color and form not only supplement one another, but condition each other reciprocally: "There is no form without color," he wrote, "no color without form. But any form can be

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[30] Karl Gerstner, *The Forms of Color: The Interaction of Visual Elements,* trans. Dennis A. Stephenson (Cambridge, MA: MIT Press, 1986). Kandinsky's ideas about correlating colors and abstract forms appears in his *Concerning the Spiritual in Art* ([Auckland, New Zealand: 1911).

[31] Gerstner, *The Forms of Color*, 13.

[32] Three "primary" colors were established in the sixteenth-century, which served as the basis for mass color-reproduction, but Gerstner settled on four colors for his system and assigned a circle for blue, an asteroid for yellow, a square for red, and a sinuon for green, although each shape can be transformed into any of the other three shapes. Gerstner also admitted an affinity for "outsiders" in color theory, like Humbert de Superville and Charles Henry. Superville took the physiognomy of the human faces as his starting point; Henry, a psychophysiological approach. Both of these men were of interest to Post-Impressionist painters like Seurat and Signac. See *The Spirit of Colors: The Art of Karl Gerstner*, 188; and Otto M. Lilien, *Jacob Christophe Le Blon, 1667-1741, Inventor of Three- and Four-Colour Printing* (Stuttgart: A. Hiersemann, 1985).

imagined in any color and vice versa."[33] For both Flusser and Gerstner, the dialectics of text-and-image would be carried forward in form-and-color, and both agreed that they must be considered relationally.

By this time – the eighties – Gerstner was making his *Color Form* works on a computer. These reliefs attempted to tease the boundaries of discrete shape and color – something most of us are used to seeing in computer graphics now. He was also working with Wyszecki's idea of a uniform color space: a "space lattice" (rhombohedral) formed by packing of spheres, which could be extended as new colors were developed in chemistry.[34] Introduced to the group by Gerstner, Wyszecki would become the primary theoretical touchstone for considering color in *Casa da Cor*. Similarly, Benoit Mandelbrot's fractals, one of Flusser's favorite examples when asked to define a technical image, revealed "a new galaxy" of form."[35]

Casa da Cor: The House of Color

Flusser had considered color on several occasions in his writing. In 1973, he wrote a short essay titled "Cor-de-rosa" (Pink)[36], about Alexandre Bonnier's contribution to the XII São Paulo Biennal, an installation of boxes containing pink everyday objects he had purchased with the help of Fred Forest. In that essay, Flusser looked at color using a method he called "para-phenomenological": distancing color from its everyday context.[37] (Although, Flusser pointed out, this wasn't phenomenology in the strictest sense: in keeping with Bonnier's use of cheap consumer objects, it was ironic rather than contemplative.) In *Towards a Philosophy of Photography* (1983), he wrote that color photography was "on a higher level of abstraction" than black and white photography, given its obfuscating options. "The 'more genuine' the colors of the photograph become, the more untruthful they are, the more they conceal their theoretical origin."[38]

Later, Flusser would consider color in relation to numbers, mathematics, and the digital revolution – but always as a *code* and part of a larger communications theory. An opportunity to do this in depth came with *Casa da Cor*, an interdisciplinary project that ran roughly from 1987 to 1989. Initiated

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[33] *The Spirit of Colors: The Art of Karl Gerstner*, 189.

[34] See Gerstner, *The Forms of Color*, 16-18, for an explanation of Wyszecki's uniform color space.

[35] Gerstner, *The Forms of Color*, 9.

[36] See this issue of *Flusser Studies*.

[37] Bonnier's text for the Biennial catalogue stated that he chose pink because of its ubiquity, ambiguity, and range of psychological and symbolic variants – often radical variants: childish pink and morbid pink. The work itself was a white room arranged with boxes filled with pink objects. See *XII Bienal de São Paulo* catalogue (1973), 216-217. Fred Forest describes taking Bonnier around São Paulo to buy pink items: shoes, dishes, a brassiere. See Guldin and Bernardo, *Vilém Flusser*, 228 (see also text for *Traverse* on Bonnier).

[38] Vilém Flusser, *Towards a Philosophy of Photography* (London: Reaktion, 2000), 44.

by the Brazilian filmmaker Philippe Henry, *Casa da Cor* included biochemists, philosophers, architects, computer scientists, and artists, including Gerstner. In February 1987, Flusser and Gerstner participated in the 2nd Latin American Seminar on Alternatives for the teaching of the history of science and technology, organized by the Sociedade Brasileira de História da Ciencia. Flusser quickly saw the importance of Gerstner's work on color. He wrote to him in 1987 that he had looked at his books – but not read them yet – and could see how it could be used to collapse previous categories: "squaring" a circle or "bluing" yellow could lead to a collapse of everything from *pi* to a *Weltbild* (World Picture). "You have succeeded, dear friend," he wrote to Gerstner, "in submerging me in your dizzying universe."[39]

The goals of *Casa da Cor* were ambitious. After their first meeting in Gerstner's studio-laboratory in 1988, Flusser wrote to Gerstner and Philippe Henry laying out the schedule and objectives for *Casa da Cor*.[40] The laboratory-research approach recalled Louis Bec's *Institut Scientifique de Recherche Paranaturaliste* – and institute for speculative research – and Bec was included in *Casa da Cor* for his work on computer generated color forms. In further documents Flusser broke down the project in characteristic terms: through language and changing ontologies. *Casa da* Cor's use of the word *house*, he argued, "does not fit the traditional notion of 'house'" because the project went beyond the limitations of architecture and urbanism, and houses must be reconsidered anyway, both in material and immaterial ways: as knots, nodes, and cables in an intersubjective network.[41] New communications systems had fundamentally changed the nature of public and private, as well as the circulation between these spaces, and architects like Jean Nouvel were seeing the house from a similarly "communicological" viewpoint. Flusser believed that the House of Color, a post-historical structure without four walls or a roof, was in agreement with thinkers like Virilio, Habermas, and Eco – but also a way to break from

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[39] Letter from Vilém Flusser to Karl Gerstner, September 24, 1987 (See this issue of *Flusser Studies*). In German, my translation. Four books by Gerstner are in the Vilém Flusser Archive in Berlin: *Karl Gerstner: AlgoRhythmus 3*, with text by Max Lüscher (Galerie Denise René and Hans Mayer, 1973); *Les Formes des Couleurs* (Paris: Bibliotheque des Arts, 1986); *Karl Gerstner: Vingt et un passages à travers le Rouge* (Geneva: Editions Sigma, 1988); *Kopendium für alphabeten. Eine systematik der schrift* (Berlin: Arthur Niggli, 1986).

[40] "We shall meet every month for two days to discuss the various lines of approach toward the elaboration of color codes capable of carrying messages concerning scientific, technical and aesthetic communications and disposing of signs with symptomatic and symbolical parameters. In these monthly meetings we shall have recourse to Gerstner's previous research on color forms (based on theories of recent tradition), and to Flusser's work on post-alphanumerical communication (based on current and previous communications theories). The problem of adequation of the universe of colors to the universe of numbers will occupy a central place in our research. We hope that by our August meeting in São Paulo we shall see more clearly how to progress further and what equipment we shall require. We shall report to you on this." Vilém Flusser letter to Karl Gerstner and Philippe Henry, December 30, 1988 (see this issue of *Flusser Studies*). In English.

[41] Vilém Flusser, "About a House of the Color," undated manuscript, in English, Vilém Flusser Archive, Berlin (see this issue of *Flusser Studies*).

the Latin American house or city based on colonial European ones.[42] (The house laid out in this document eerily predicts today's "smart" houses, programed with automated devices and controls for door locks, thermostats, home cameras and monitors, lights, and appliances.)

Flusser could also see the seeds of color replacing language. In March 1988, he sent Gerstner an essay titled "Farben Verschlüsseln (Für Karl Gerstner)" (Coding Colors, For Karl Gerstner), in which he imagined color in *Casa da Cor* being used in a "denotative" way.[43] That is, rather than the rich but ambiguous connotative color seen in art, magic, or dreaming, which resulted in "individual vectors of meaning" demanding interpretation, programming and automation could now harness mathematical thinking to create a new aesthetic – and, more importantly, a new language that bridged art and science. Where spoken and written language had quantified thought in words and phonemes, now something more sophisticated was required: unambiguous color codes. Computers could be used to "fill up" the intervals between numbers, mirroring the seemingly innumerable shades between blue and green: "Accordingly, the attempt to encode light vibrations (colors) into denotative codes would basically be an attempt to make color languages available to the future post-industrial society, and these could take over the role of spoken languages in an improving way. They would be languages in which scientific and artistic thinking could be expressed at the same time, and in which human and human/machine communications could be coded simultaneously."[44]

Flusser followed up a month later with a letter to Gerstner asking him to consider his "somewhat crazy suggestion" of working out a "clear and distinct" color code.[45] Flusser's work with bio artists like Bec (and later Eduardo Kac) was rubbing off; here he mentioned biological color – chlorophyll, a butterfly's wing, a potato flower – and how it was becoming genetically manipulable. Soon one could make land art by "painting" with biological color. (The same ideas were put forth in Flusser's "Curie's Children" column in *Artforum*. "On Science III" mentioned *Casa da Cor* and asked, "Could a color code become a sort of universal Esperanto, complementing or even substituting for spoken and written language?")[46] In a three-page handwritten letter (on graph paper!), Gerstner offered Flusser

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[42] "New York has many aspects of York although it is an attempt to make an anti-York, to speak greekly, an 'Antipolis.' Naturally, São Paulo, which tries to imitate a Portuguese city, has many poetic elements." Vilém Flusser, "Why the House of Color in São Paulo," 12, for the *A Casa da Cor* Cycle of Debates, August 9-11, 1988, São Paulo. Vilém Flusser Archive, Berlin (see this issue of *Flusser Studies*).

[43] Vilém Flusser, "Farben Verschlüsseln (Für Karl Gerstner)" (Coding Colors, For Karl Gerstner), enclosed in a letter from Flusser to Gerstner, March 4, 1988. In German, Vilém Flusser Archive, Berlin (see this issue of *Flusser Studies*).

[44] Vilém Flusser, "Farben Verschlüsseln (Für Karl Gerstner)" (Coding Colors, For Karl Gerstner), 2-3. In German, my translation.

[45] Letter from Vilém Flusser to Karl Gerstner, April 17, 1988. In German (see this issue of *Flusser Studies*).

[46] Vilém Flusser, "On Science," *Artforum* (December 1988): 9. The mention of Esperanto is significant. Created in the late nineteenth-century by Polish-Jewish ophthalmologist L.L. Zamenhof, the constructed language was seen as a method for

feedback on this essay and another letter, considering biological color and synoptic correspondences, which he had explored in *The Forms of Color*.[47]

Gerstner also pushed Flusser to rethink the classical philosophical category of form. Flusser readily adopted Wyszecki's uniform color space, proposed by Gerstner. In a letter to Gerstner and the *Casa da Cor* group, Flusser reported that the following "parameters of coordinate systems" would be used for codifying color:

1) Physical (waves, measurements, x/y model)

2) Chemical (pigment, binder, solutions, supports, problem of saturation and duration)

3) Neuro-physiological (instrumental-sensual, crossing various senses - correspondences)

4) Biological (sexual attraction, mimicry, trap and weapon)

5) Psychological (color is sensation)

6) Cultural (language, magical symbolism, unconscious codification)

7) Deliberate codification (typological-topological, esthetic, orientational systems, science, technology, publicity, traffic)

8) Mathematical (our purpose) [48]

In their next meeting, Flusser wrote, they would discuss with Louis Bec the possibility of feeding these models into a computer and propose alternatives for "crossing" parameters. The purpose of the project, Flusser continued, was to treat color the way form had been approached historically in philosophical thought. However, rather than Kant's *Anschauungsformen* (Flusser translated this as "time-space," but one might also say "forms of perception"), now there would be "time-color," or Gerstner's color forms. In "Coloration Replacing Formalisation - For the meeting with Gerstner on March 31 [1988]" (which also exists in a German version titled "Farben statt Formen"), Flusser writes about how, in the West, forms – later elaborated into formulas and algorithms – were theorized as a kind of empty container: spheres, cones, and pyramids that were filled with "appearances" in the same way water fills a canal.[49] (And the mention of a canal isn't casual: these form/formulae were drawn from

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fostering harmony in multilingual regions and for international communications. Flusser did not learn Esperanto, but his friend, famed Brazilian author João Guimarães Rosa, did.

[47] Letter from Karl Gerstner to Vilém Flusser, May 25, 1988 (see this issue of *Flusser Studies*). In German. Gerstner had looked at everything from "feeling blue" ("an American expression for feeling melancholy") and U.S. blues music to nineteenth-century European music: "Musicians had no trouble understanding Franz Listzt, when, during rehearsals, he demanded 'more pink,' or 'less pink, more violet': or 'that's too black' or 'bluer, gentleman, this key demands it.'" Gerstner, *The Forms of Color,* 164-165.

[48] Letter from Vilém Flusser to Karl Gerstner, January 1, 1989. In English (see this issue of *Flusser Studies*).

[49] Vilém Flusser, "Coloration Replacing Formalisation - For the meeting with Gerstner on March 31 [1988]" and "Farben statt Formen," Vilém Flusser Archive, Berlin (see this issue of *Flusser Studies*).

irrigation schematics on the Nile or the Euphrates, where people incised lines on tablets to visualize canal systems.) However, Flusser argued, now we see that the idea of colorless forms is a fallacy; scientific "progress" in the form of numerical formalization ("a kind of war game in our struggle against the world") must be rethought: colorization instead of formalization.

Spurred by *Casa da Cor* and his conversations with Gerstner, Flusser would write several essays examining color from a variety of perspectives. In a lecture delivered in São Paulo at the second meeting of the *Casa da Cor* consultants, on March 19, 1988, he argued for a development of a denotative color code. Color could be seen alongside word code, image code, and sound code, but Flusser argued that he wanted to see these "ecologically" – an ecology, of course, that was changing in the digital age. During the Q&A segment of this talk, Flusser proposed a position similar to the need for a philosophy of photography: moving between two dangerous tendencies – technocracy, which considers itself apolitical, and terrorism, which tries to deprogram the "social tissue" – we need to think ecologically ("stop thinking topologically and start thinking relationally") to avoid these two extremes.[50] Philosophy, he had argued elsewhere, was shifting away from the "verbal code." But rather than technical/synthetic images taking center stage, now he was arguing for a color code. And Brazil, with its shorter history than Europe of industrialized, linear thinking might be fertile ground for this shift: "It may be that here emerges a new man. Here and in comparable places. Because we must abandon the historical reasoning. That tragedy is that whilst the developed countries try desperately to get out of history to enter another level of conscience [consciousness] the underdeveloped countries are making a tremendous effort to enter history. This, yes, is tragicomic."[51]

The Unrealized *Casa da Cor*

Casa da Cor was also meant to be a physical experience: a *Colorarium*[52] that would exist as some kind of *praxis*. In a June 1988 letter to Gerstner, Flusser detailed the historical-social relations between rulers, artists, and intellectuals and lamented the fact that, in São Paulo, economics usually "swallowed all politics and theory."[53] He imagined, somewhat megalomaniacally, that if *Casa da Cor* could be realized, "São Paulo could, thanks to *Casa da Cor*, be turned into a real city where the intellectuals (you and me

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[50] Flusser, "Why the House of Color in São Paulo," 19.
[51] Flusser, "Why the House of Color in São Paulo," 20.
[52] See R. Guldin, Colorarium: The Exchange of Letters between Vilém Flusser, Karl Gerstner, Philippe Henry and Gottfried Jäger (see this issue of *Flusser Studies*).
[53] Letter from Vilém Flusser to Karl Gerstner, June 11, 1989. In German. Vilém Flusser Archive, Berlin. My translation (see this issue of *Flusser Studies*).

for example) would be kings." Proposals among the group ranged from an environment to a "3D model of the uniform color space" and an accompanying manual, as Flusser and Gerstner discussed.[54]

Casa da Cor was not realized as a physical object, or as a color code. However, its efforts were documented in print. In a paper explaining its objectives in the U.S. journal *Leonardo*, Philippe Henry wrote that radical changes were afoot in terms of our "mechanistic" thinking: atoms were split and then subdivided into quarks, leptons, and bosons; Erwin Schrödinger challenged the "objective" nature of scientific observation; and Alain Aspect experiments in quantum mechanics, emphasizing the "entanglement" or a "web of interrelations" in particle matter upset earlier notions of time, space, and causality.[55] Henry then used Karl Gerstner's *The Forms of Colors* as a starting point to ask, If ancient societies were reportedly achromatic or acianobleptics (blind to blue) is there an evolution in human perception? What was at stake was this: "Change is also occurring in human culture through a radical transformation of our values. In this cultural context, color seems to have acquired a primeval function, either as an indicative sign or as a sign that, when manipulated and structured, serves as an accelerating agent in the development of a new universal vision. At the Casa da Cor project, we believe that it is possible to manipulate and structure the denotative function of color theoretically and, as a result, accelerate the development of a new vision of human beings and their universe."[56]

Casa da Cor, Henry wrote, was attempting to formulate a cultural theory of color that extended beyond the world of appearances (Plato, Goethe, et al.) or the individual, perceiving, scientific subject (Helmholtz), the goal became to recuperate, renovate, or recreate intersubjective relations and alter the existing ontology maintaining the theoretical barrier between subject and object. Flusser, Gerstner, and other members of *Casa da Cor*, like Jean-Maurice Simoneau, a color consultant who taught at the Ecole nationale supérieure des Beaux-Arts in Paris, were considering the color code.[57]

What might *Casa da Cor* have been like, realized as a physical project or "interactive system" in São Paulo? Proposals surrounded what would now be called an "immersive environment," but Gerstner was more specific in his allusions and examples. In *The Forms of Color*, he described previous projects like Kandinsky's *The Yellow Sound,* a wordless "opera" with performers costumed in single colors (unrealized during his lifetime); composer Ivan Wyschengradsky's *audition colorée* (color hearing) which

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[54] Letter from Vilém Flusser to Karl Gerstner, March 6, 1989. In English (see this issue of *Flusser Studies*).

[55] Philippe Henry, "A New Universal Vision: The 'Casa da Cor' (House of Colour) Project," *Leonardo*, Vol. 24, No. 3 (1991): 321-323.

[56] Henry, "A New Universal Vision," 321.

[57] "Sight which appears to unite us through the same image, in fact divides us through our sensibility and our culture. Man must invent signals that are perceived with the same meaning and the same intensity by specific groups, in specific conditions." Speech delivered by Jean-Maurice Simoneau at the first *Casa da Cor* consultants' meeting, São Paulo, February 9, 1988. Quoted in Henry, "A New Universal Vision," 322.

would consist of a 100-meter hemispherical dome with a cupola lined with thousands of cells generated by colored light, accompanied by musical sounds; or Le Corbusier's *Poème électronique* (1958) in Brussels, a pavilion with parabolic surfaces in which colors, pictures, music and rhythm – an "apotheosis of correspondences" – were performed.[58] (Yannis Xenakis, still working as an architect, was the assistant on this project and Edgar Varèse provided the music.) Gerstner also mentioned experiments by Oskar Fischinger, who was instrumental in inspiring Walt Disney's animated *Fantasia;* artists Ludwig Hirschfeld Mack, Viking Eggeling, Hans Richter; and even the sound and light installations of disco culture. Gerstner had created his own environments, as well. There was his work with televisions and screens and *Color Organ* (1960-69), with 48 Plexiglass spheres, light and sound in the form of a cave, installed in Dortmund and later Bern and Düsseldorf. *Color Dome* (1974-78) included twelve acrylic-on-polyester reliefs from the *Color Sounds* series (realized on a computer starting at MIT in 1969), which were installed in a circular formation in Solothurn, Switzerland. Gerstner had outlined his plans well before *Casa da Cor*: "My intention: to design a model in which the correspondence between elementary colors and elementary forms … contains the sum of all that I could learn and have myself experienced: the color-form continuum."[59]

Brazilian artists – most famously Hélio Oiticica, Lygia Clark, and Lygia Pape – had also created important participatory and immersive works. With Gerstner involved, one imagines that *Casa da Cor* in São Paulo might have become an artwork of historical importance. However, if the physical and theoretical aims weren't fully realized, the dialogue was probably enough for Flusser. In a 1986 interview with the São Paulo magazine *Superinteressante,* he rhapsodized about a new language-code developed via mathematics and the computer, which would supersede written and spoken language and the limitations of pen and paper surfaces: "You can see a world of clear concept as if it were the world of the senses. You see an equation like you see any object. Alternative worlds appear before your eyes that until now were purely conceptual worlds. An equation becomes as beautiful as a flower. A complicated mathematical operation takes on the same beauty as a landscape … If you go from blue to green, you can go through an infinity of intermediate stages. This allows for very accurate articulation. Our eyes are not trained to see these differences. If we want to articulate ourselves through these colors, we need to learn to see."[60]

In the same way Flusser had described the ocean in *Vampyroteuthis infernalis* as an abyss teeming with life unknown to humans, color was a vast, little-known realm, existing in plain sight. Establishing

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[58] Gerstner, *The Forms of Color*, 167.

[59] *The Spirit of Colors: The Art of Karl Gerstner*, 196.

[60] Interview with Vilém Flusser in *Superinteressante* (São Paulo, November 1986), 84. In Portuguese, my translation.

a universal color code that would disrupt linear thinking and proactively change the social tissue was the goal. Fractals, synthesized images, and new color codes based on Gerstner's research could fuse artistic and scientific thinking and change politics since, according to Flusser, inaccurate words led to demagoguery. The ramifications of examining color were endless, even if it sounded like science fiction. "It is obvious that I have just described a utopia," he wrote about *Casa da Cor*. "But if it weren't utopic, why engage oneself?"[61]

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[61] Flusser, "Why the House of Color in São Paulo," 15.