Out of Order

TAUBA AUERBACH ON CARSTEN NICOLAI'S *GRID INDEX*

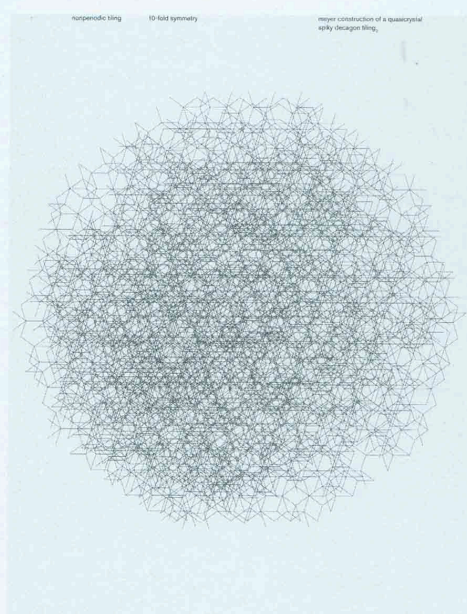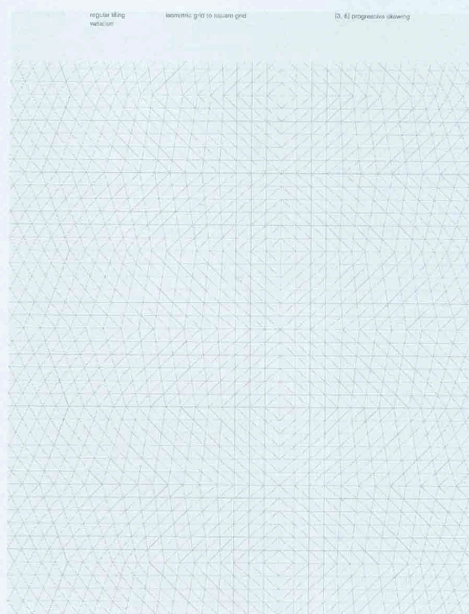Two pages from Carsten Nicolai's *Grid Index* (Gestalten, 2009).

GRID INDEX, BY CARSTEN NICOLAI. BERLIN: GESTALTEN, 2009. 312 PAGES. $60.

A BOOK IS AN X-AXIS. The format is almost always linear; the content, bound in a prescribed order, marches single file. *Grid Index*, Carsten Nicolai's exhaustive compendium of grids and tilings, is no exception. Progressing along its lone axis, the book is a sequence of 294 different dissections of the Cartesian plane. It's a difficult kind of dimensional collapse, arranging the planar into the linear, though imperfect at moments, Nicolai is at home working within self-imposed constraints. The artist's affinity for grids, the Wim Crouwel–esque typography on the book's cover, and much of his previous work, including his spare musical releases as Alva Noto, suggest as much. Now Nicolai offers us a generative codex, a source manual for some of the geometric structures underlying the visual world.

Grid Index is a convergence of both order and ordering. It's the verb and the noun. In contrast to most technical texts on the subject, the organizing principle here is visual rather than mathematical. The

> Nicolai offers us a generative codex, a source manual for some of the geometric structures underlying the visual world.

book begins with the simplest of matrices—the square, orthogonal grid—and gradually ratchets up the complexity a click at a time until it arrives at Penrose patterns and quasi-crystal tilings with 10-fold symmetry. Plain polygons like triangles and hexagons collect alongside intricate starbursts and rhombuses. This apparent trajectory from the basic to the complex could more accurately be characterized as a progression from the general to the highly specific—starting with patterns that have translational symmetry, meaning they can be shifted in one direction or another and remain identical, and ending with tilings that are

entirely nonperiodic, never repeating themselves through translation, reflection, or rotation. Between these extremes, there are logarithmic and isometric grids, plaidlike formations familiar from ledger books and drafting paper; an array of uniform, regular, and semiregular tilings; and dozens of variations and unions thereof. Each page is annotated with a brief classification like "uniform tiling," a list of the various types of symmetry contained in the grid, and a code such as "gi-st-008" corresponding to a vector-graphics file on the book's accompanying CD. In keeping with Nicolai's claim that "the aim here is not to present innovate breakthroughs in mathematics" but to gather "information that can be traced back to Plato, Islamic tiles, Kepler and Dürer, or more recently to Roger Penrose," the contents of the book are accessible on the disc in formats that can be copied, altered, and used by the public. Peering further down this scope, one might even conclude that these patterns were not created but rather discovered or identified by their various authors as they arise from natural resonances of angles and shapes.

A COMMON CRITICAL READING of the grid casts it as the essential symbol of technology and human con-

trivance—the signal structure of modernism—cold, impersonal, and famously called "anti-natural" by Rosalind Krauss in her 1978 essay "Grids." In my view, however, the grid could not be closer to nature; it is the direct and rebellious offspring of gravity. The first relationship between the grid and gravity is one of accordance. By pulling perpendicular to the surface of the earth, gravity installs the right angle as a cardinal feature of our physical world. Perpendicular relationships are naturally recurrent and omnipresent. A basic grid is an accretion of these relationships, intersections of horizontal and vertical lines—like those formed by a liquid's surface drawn level by gravity and the path of a falling object, respectively: Materials succumbing to the force create x- and y-axes.

The second relationship is one that weds rebellion and submission, a fleeting union, as the rebellions are only ever temporarily successful. A tree most efficiently resists the force of gravity by growing straight upward—at a ninety-degree angle to the horizon. The vertical charge of life is in fact the act of fleeing an inevitable state of horizontality, death. The leveling force of gravity literally ages us, drawing us down until we cannot go down any farther. Here gravity and its opposition trace the axes.

Tauba Auerbach, *Untitled Fold Painting III*, 2009, acrylic on canvas, 80 x 60".

The third relationship is one in which the grid itself *is* the opposition to gravity. In this broader case, the definition of *grid* should be expanded, as it is in *Grid Index*, to include tilings—coverings of the plane in which there is no excess of space or overlap between constituent shapes. The entropic event of ice melting, for instance, sets geometric tiling against gravity's pull toward decay and disorder, taking the gridded (albeit inconsistent) crystalline structure and rendering it an amorphous molecular soup. Similarly, but in the reverse order, crystal structures grow more consistently and easily in zero gravity—even forming in unlikely substances like plasmas—without their entropic enemy. If gravity is a protagonist in the plot of entropy, then the order of the grid is its natural and valiant, although doomed, antagonist.

The enterprise of building has long used the grid as a mode of both acknowledging and countering gravity. As chronicled in another recent text, Hannah B. Higgins's *Grid Book* (2009), the first brick walls, constructed out of sun-dried bricks eleven thousand years ago in Neolithic Jericho (what is now Jordan), took nearly the same form as those rising from the urban gridiron today. Even the proportions of the bricks are similar, engineered roughly, perhaps by pure intuition, according to the golden ratio. The stacking schema is the same, too. Each row is offset by approximately half the length of a brick. Were the bricks stacked vertically on top of one another, gravity could easily pull the structure apart at the seams. Eleven thousand years later, the staggered grid is persistent and ubiquitous, stubbornly defiant of gravity's summons to rubble and dust.

The role of the grid in defying entropy goes well beyond the physical. Creating order is a survival impulse against the death drive of gravity and entropy—or, at the very least, a mode of making the daunting demands of existing in time and space more manageable. The parceling of space is an attempt to wrangle the infinite, thereby gaining traction against one's inevitable union with it. Umberto Eco has recently cited the linguistic equivalent: making lists (which he also made the topic of an exhibition he curated at the Louvre). "We like lists because we don't want to die." A grid is a comprehensive list of all parts of space, with nothing left unaccounted for.

As we itemize space, language naturally inserts itself into the system. The area of space traced by this page is now called a square. There is an unbreakable link between such organizing and naming. Krauss argues that the grid edges language out of our conception of form, but perhaps it merely calls us back to a more basic language, the language of quantity. This language precedes—and now, within the context of the digital revolution, supercedes—the language of quality, or words. This is not to say that one precludes or satisfactorily replaces the other. For example, "399964" cannot compete with "sage green" as a description of a color. But because color is definable as a quantifiable wavelength, its numeric properties precede the qualitative ones synthesized though human perception and articulation. Nicolai's close examination of grids prompts us to reconsider these negotiations with objectivity and the natural world.

Still, in *Grid Index*, there is an undeniably qualitative experience in seeing space subdivided so harmoniously or, in the latter part of the book, so surprisingly. Geometric consonance can be nearly spiritual. Many of the mathematicians Nicolai references considered their geometric discoveries to be revelations about the nature of the world, the universe, and existence itself. Plato attributed the classical elements to a set of remarkably symmetrical polyhedra; Luca Pacioli authored a book entitled *The Divine Proportion*, one of many attributions of holiness to a geometric relationship. Recently, in a meeting with the pope, Nicolai was asked whether his endeavor relates to a belief in God or in any higher order. He replied that he believes more in mathematics than in any usual religion but that mathematics could be considered a kind of religion, too. (I agree. Quantity is the closest thing I can imagine to an objective truth.) It's fitting that Nicolai's volume also exhaustively explores the kinds of tilings seen in the Alhambra, which utilize grids and *muqarnas* as means of expressing devotion, allowing them to stand in for iconic depiction. The walls of the Alhambra actually demonstrate thirteen out of the seventeen possible types of planar symmetry. If the rational and the spiritual are still traditionally locked in opposition, the grid is an unflinching answer of "both" to this either/or question.

An uncanny experience of "both" occurs when reading *Grid Index*: The book grows seemingly *more* entropic as it progresses. Inching toward increasingly specific, sophisticated types of order, we get further away from the visual appearance of order. Simple grids with easily identifiable repetitions give way to undulating aperiodic tilings; and approaching the very end of the book, the patterns are so Gordian and dense that they resemble balls of dust. Perhaps it is in this process of complication that entropy wins. Profoundly sophisticated order may just be too finely grained and singular to be useful in the battle—at least the psychic battle—against it. If one makes a comprehensive enough list, the list itself becomes overwhelming. Without a certain level of coarseness, order perceptually doubles back on itself, and a perpetual inversion takes hold. □

TAUBA AUERBACH IS AN ARTIST BASED IN NEW YORK AND SAN FRANCISCO. (SEE CONTRIBUTORS.)