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TAUBA MEDIUM

CAROLINE A. JONES ON THE ART OF TAUBA AUERBACH

BEFORE THE PANDEMIC, few of us had a visceral relationship to the abstract mathematical concept of the exponential.¹ Now we can feel it in our gut. Tauba Auerbach's uncompromisingly abstract art has likewise always been premised on inducing a visceral reaction to abstruse ideas—from chirality to rotational symmetry to tetrachromacy and quantum states. The artist's tacit, muscular ways of knowing and mark-making are what initially draw us in, but then we have to confront the strange signals on the surface. These signs seem to perform in equipoise, juggling evidently spontaneous flows of matter and energy that, in another register, we could subject to measurement, prediction, and mathematical proof. The exponential, now both physical and mathematical, is that kind of sign.

Once the novel coronavirus had spread through the world's humans on an exponential curve of infection, those of us who respond to Auerbach's mysterious visual language felt more powerfully than ever the relations of proportion, progression, and propagation that the artist arranges for us in paint, prints, metal, glass, plastic, video, and wood. These relations are ultimately engaged with the place of human consciousness in a universe defined not by computation but by "the cloud of possibilities" driving matter and energy in a complicated world.²

Take the Sierpiński mathematical relations often illustrated with a set of fractal triangles generated by the twentieth-century Polish mathematician Waław Sierpiński, in which a large equilateral triangle is divided into proportional smaller equilateral triangles, each of which is divided again into proportional and smaller equilateral triangles, an operation that can continue ad infinitum in either direction (whether enlarging outward or dividing further inward). We intuit this as exponential notation in a geometric context, a procedure also alluded to in Auerbach's acrylic-on-canvas *Grain - Sierpiński Extraction*, 2018, in which the emergent figure produced by the artist's actions eerily approximates the now-familiar form of the exponential curve.

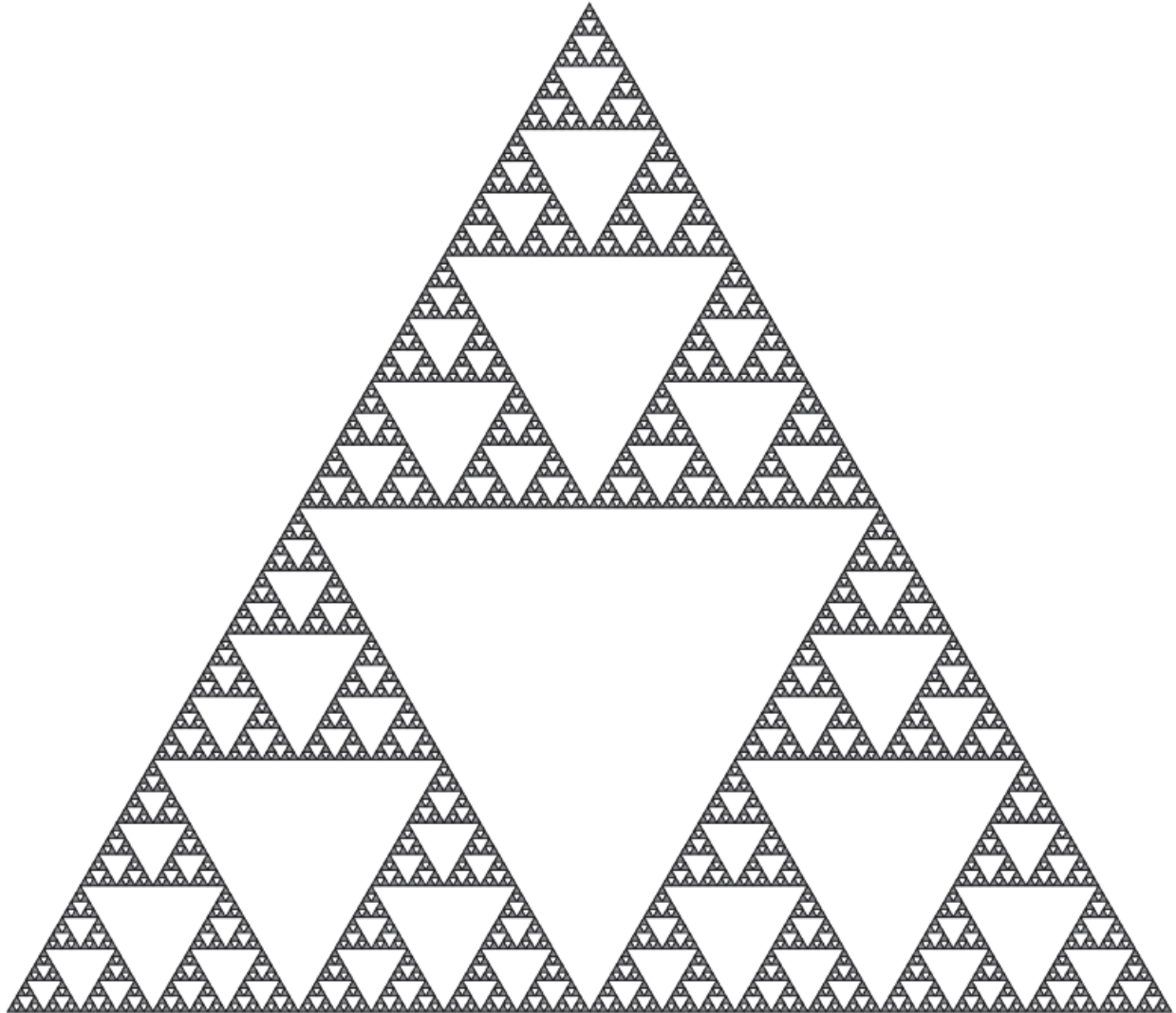
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This page: Sierpinski triangle iteration.

Opposite page: Tauba Auerbach,
Grain - Sierpinski Extraction, 2018,
acrylic on canvas, 90 x 48". From
the series "Grain," 2015-.



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A good entry into the zero-point field altered irrevocably by Auerbach's abstracting actions is the index.³ The *index* is our beloved art-historical term for the trace of an action recovered by the viewer in scrutinizing a work of art. Whereas abstraction can seem immaterial, the index always draws our eyes back to the material conditions of the work's production: the splash flicked from the tip of a painter's brush, the seam left behind by the sculptural mold. For all its materiality, the indexical is also deeply philosophical, giving aesthetics something "real" to operate on, something irreducibly material, that nonetheless stimulates the cerebral circuitry of perception. First theorized by philosopher Charles Sanders Peirce, the index holds pride of place as the foundation of nonverbal activity existing prior to verbal articulation. Indexicality is experienced as the assertive voice of energized material itself, and Auerbach has, from the beginning, been devoted to registering it. The earliest works by Auerbach to gain widespread attention were a series of chromogenic prints, "Static," 2008–, premised on photographing (indexing) the trace (index) of electrons spraying themselves on a phosphor-coated cathode-ray-tube, with the results printed (via another indexical operation) for distribution as art. Since then, the index has continued as a powerful attractor in Auerbach's work, emerging again in the "Folds," 2009–13, which made the artist famous, and again in the "Weaves," 2011–15; the "Extended Objects," 2018–; and their recent series of map projections, 2020–.⁴ The operation of indexicality is especially clear in the "Grain" canvases, 2015–, which deploy a "negative" index—think of a footprint depressed into mud, or the Sierpiński pattern sinking into layers of paint.

The first step in making the "Grain" paintings involves preparing a richly monochromatic ground, which is allowed to dry, and onto which the artist layers further discrete films of contrasting color—all while the canvas is horizontal. Before that prepared field of action can fully "cure," Auerbach moves the canvas into a vertical position and pushes into the layers of hardening pigment with handmade tools based on the kinds of "graining devices" used to create trompe l'oeil wood grain. (The artist learned about such tools during their postcollege years in San Francisco while working at the city's proudly artisanal New Bohemia Signs.) Auerbach describes their gestures as both "rotational and translational," with movements made "in the form of the helix." Whether such a geometric figure is only an inspiration or describes the actual path traced by a complex coordination of shoulder, elbow, and wrist via muscle tendons is hard to say. Auerbach accompanies the helical motion with an intuitive "rocking" and "tremor," as they scrape, rotate, and slide the cylindrical graining device into and across the now-vertical field of pigment. These actions culminate in a final move that smoothly shifts the painting back into a horizontal orientation. Has the paint sagged? In the case of the overarching gesture that is filled with the Sierpiński fractal forms—now revealed, by way of the graining tool, as an indexical substrate of contrasting color—the subtracted imprint does acknowledge the force of gravity, which has performed its own action on the material before it can come to rest and dry. The resulting shapes and edges are both flaccid and precise, the colors subtle and sumptuous—orange and black in a field of buff in the Sierpiński piece, or, in another "Grain" work, a screaming persimmon, edged in blue, in a sea of cream. As in most Auerbach paintings, we sense a mysterious collaboration between physical matter, planetary forces, and human intervention, but we must invest time to discern the actions involved. As with a Gerhard Richter or a Katharina Grosse, pondering what had to have happened is one of the pleasures of receiving the work.

The "Grain" series relies on flows of suspended pigment for such encounters in viewing and speculating. There's tradition here: Painters from



Above: Tauba Auerbach, *Static 14*, 2009, C-print, 60 x 42". From the series "Static," 2008–.

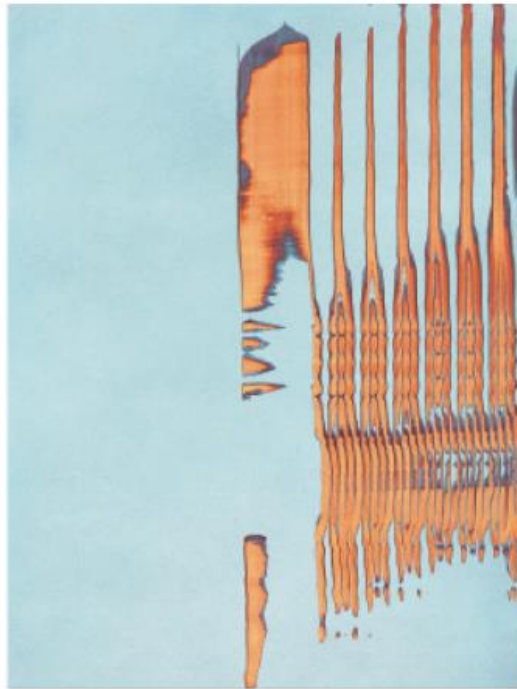
Opposite page, top: Tauba Auerbach, *Grain - Chiral Fret Sublimation*, 2017, acrylic on canvas, 60 x 45". From the series "Grain," 2015–.

Opposite page, bottom: Tauba Auerbach, *Extended Object (detail)*, 2018, acrylic on canvas, 14 x 18". From the series "Extended Objects," 2018–.

James Abbott McNeill Whistler to Morris Louis exerted precise control over their paint, tweaking the proportions of pigment, solvent, and glue-like binder (from copal to polymer) to achieve the desired levels of absorption, transparency, and thickness. Auerbach is perhaps unique among this pantheon in that they take advantage of the exacting sciences of rheology and viscosity. Sitting in the artist's Bowery studio is a paint-smeared jug of "Tauba Medium" that the artist had custom-produced by a devoted pigment supplier, who calibrated the fluid to possess exactly 2,700–3,000 units of cP, or centipoise (each centipoise equaling one millipascal-second of

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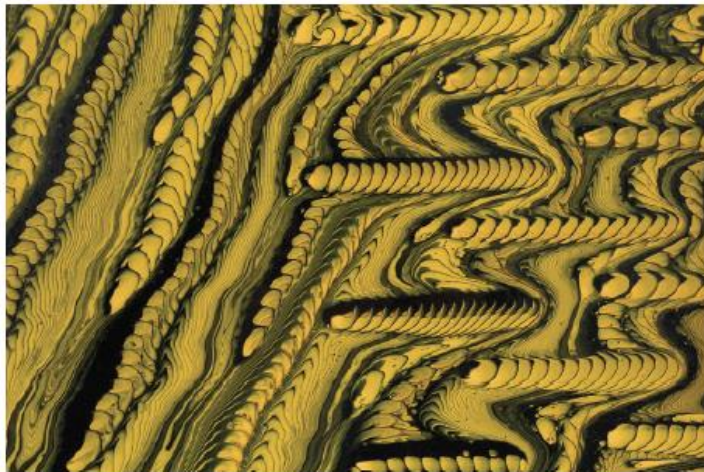
In Auerbach's canvases, paint provides the fuzzy logic that connects everything.

dynamic viscosity). This measurement allows the artist to achieve a specific, time-based relationship to pigments in suspension, such that color stays put just long enough for gravity to engage in relational play with the artist's own frictional gestures—which, as we've seen, shift from confident finessing to hesitant trembling to a strong-arm hoist. Tauba Medium, or alkali-swellable polymer, is but one of the binders the artist uses, joining many other technical devices ready to hand. Indeed, the artist's studio is full of handmade contraptions and challenging substances (molten glass, for example) that at once force a confrontation with material limits and open themselves to chance over time.

Take the set of devices Auerbach has fashioned for the "Extended Objects" series. The artist put Tauba Medium, loaded with pigment, into baffled boxes with holes drilled into their bottoms in careful patterns (dots forming symmetrical "harmonic curves," for example). These small holes permit paint of a certain viscosity to drip out in regular formations, at regular intervals. Auerbach can then move the canvas around underneath the dripping device or, alternatively, deploy various covers to block the drips. The paint may or may not be further manipulated, with a result that evokes the craft of paper marbling, which Auerbach reveres. "If you were a medieval monk making marbled papers in some abbey, you'd definitely be thinking about shear," says the artist. "You would think about viscosity and surface tension. It's all about ratios and relationships between materials." Likewise, the pulled pigment in the "Grain" works is a deft but understated reference to the graining tools used in Braque's and Picasso's Cubism.⁵

All these contrivances require Auerbach, an artist renowned for their perfectionism, to relinquish absolute control. Thinking about bodies as composed of hard struts (bones) and tensioning meshes (cartilaginous fascia), Auerbach partners the structuring devices in their practice, including frames and supports, with rubbery, more elastic materials, such as fluids and plastics (not to mention the tensions, dynamics, energetic states, and fatigues of the body itself). In the canvases, paint provides the fuzzy logic that connects everything, allowing the artist, and the work, to engage in a more dynamic cognitive relationship with the viewer. Yet as is evident in multiple other media that Auerbach engages—books, prints, drawings, murals, painted fireboats, and sculptures incorporating materials such as glass, plastic, polarizing films, soap, nanoiridescent surfaces, 3D-printed nylon and steel, and the occasional motor—the conceptual rigor of the paintings branches out into the delirious theorizing going on across the artist's corpus as a whole.

THE DIMENSIONAL FORMS of *S* and *Z* assume a privileged role in Auerbach's lexicon. Indeed, they comprise the title given to the artist's forthcoming survey at the San Francisco Museum of Modern Art, rendered "*S v Z*," sans period, suggesting that the *v* should be understood and pronounced as the logical operation "and/or" rather than as abbreviated legalese for "versus." The almost-but-not-quite symmetry of these roman letters, *S* | *Z*, has been adopted by some mathematicians to label, respectively, left- and right-handed helices.⁶ Biologists, in turn, have their own convention, naming the most common DNA form's doubled right-handed helical



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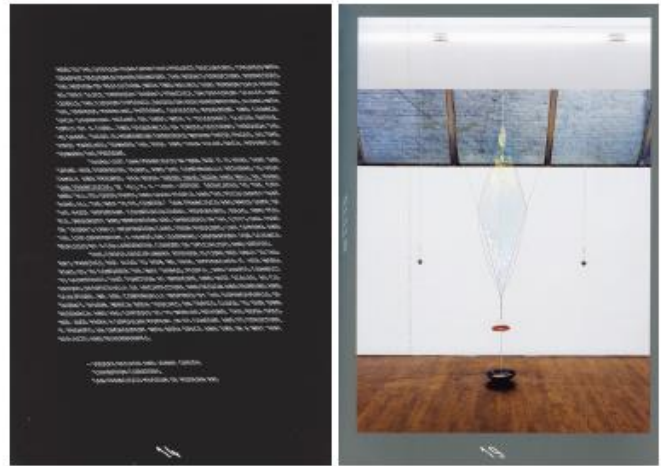
curve "B" (though it follows the "Z" direction), while dubbing a rarer, left-curving helix "Z-DNA." Such disciplinary semiotic chaos is irrelevant to Auerbach, who's "just fucking happy" that the triple-helix form shows up at the molecular level in the collagen of human fascia. Meanwhile, RNA strands all have the left, or "S," orientation in coordination with DNA's usual right-handed twists. S and/or Z proves highly salient in the lively parts of the biosphere on Earth.

Is it any wonder, then, that such fundamental symmetries express themselves in the extraordinary book-object that is the catalogue for the SFMOMA show? Featuring 256 typefaces crafted by the patient, exacting designer David Reinfurt, the *S v Z* publication is obsessively Auerbachian: It surveys sixteen years of production in sixteen binding signatures each sixteen pages long, with an axis of symmetry that divides the left-hand beginning of the book (pages 1 to 128) in type slanting left (but slightly less so with every page) from the right-hand end of the book (pages 128–1) in type slanting right (ever more so with every page). The result is two pages numbered "1"—a left (S) and a right (Z)—and, in the book's middle, facing pages that each bear the upright number 128. If this seems a tad precious, it's also hilarious and slightly goofy, like a secret twin language that the artist has trained everyone at SFMOMA to speak and that we are now invited to learn. The alignments and nested codes of this system (the catalogue's list of works has one numbered "18_z" that is pages away from "18_s") also allow the museum, the curators, the editor, the Italian print house, and Reinfurt to emerge as astonishing virtuosos of a kind of mirror thinking. In a dance of design far from the corporate banality of Helvetica, Reinfurt, for example, created custom software for his digital fonts based on his own response to the leaning qualities of Auerbach's hand calligraphy. Regardless of pandemic-related delays in mounting the physical exhibition (it was originally slated to open in 2020), the book will endure as a truly entheogenic object in keeping with Auerbach's art: a manifestation of precise practices that nonetheless open us to the woolly edges of what consciousness can reveal.

S v Z the book and Auerbach's most recent decade of production both continually riff on the mathematics of S | Z, those surprisingly rich significations of cosmic rotational symmetry. Of course, some of us will go to a very different association for these letters than helical DNA or RNA. What comes to mind for humanists is the extended 1970 essay *S/Z* by the readerly writer Roland Barthes. Although Auerbach claims they never managed to finish the theorist's text, we can still apply its manifesto for semiology directly to their corpus:

The one text is not an (inductive) access to a Model, but entrance into a network with a thousand entrances; to take this entrance is to aim, ultimately, not at a legal structure of norms and departures, a narrative or poetic Law, but at a perspective (of fragments, of voices from other texts, other codes), whose vanishing point is nonetheless ceaselessly pushed back, mysteriously opened: each (single) text is the very theory (and not the mere example) of this vanishing, of this difference which indefinitely returns, insubmissible.⁷

Such a system of insubmissible (trackable but intractable) differences is key to Auerbach's operations. The inherent chirality, or handedness, of S | Z offers the artist an intellectual and aesthetic aperture onto the "mysteriously opened" qualities of the universe, which—probably because we evolved in it—often appears arranged for our continuously coming to know it.⁸ Like the helices of DNA and RNA, many other molecules of life exhibit chirality; a pair that are oppositely "handed" are known as enantiomers. The molecule carvone, for instance, has a left-handed form that our olfactory

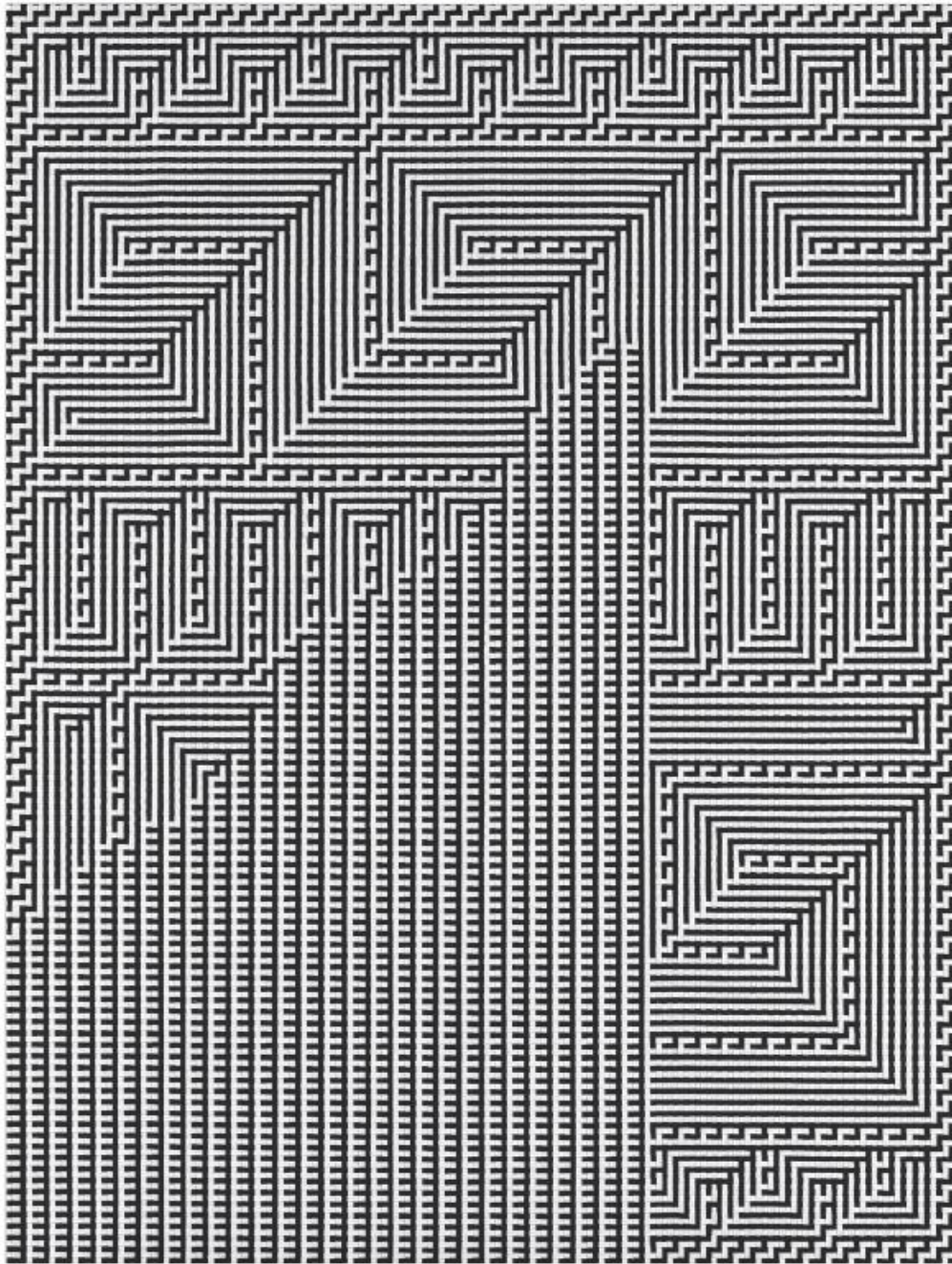


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Opposite page, top: Two pages from Tauba Auerbach: *S + Z* (San Francisco Museum of Modern Art, 2021). Codedigned by David Reinfurt. Right: Tauba Auerbach, 7S, 7Z, 1S, 2Z, 2019.

Opposite page, bottom: Box from Tauba Auerbach's *Z Helix*, 2014, indigo print on transparency film, spiral binding, rubber stamp on corrugated board, 12 x 10 1/4 x 1". Published by Diagonal Press.

This page: Tauba Auerbach, *Shadow Weave - Chiral Fret Wave*, 2015, woven canvas, 66 x 49". From the series "Weaves," 2011-15.

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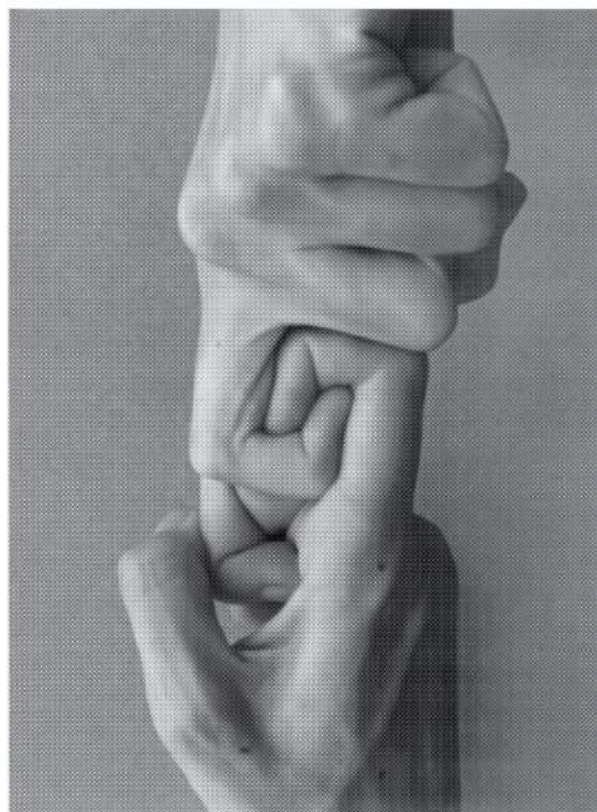
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neurons interpret as "spearmint," whereas its right-handed form reads as "caraway." Meanwhile, the dominant left-handedness of amino acids in living organisms is a nonarbitrary ratio that disappears after the organism's death, as molecules "switch" over time to end up in racemic balance. These and other mysteries of chirality show up in works across multiple Auerbach series, such as *Grain - Chiral Fret Sublimation*, 2017, the woven-tape *Shadow Weave - Chiral Fret Wave*, 2014, and the sculptural forms *Square Helix (Z)*, 2014. Chirality also appears in the Auerbachian bindings of books, as in *Z Helix*, 2014; in numerous enamel pins featuring boxy yin-yang meanders; and in the artist's proliferating typefaces, many sporting chiral symmetries. But just as Lord Kelvin first analogized these mirror orientations to the human hand, adapting the Greek kheir (hand) for his neologism "chiral," Auerbach provides their chirality with a bodily substrate, as when the artist photographed their own interlocking fingers in *Mudra Z*, 2016, and *Mudra S*, 2019.

This is the oscillatory, trembling balance in Auerbach's developing oeuvre—abstraction's crisp distinctions (S/Z) only make plainer the body's incapacity for sharp duality. If anatomy books ask their readers to consider organs in isolation, discarding the connective, communicative fascia, Auerbach celebrates the fascial ambiguity embodied by the word *cleave*, which signifies both a keeping apart and a holding together.

The intra-active logic here also characterizes Auerbach's foray into video. *Pilot Wave Induction III*, 2018, is an extraordinarily spacey dive into the dance of fluids flirting with quantum phenomena.⁹ We could call the work a music video, since a huge part of the experience comes from the compelling percussion on the soundtrack by Greg Fox, drummer for the Zs, a Brooklyn band whose name alone would attract Auerbach's attention. Auerbach edits her video to precisely align with Fox's tracks. The result both dallies with ideas of Schrödinger's wave equation (a non-relativistic quantum function) and calls up thoughts of Heisenberg's uncertainty principle, according to which observing a wave phenomenon has an effect on how the phenomenon unfurls. The video involves a simple experiment involving silicone poured into the cone of a speaker that oscillates the substance by emitting sine waves at various frequencies and droplets of additional silicone released from above onto the jiggling surface. Auerbach then records this setup under changing lights, with different focal lengths. The result shows the droplets forming perfect spheres that move over and across the underlying fluid without giving up their autonomy. (Although the droplets sometimes bump into each other and even merge on one occasion, they never collapse back into the silicone below.) Fluid spheres and fluid



Above, left: Tauba Auerbach, *Square Helix (Z)*, 2014, powder-coated stainless steel, two pieces, each 2 1/4 x 9 1/4 x 2 1/4".

Above: Tauba Auerbach, *Mudra S*, 2019, laser print on paper, 48 x 36". Published by Diagonal Press.

Left: Tauba Auerbach, *Yin Yang II*, 2016, diecast zinc alloy, soft enamel, rubber, 2 1/4 x 2 1/4".

Opposite page: Four stills from Tauba Auerbach's *Pilot Wave Induction III*, 2018, HD video, color, sound, 9 minutes 3 seconds.

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surface intra-act in uncanny ways: Waves on the surface behave like "pilots," guiding the drops, which in turn appear to organize the waves around them.

In the 1920s, Einstein was grappling with the uncomfortable ambiguities of the emerging wave-particle duality, and the "pilot wave theory" was how he hoped to make peace with it. Thanks to the *Zitterbewegung* ("trembling motion"), he wrote, a "localized, vibrating particle" could be seen "moving in concert with a spatially extended, particle-centered pilot wave."¹⁰ Though most scientists today consider the theory out-of-date, some still use the concept to buttress renegade interpretations of quantum mechanics. Fluid dynamicist John W. M. Bush—who initially drew Auerbach's attention to the concept—labels the drops' uncanny movements "walking,"

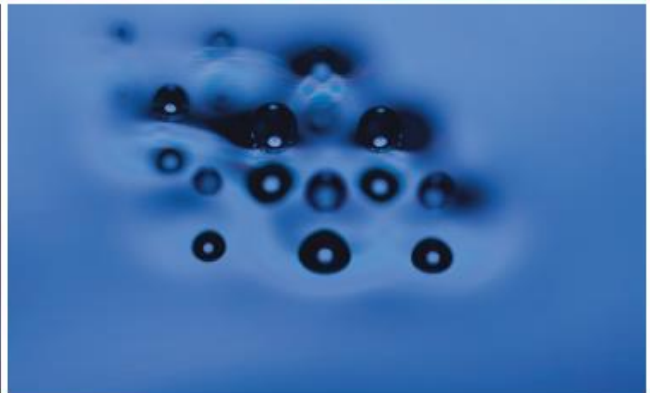
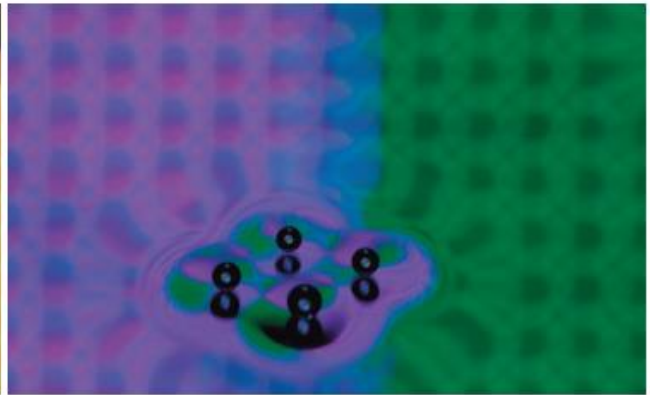
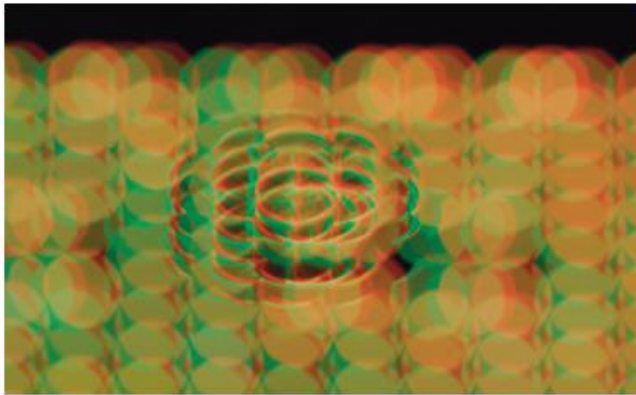
and examines the "path memory" in terms of an eerie temporality: a "drop's distant past" that is "encoded in the pilot wave."¹¹ Auerbach's creative appropriation of the phenomenon reveals the artist to be well aware that it no longer satisfies most contemporary physicists theorizing at the quantum scale. But they love that something truly weird is happening under their bodega-LED-display and in front of their camera. The pilot wave experiment fulfills the core requirements of Auerbach's art: the necessity of precise preparation to execute an exceptionally perfect artifact in order to reveal the irreducible trembling at the heart of it all. □

"Tauba Auerbach: S v Z," curated by Joseph Becker and Jenny Gibeith, will be on view at the San Francisco Museum of Modern Art, December 18, 2021–May 1, 2022.

CAROLINE A. JONES IS A PROFESSOR OF ART HISTORY IN THE ARCHITECTURE DEPARTMENT AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY IN CAMBRIDGE, MA, AND DIRECTOR OF MIT'S TRANSMEDIA STORYTELLING INITIATIVE.

For notes, see page 203.

There is a bodily substrate to Auerbach's chirality.



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NOTES

1. This essay was originally submitted just as the global epidemic was taking hold in March 2020. It has been lightly revised to include additional work from the mapping activities Auerbach has pursued over the past eighteen months.
2. Unless otherwise noted, all quotations are from the author's visit to the studio of Tauba Auerbach on February 22, 2020.
3. The "zero-point field" is a quantum vacuum, defined as the state of lowest possible energy, with no physical particles and at a temperature of zero. Hence it is the ground state of the system in question. I am playing with this concept as a conceptual void that we can only imagine, prior to the indexical action that produces a figured field: Auerbach's art.
4. Tellingly, pandemic isolation inspired this project, as Auerbach began with the "when" and "who" of an intimate "where"—the location of their studio in Lower Manhattan. Tracing its former occupants back to a freeman named Sebastiaen de Britto, who lived there in 1647 in the settlement the Dutch called "Land of the Blacks," Auerbach began with a map utility that overlaid all historical maps onto one another and built out the mathematical query about projection schemes to get curved continents onto 2D cartographies with systematic, if justifiable, distortions. The artist's central inspiration, intellectually, is Athelstan Spilhaus's *Atlas of the World, with Geophysical Boundaries, Showing Oceans, Continents, and Tectonic Plates in Their Entirety* (Philadelphia: American Philosophical Society, 1991). Per Auerbach, "If these map pieces aim to retune the gaze, his book did that. He really cracked something open for me." Conversation with the artist, September 8, 2021.
5. The play of ambiguity in Cubist collage revolved around the extent to which the resulting grainy material was only a kind of reproduction. (Braque used tools of the *ébéniste* to imitate wood grain, even as Picasso incorporated patterned oilcloth with faux palm fibers into his famous 1912 *Still Life with Chair Caning*.) The index of graining in this modernist past became just another sign of materiality, although it was often misinterpreted as "the thing itself."
6. If you want to understand these abstractions through the body domain of handedness that names them, put both hands in the "thumbs up" affirmation, then rotate your thumbs away from you, but toward each other, while moving your arms upward. The lines you are tracing with each thumb are airborne left- and right-handed helices.
7. Roland Barthes, *SSZ: An Essay*, translated by Richard Miller (New York: Hill and Wang, 1974): 12.
8. The anthropic principle is a philosophical concept that physicists interpret in different ways. In one interpretation, the universe must be arranged so that consciousness, in the form of the human observer, can access its physical qualities. Interpreted another way, the observable features (just because we can observe them) cannot be assumed to be the only features of the universe. In still another, there are multiple universes with different physical properties, but this is the only one in which we can exist. Anthropic "filters" may make it difficult for us to see what is not arranged for us to capture, whether in this universe or in any other.
9. "Intra-act" and its variations signal the influential ideas of physicist and philosopher Karen Barad, for which see their *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham, NC: Duke University Press, 2007).
10. John W. M. Bush, "The New Wave of Pilot-Wave Theory," *Physics Today*, 68, 8 (2015): 47–53.
11. *Ibid.*, 48. Bush is here describing the theory as propounded by Einstein's collaborator Louis de Broglie in 1923.