THIRD EDITION
UPDATED AND EXPANDED

TIMOTHY SAMARA

A Graphic Design Layout
Workshop

THIRD EDITION
UPDATED AND EXPANDED

TIMOTHY SAMARA

A Graphic Design Layout Workshop

THIRD EDITION
UPDATED AND EXPANDED

Making and Breaking the Grid

TIMOTHY SAMARA

A Graphic Design Layout Workshop

Contents

Thoughts on Structure

An Introduction

For some designers, it has become an unquestioned part of the working process that yields precision, order, and clarity. For others, it is symbolic of Old Guard aesthetic oppression, a stifling cage that hinders the search for expression.

The typographic grid is an organizing principle in graphic design whose influence is simultaneously ingrained in current practice and fought over in design education, revered and reviled for the absolutes inherent in its conception. It is a principle with roots in the most ancient practices of humanity. Eking out an existence with some kind of meaning—and creating an understandable order for that meaning—is one of the activities that distinguishes our species from all others.

_ Structural thinking, long before its latest, and very specific, codification in Western industrialized design practice, has been a hallmark of all cultures, which have pursued grid-based approaches in laying out their settlements, conducting warfare, instituting religious rituals, and arranging writing and images. In many instances, that structure was predicated on the notion of intersecting axes that corresponded to the intersection of sky and earth.

_ The grid as instituted by European Modernism restated that long-ingrained sense of order, formalizing it to yet another degree and transforming it into an established part of its design philosophy, an orthogonal planning system that parcels information into manageable chunks. The assumption of this system is that placement and scale relationships between informational elements—whether words or images—help an audience understand their meaning. Like items are arranged in similar ways so that their similarities are made more apparent and, therefore, more recognizable. The grid renders the elements it controls into a neutral spatial field of regularity that permits accessibility—viewers know where to locate information they seek because the junctures of horizontal and vertical divisions act as signposts for locating that information. The

system helps viewers understand its use. In one sense, the grid is like a visual filing cabinet.

_ As an institutionalized metaphor for all that is right in the world—the intersection of heaven and earth made manifest in every object it governs—the grid has also been imbued with an explicitly spiritual quality. Its European adherents drew upon its source, as they perceived it, in Medieval Christian iconography. Its early proponents among the 20th-century avant-garde fought zealously on its behalf: Theo van Doesburg's mere tilting of the 90° de Stijl axis caused his partner, Piet Mondrian, to sever ties; Josef Müller-Brockmann, the grid's Swiss champion in the 1950s and 1960s, defined its will to order in nearly canonical terms.

_ For the graphic designers who helped rebuild their societies after two unimaginable wars, order and clarity became their most important goals. Part of that order, of course, meant consumer comforts; and the businesses that provided them recognized soon enough that the grid could help organize their public presence and their bottom lines.

_ The use of grids has steadily evolved from self-conscious gesture to that of second-nature reflex; and along the way, the viewing public become more accustomed to information presented to them in greater quantities, simultaneously, in greater complexity, and in more languages. And they're not simply accustomed to it: they want it that way. The grid's minimal simplicity is somewhat at odds with the kinetic, shifting surface of multimedia; information isn't flat anymore, and the average person expects it to move, jump, twist, and make noise. Paradoxically, the corporations that clothed themselves in the grid's neutral, utopian uniform helped create the oversaturated environment that is currently in demand.

_ Recent years have seen the design profession, its activities, and "design thinking" come to the forefront of public consciousness; it's become an especially important discipline for the information age. Within the design community, discussions of accessibility, gender, race, and other social concerns are (and arguably, rightly so) highly prioritized over discussions about relationships between form, organization, and meaning. Given that form making and its organization are inextricably linked to the visual dissemination of information, however, it seems likely that this simple-seeming discussion could really be a bit more complex, perhaps even

wrapping these same bigger issues that graphic designers have been giving more attention . . . an aesthetic "unconscious" of sorts we've decided to ignore without realizing its fundamental hegemony.

_ The current era is a little bit like that of Victorian England during the first Industrial Revolution, in the sense that we're living through another paradigmatic shift in technology and culture: Our appliances talk to us, our vision is global. The world's vast space has been reduced metaphorically as well as physically, and we're learning to cope with an uncomfortable intimacy as the private self recedes and resources dwindle. Our own industrial revolution's similarity to its antecedent continues, not unexpectedly, in its influence on the arts. A plurality of often conflicting approaches reflects the general cultural confusion that has pervaded the beginning of this millennium. Or maybe, on the other hand, that plurality is more a liberation from constraints that finally permits true inclusivity.

_ Interestingly, since the publication of this book's first edition in 2002, grid use has become remarkably prevalent, ostensibly driven by the practical demands of responsive UX design in a world increasingly linked by online communication. It may also reflect a renewed urge for cultural unity in response to that early millennial confusion. Simplicity, order, and visual neutrality in communication are, historically, strategies aimed at counteracting societal anxieties . . . But they also pose a potential threat through the aesthetic and intellectual conformity they engender: Designers need only consider the ubiquity of similarly templated, almost interchangeable, websites and "blanded" communication programs in current proliferation to appreciate that efficiencies in organization and production can also render an experiential landscape that is repetitive, undifferentiated, and mind-numbingly dull.

_ Given ongoing discussions about identity, the individual's relationship to society at large, and our responsibilities to each other and our shared environment, conversations about where to put things—the mundane "housekeeping" of grid-based design—still have value, but so too do those concerned with imagining ways of connecting with each other through visual languages that are unexpected, unconventional, and uniquely expressive. "Information" comes in many varieties, not the least of which are the symbolic, metaphorical, and emotional; effiicient transmission need

not be the only concern and, quite often, inefficiency in the visualization of information results in an audience's deeper understanding of a message by virtue of the challenges it asks them to overcome.

_ What's most important is that readers not consider the ideas assembled here as taking a position: All ideas are fascinating, and it doesn't have to be an "either/or" situation. The most effective design integrates its context of use as intrinsic to how it develops. It is what it must be; it does what it must do. Achieving that condition should be the only criteria for choosing to implement one kind of approach over another. Ultimately, it is incumbent upon each designer to evaluate the many options for constructing a visual communication they have before them—grid-based and otherwise—and to choose that which allows them to envision the most thoughtful, useful, and resonant experiences possible for their particular audiences.

JOSEF MÜLLER-BROCKMANN

The grid system is an aid, not a guarantee. It permits a number of possible uses and each designer can look for a solution that is appropriate to his or her personal style. But one must learn how to use the grid; it is an art that requires practice.

KATHERINE MCCOY

Graphic design that tries to make things simple is not doing anybody any real benefit.

Society needs to understand how to deal with the subtlety, complexity, and contradiction in contemporary life.

It is possible and necessary to have both complexity and intelligibility in graphic design.

MASSIMO VIGNELLI

The grid is like a lion in a cage, and the designer is the lion tamer. It’s fun to play with the lion, but the designer has to know when to get out before the lion eats him.

MAKING
the Grid

All design projects involve problem solving on both visual and organizational levels. Pictures and symbols, fields of text, headlines, tabular data: All these pieces must come together to communicate as a totality. Using a grid is one approach to doing so.

Before anything else, a grid introduces systematic order to a layout. Not only does it distinguish different types of information, easing a user's navigation through them but—just as importantly—it ensures vital cohesion among visual elements, harmonizing them through the systems of spatial proportions and positioning logic it defines.

Using a grid permits a designer to more rapidly lay out enormous amounts of information because many design considerations are addressed in building the grid's structure at the outset of a project. A grid also allows many individuals to collaborate on the same project, or on related projects, without compromising established visual qualities from one instance to the next. The benefits of working with a grid are simple: clarity, efficiency, and continuity. To some designers, the grid is an inherent part of the craft of designing, as is joinery in the craft of furniture making. Its assimilation into practice has been part of an evolution in how graphic designers think about designing, as well as a response to specific communication and production issues needing to be addressed at various times throughout the discipline's history.

A Brief History of the Grid in Visual Communication

The 100,000-year-old story of two-dimensional image making originates in graphical marking: first inscribed or painted onto objects, then cave walls and buildings; woven into textiles; and eventually, with increasing complexity, printed, filmed, and pixellated. How to organize such experiences has preoccupied makers for much of that time, and the record of that exploration evinces a remarkably consistent through line.

THE PRIMACY OF GEOMETRY

When imagining prehistoric art, most people picture the cave paintings of animals at Lascaux and Chauvet in France, or Altamira and El Castillo in Spain, dating to roughly 45,000 years ago. Twice as old and twice as common, however—according to paleoanthropologist Genevieve von Petzinger in her book, *The First Signs*—are purely abstract drawings, many rectilinear. Geometry, it seems, has long been very important. Dr. David Lewis-Williams and David Pearce, in *Inside the Neolithic Mind*, offer a plausible reason: Their cross-cultural research suggests that all spiritual experiences (as a transition from conscious to trance state) involve visions of dots, lines, arcs, zig-zags, and grids. (You can induce this neurologic activity by pressing on your eyelids to fire off such **entoptic** images.)

_ The implication? Geometry is a clue, perhaps divine, to the nature of reality. That it may thus be understood is reassuring and empowering. No wonder, then, that the most significant and enduring visual works, from every culture, reveal an intricate geometric organization—inducing a nearly spiritual cognitive harmony. All kinds of geometric ordering are appealing, but grid-based ones seem to be the most satisfying: Maybe it's the sense of interrelational totality they impart. In any case, grid-based works tend to be the most ubiquitous and evolved.

CARVED OCHRE/CA. 95K BCE/BLOMBOS CAVE, SOUTH AFRICA

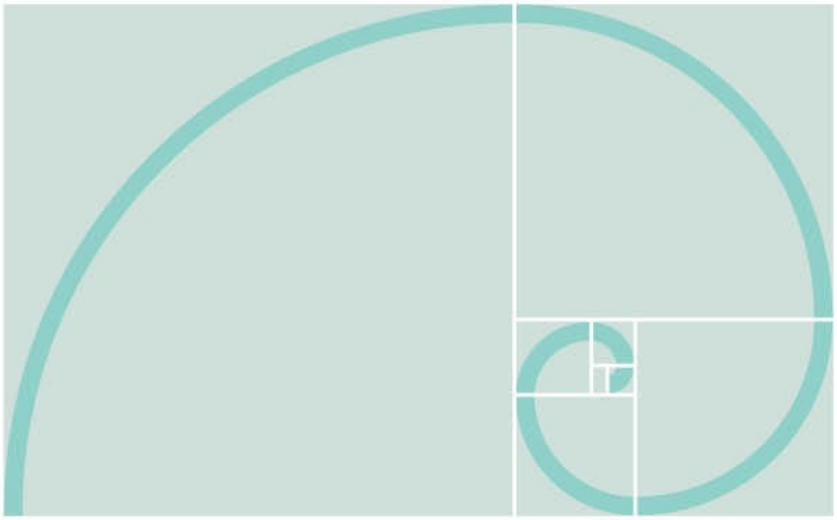
TECTIFORM DRAWINGS/CA. 60K BCE/EL CASTILLO CAVE, SPAIN

ARCHITECTURAL DECORATION/CA. 12K BCE/ÇATALHÖYÜK, TURKEY

STAMP SEAL (AND IMPRESSION)/CA. 7K BCE/ANATOLIA, TURKEY

HINDU SRI YANTRA SYMBOL/CA. 1700 BCE/INDIA

Selected examples of upper-Paleolithic and Neolithic art—archaeological evidence of a timeless, cross-cultural appreciation for geometric form and symbolism.

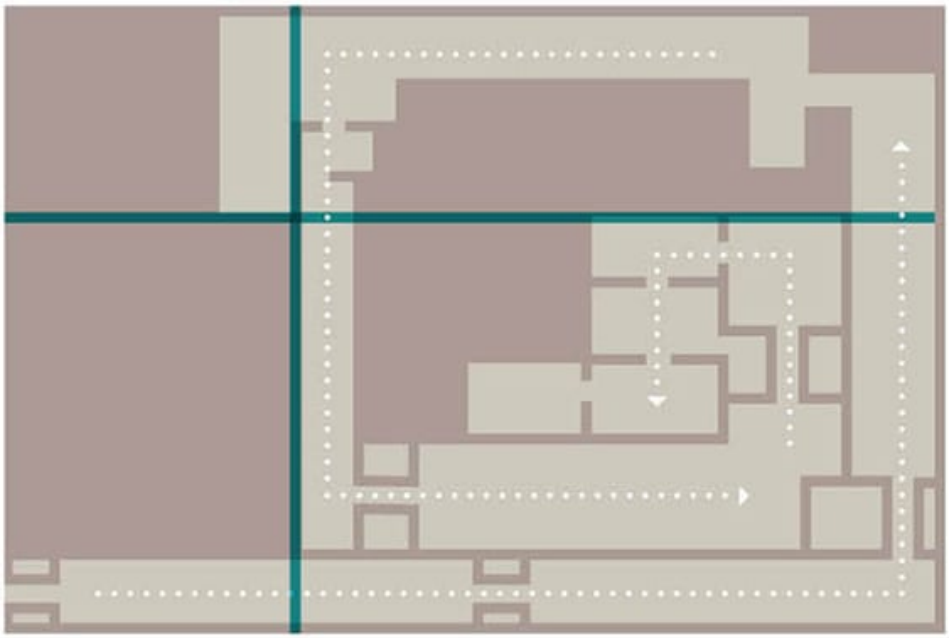


Example of a fractal [top], based on a specific set of modular, proportional relationships.

Diagram of the Golden Section [bottom] showing the recursive interrelationship of rectangle and square.

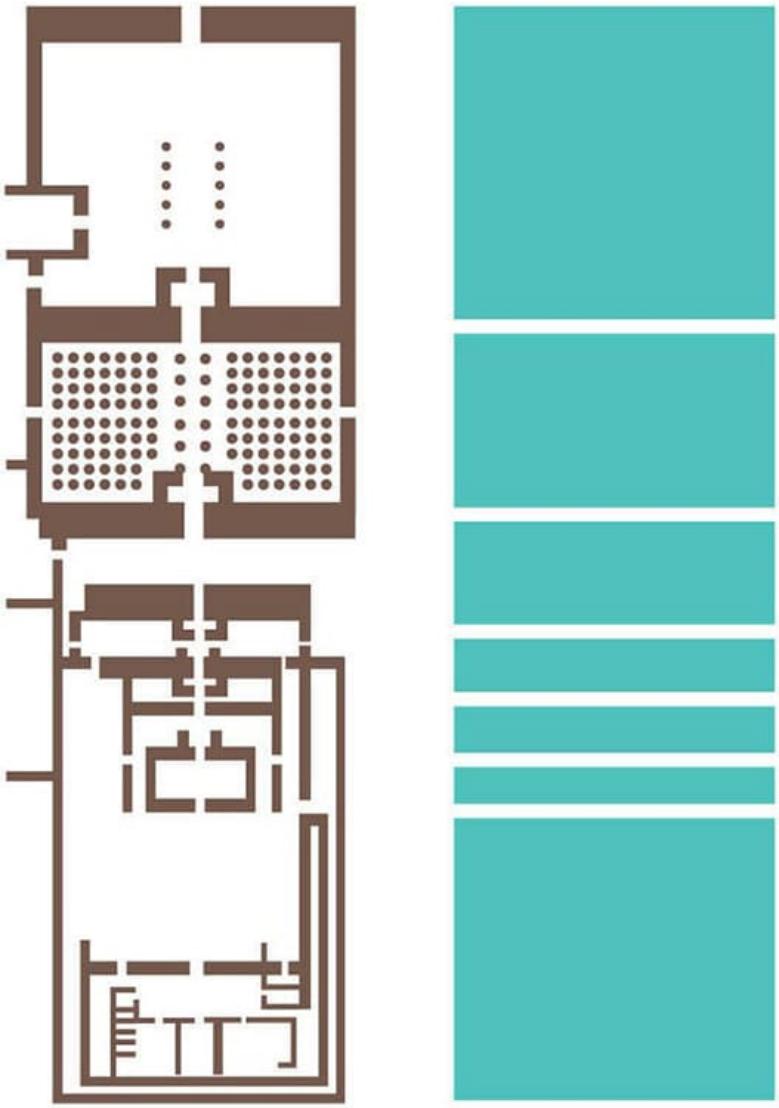
_ Grids embody **recursive geometry,** in which specific spatial proportions repeat, in variation, at different scales: a fractal structure. Perhaps the most familiar of these are the **Golden Section,** a rectangle/square configuration first described by the Greek mathematician Euclid around 300 BCE, and a related progression of numerical ratios, first described by the Italian mathematician Leonardo Bonacci (usually, *Fibonacci*), called the **Fibonacci Sequence**, around 1150 CE. Both of those attributions, however, are myths.

_ History evolves with new information. Babylonian writing tablets from 2200 BCE now show that *schoolchildren* studied math Euclid wouldn't contemplate for 1,500 years. Fibonacci grew up in Algeria, learning from African scholars before returning to Pisa, his hometown, to make his name. Recent work by designer/programmer Audrey Bennett and ethnomathematician Ron Eglash have effectively contributed to rewriting the grid's evolutionary relationship to its eventual appearance in Western design.



Palace of the Chieftain floor plan [above], showing its recursive Golden Section structure as an overlay/ca. 1400 BCE/Logone-Birni, Cameroon

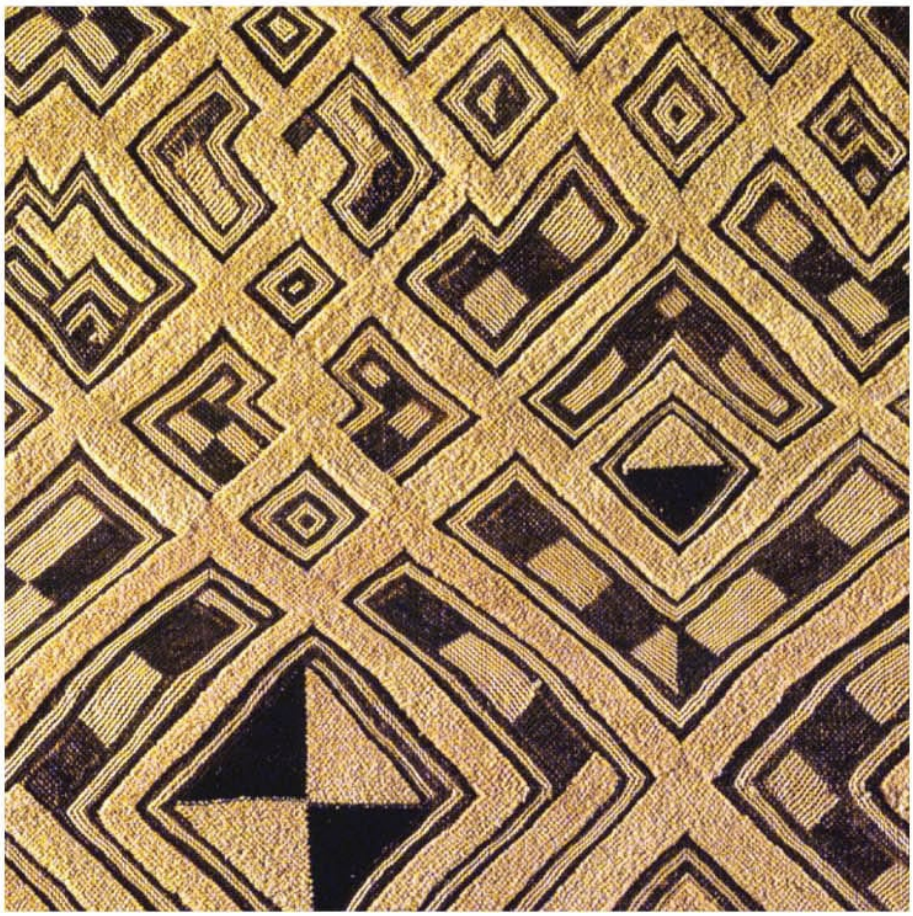
Temple of Karnak floorplan [next image], showing similarly recursive proportions/ca. 1700 BCE/El-Karnak, Egypt

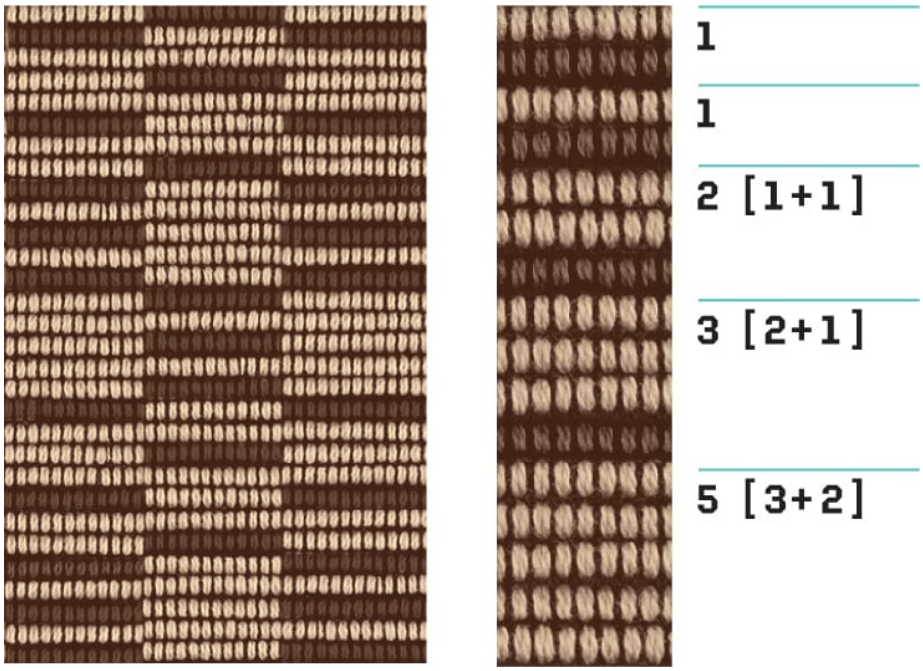


In his book, *African Fractals*, Eglash outlines an ancient (and ongoing) African cultural integration of recursive geometry. It orders temple architecture of ancient Egypt on ratios Fibonacci would discover 3,000 years later; the Babylonians, encountering Egypt 2,000 years into their rise, likely learned a thing or two, as did the Greeks. The Egyptians themselves may have inherited knowledge from the Nubians, to their south, or the Kotoko, to the west—whose palaces follow the grid of the Golden Section. Bennett builds on Eglash's work, recounting this cultural transmission in her critical essay "Follow the Golden Section from Africa to the Bauhaus."

_ Beyond architecture, recursive grids underlie most everyday African design, from hair braiding to sculpture and (more relevant to our

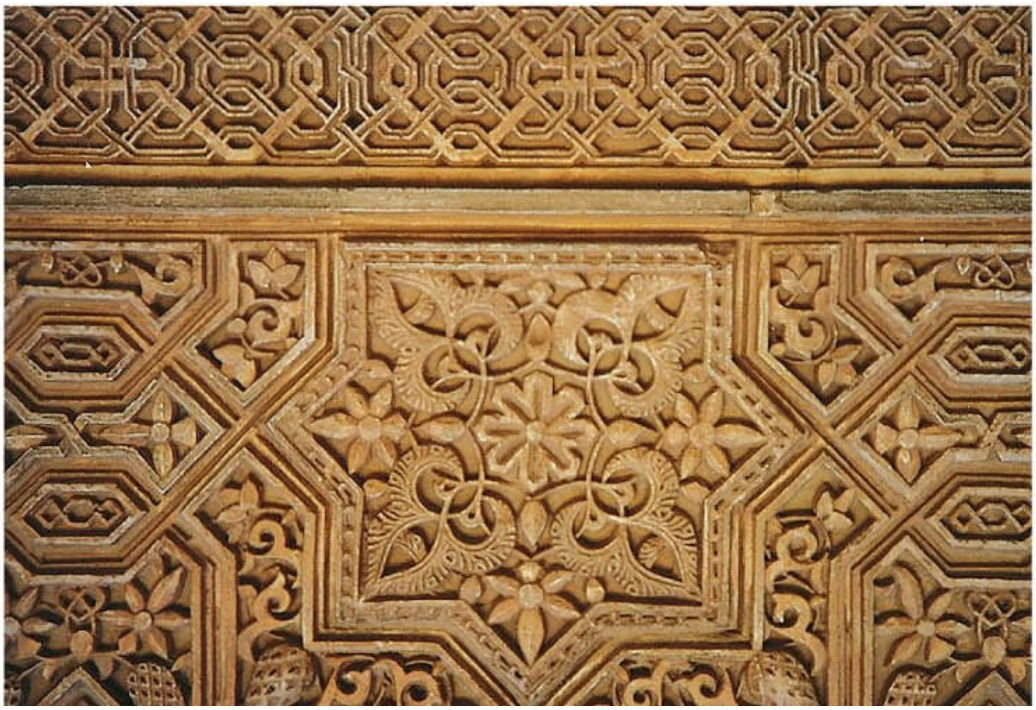
discussion) textiles for decoration and apparel, where they carry deep symbolic meaning. This ancient visual knowledge traveled from Africa as these original peoples migrated throughout the world and differentiated over millennia—expressing itself in myriad yet fundamentally universal ways. Grids explicitly underpin every design tradition established since.





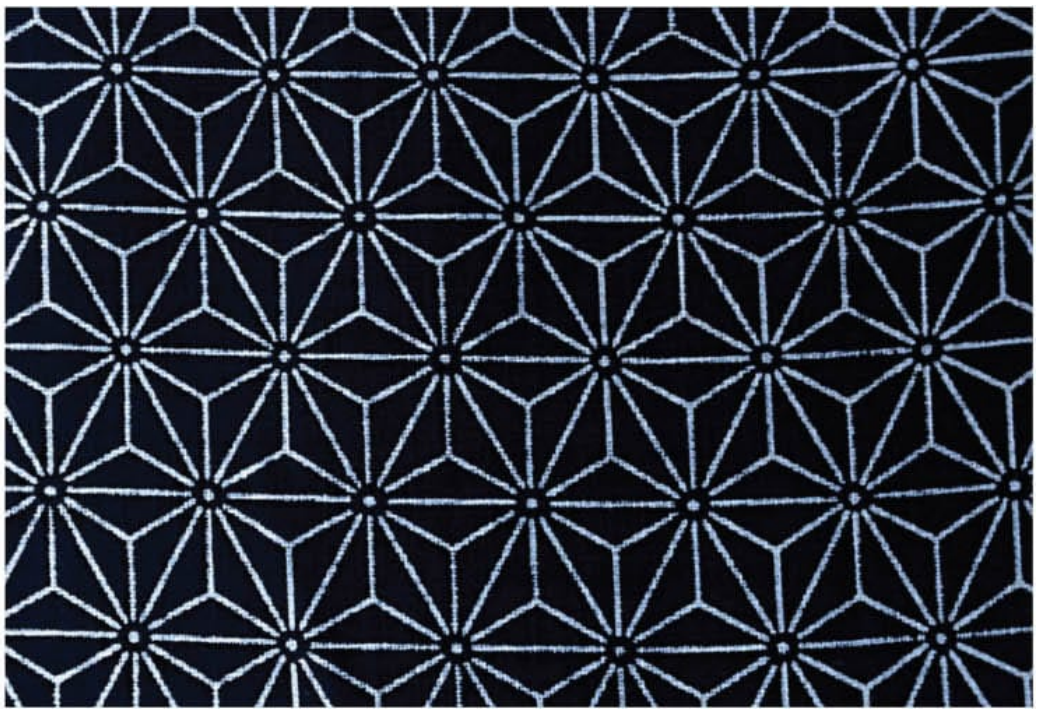
Detail of woven raffia Kuba cloth mourning shawl [top]/Traditional/Date unknown/Central Congo

Kente cloth weaving pattern [bottom] with notation of its fractal proportions/Traditional/Date unknown/Ghana

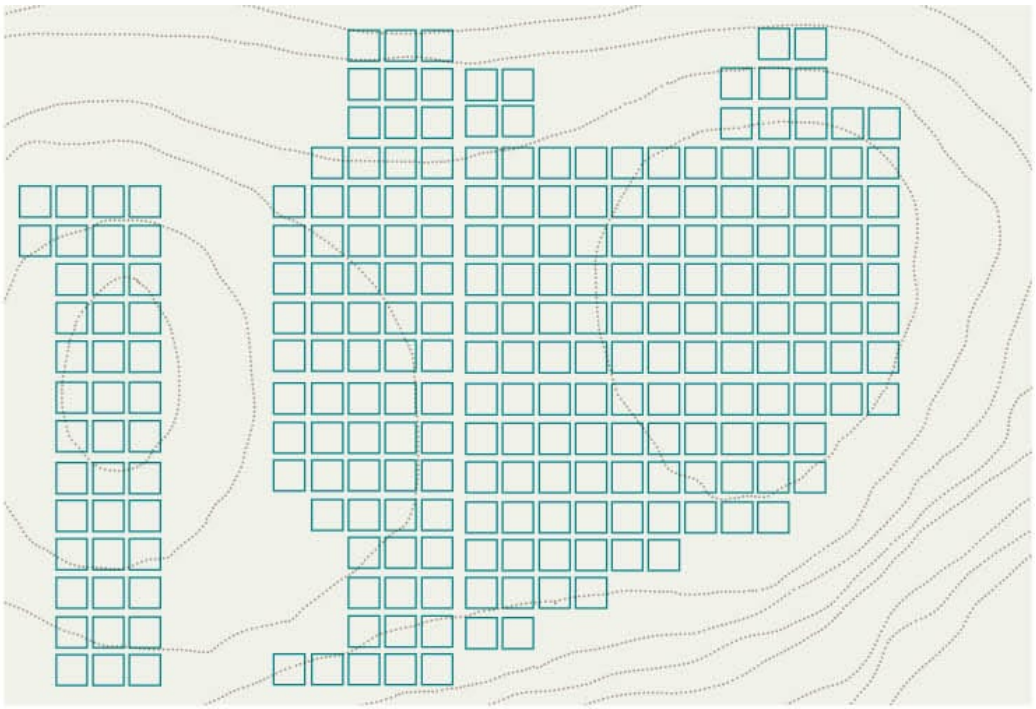


ISLAMIC GEOMETRIC INTERLACE / ARCHITECTURAL DETAIL / THE ALHAMBRA / MID-12TH CENTURY / CE GRANADA, SPAIN

TUNIC TEXTILE [DETAIL] / MOCHI-WARE CULTURE / CA. 7TH–9TH CENTURY CE / PERU



JAPANESE ASHOKA FABRIC / TRADITIONAL / DATE UNKNOWN



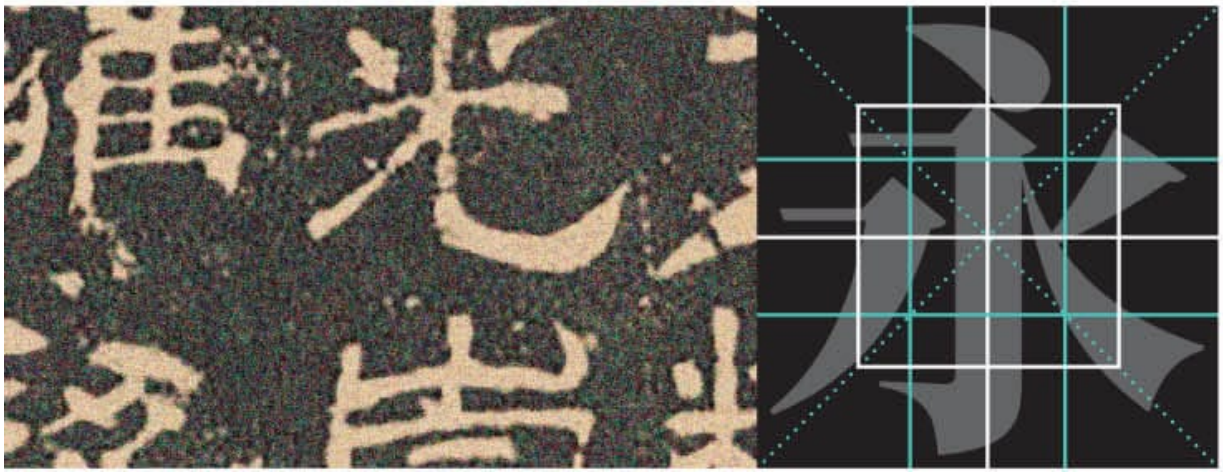
CITY MAP / ZERNAKI TEPI / CA. 8TH CENTURY BCE / ARMENIA

Examples of grid-based geometry in the decorative arts, architecture, crafts, and urban planning structure of various cultures.

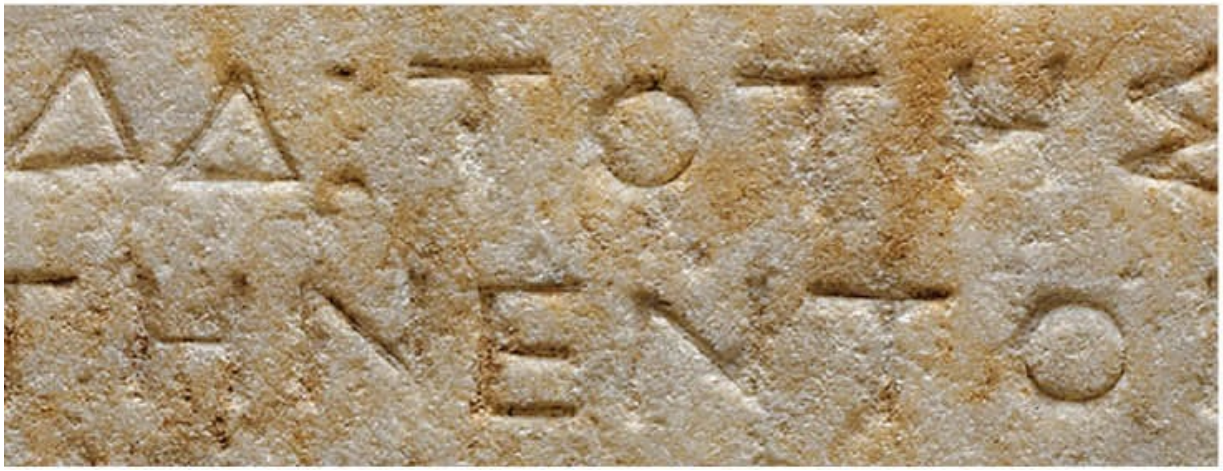
ARCHITECTURES OF WRITING

Making an analogy between architecture and typography is common in design education. While all writing systems originated as **pictograms** (images representing ideas), most—with the exception of Egyptian hieroglyphs—were eventually simplified into families of abstract, geometric marks representing sounds that, within each character, were arranged in grid-based formations of related proportions. This systematizing made writing and reading more efficient, easier to learn, and, over time, became appreciated as stylistically desirable. That geometry is important, but it's not the reason for the architecture analogy, nor is it the source of page-layout grids: It's that blocks of text, fitted within a given area, create rectilinear shapes, and readers' need to distinguish between parts **(informational hierarchy)** demands that these rectangles be somehow grouped or separated to aid in comprehension.

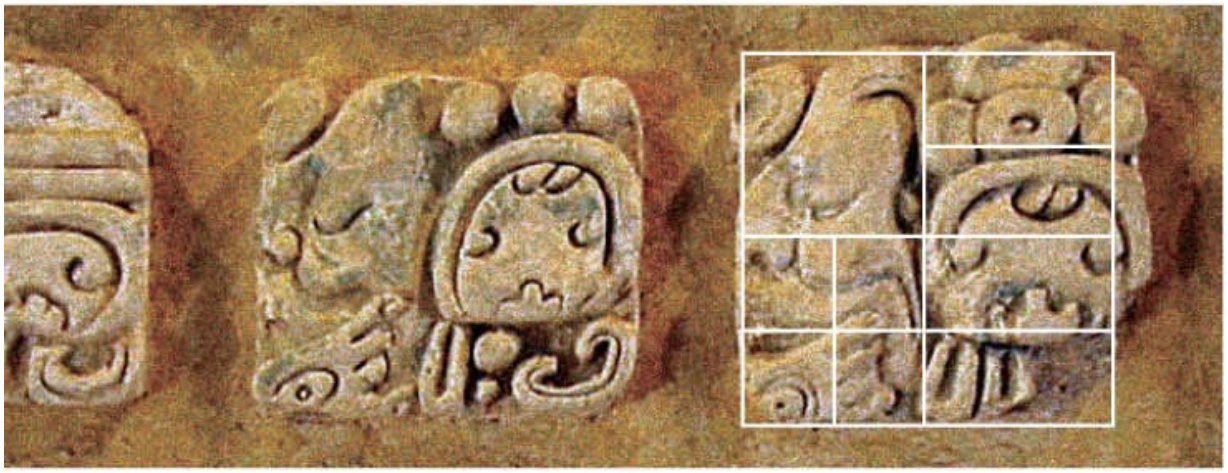
SUMERIAN CUNEIFORM/CA. 2125 BCE



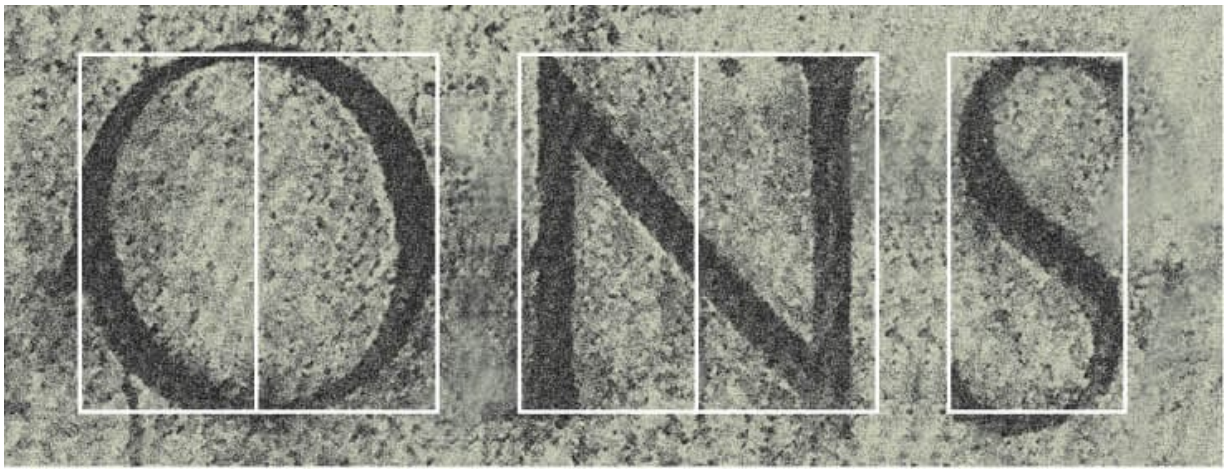
CHINESE CLERICAL SCRIPT/QIN DYNASTY, CA. 240 BCE



CLASSICAL GREEK/CA. 550 BCE



MAYAN LOGO-SYLLABIC GLYPHS/CA. 3RD CENTURY BCE



LATIN CAPITALS/113 CE

Examples of selected writing systems [above]. Some, like the cuneiform and Greek scripts, are simply composed of geometric shapes; others, like the Chinese, Mayan, and Latin, are constructed on grid-based proportions.

_ The earliest such hierarchic distinctions are found in the clay **cuneiform** tablets of the Sumerians (in what is now Iraq), from around 3300 BCE. Their complex culture necessitated detailed recordkeeping; thus, many cuneiform documents exhibit text-groups, articulated by linear and spatial divisions. By 2800 BCE, these differentiated text blocks, or **registers,** were common in the documents of antiquity.

_ Around the same time as the Sumerians, the Egyptians also began to write—using both **hieroglyphs** (on temple and tomb architecture) and an alternate **hieratic script** derived from them (for day-to-day writing) on clay tablets. Sometimes, these two appeared together, but in both, registers were prevalent, dividing primary headings and texts of varying content and importance from each other.

_ Innovations in graphical production historically result from a need for efficiency. Using clay was labor intensive to produce and cumbersome to carry and store. Around 2700 BCE, the Egyptians realized that the flax reeds they used for textiles could be unfurled and pounded into sheets. This **papyrus** addressed such challenges, rapidly becoming a standard writing medium around the ancient Mediterranean. Individual sheets of papyrus

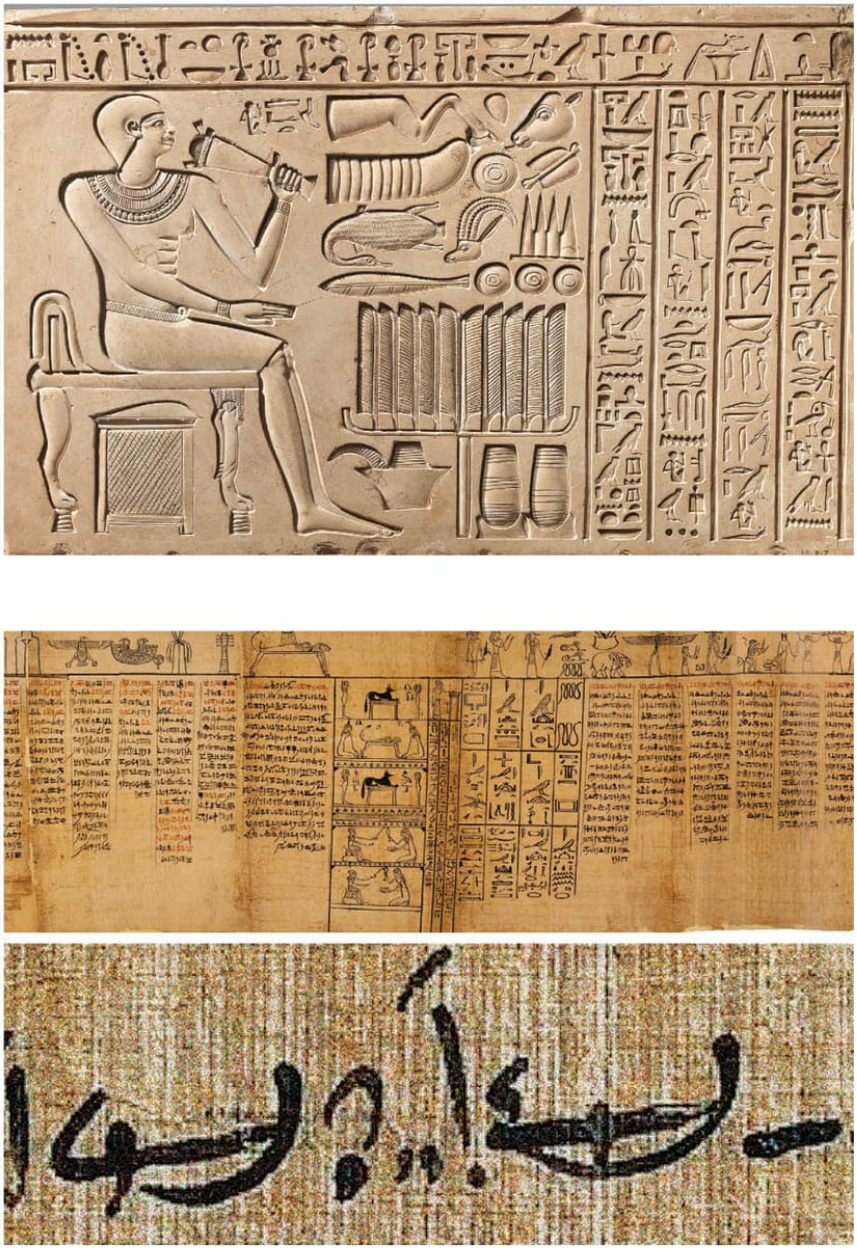
may have seemed disorderly to the Egyptians, who merged them into long, continuous **scrolls** that could be rolled. An extensive text could thus occupy a single sheet. Unrolling a scroll across a table for easy reading established a norm around the Mediterranean region for organizing and reading horizontally.

The clay cuneiform tablet [above] shows a columnar division between text groups and, within each column, subdivisions between lines of text/Late Ubaid period, ca. 2500 BCE/Sumerian/Iraq

_ In China, the scroll also appeared, but in a different way. There, the first writing (around 1200 BCE) was on narrow ox shoulder bones, with

characters ordered vertically to fit the available space. Scribes turned to bamboo as a readier medium, quartering its stalks to create vertical strips; their writing could thus follow its already established vertical sequence. Scrolls were made by binding these bamboo strips together, side by side; eventually these were replaced by scrolls of silk cloth and, later, by paper, an invention attributed to the courtier Cai Lun in 182 BCE.

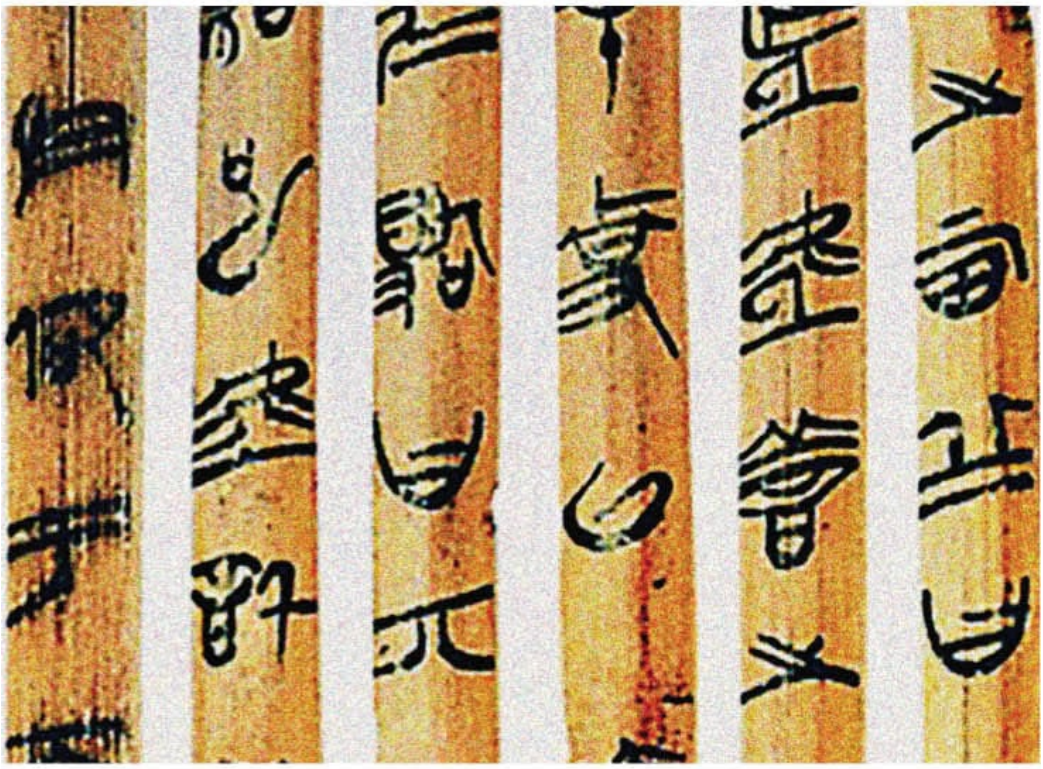
_ Returning, meanwhile, to papyrus: Its fibers ran in one direction and it was relatively delicate. For durability, two layers were pasted together: one of vertical fibers on the back side, and one of horizontal fibers on the front side. This made rolling the scroll easier; even better, brushes and nib pens used to write in horizontal sequence didn't catch on the horizontally running fibers, effecting a more refined appearance. Writing horizontally thus also became a standard. In contrast, the media used for Chinese scrolls didn't impede the movement of writing tools; they could be oriented vertically or horizontally, but the writing direction remained vertical. These format differences also informed each culture's approach to shaping text content. The Egyptians saw the limited area between a scroll's rolls as requiring lines of text to be stacked into vertical columns so that sequential content could remain contiguous. The Chinese, given the way their vertical writing was revealed line by line as a scroll was unrolled, tended to fill the writing area without spatial subdivisions. Hierarchic distinctions were achieved through changes in color, text size, and boldness. One result is that Asian graphic design often minimizes appreciation of overt geometric structure in favor of intuitive, spontaneous, and organic kinds of structure—a condition that will prove important later (see *On the Other Hand* in the next section, *Breaking the Grid*, here–here).



Detail from the *Stela of the Gatekeeper Maati* [top], showing registers to establish hierarchy/Old Kingdom, ca. 2051–2030 BCE/Tarif, Egypt

---

Details of *Imhotep's Book of the Dead* papyrus [middle] showing column structure, and close-up [bottom], showing fiber structure/332 BCE/Egypt



BAMBOO SLIPS/DATE UNKNOWN, CA. 1000–500 BCE

BOUND BAMBOOK SLIP SCROLL/CA. 230 BCE

POETRY BOOK/ZHAO MENGFU/YUAN DYNASTY, CA. 1350 CE

The evolution of Chinese text-layout structure as defined by the inscription medium—from narrow bamboo “slips” to slip scroll to codex.

_ As useful as scrolls were, they had some shortcomings. First, they were unwieldy to use, carry, and store. They could easily be crushed; moisture and insects (who eat plant-based material) could easily infiltrate them. In both the East and the West, it was seen that a scroll could be folded, like an accordion, to be far more compact. Folding it this way created a flat, rectangular form; many more documents could be stored with greater efficiency, and minimized damage from moisture and insects. The folding itself created a **spread** of two opposing pages to succinctly parcel related content. Ultimately, smaller individual sheets were simply folded in half and bound along the central fold, or **spine** . . . And thus was born the **codex** or, more commonly, the book.

_ In China, the codex derived from two sources: the long-standing practice of folding bamboo slip-scrolls accordion-style (easier than rolling); and folding screens—silk or paper scrolls set in wooden frames, used to divide architectural spaces. The first Chinese codices appeared around 500 CE; the form was rapidly adopted by their cultural descendants, the Nihon (Japanese) and Han (Korean) peoples. In the West, the codex evolved from **slates:** framed wax tablets that generals of the latest Mediterranean power —the Romans, in the first century CE—used to transmit troop orders. Roman civilians quickly recognized the format's practicality for everyday use.

The Roman slate—adapted from Assyrian versions dating to 1300 BCE—is the origin of the codex, or book, form in the West/ca. 50 CE/Rome, Italy

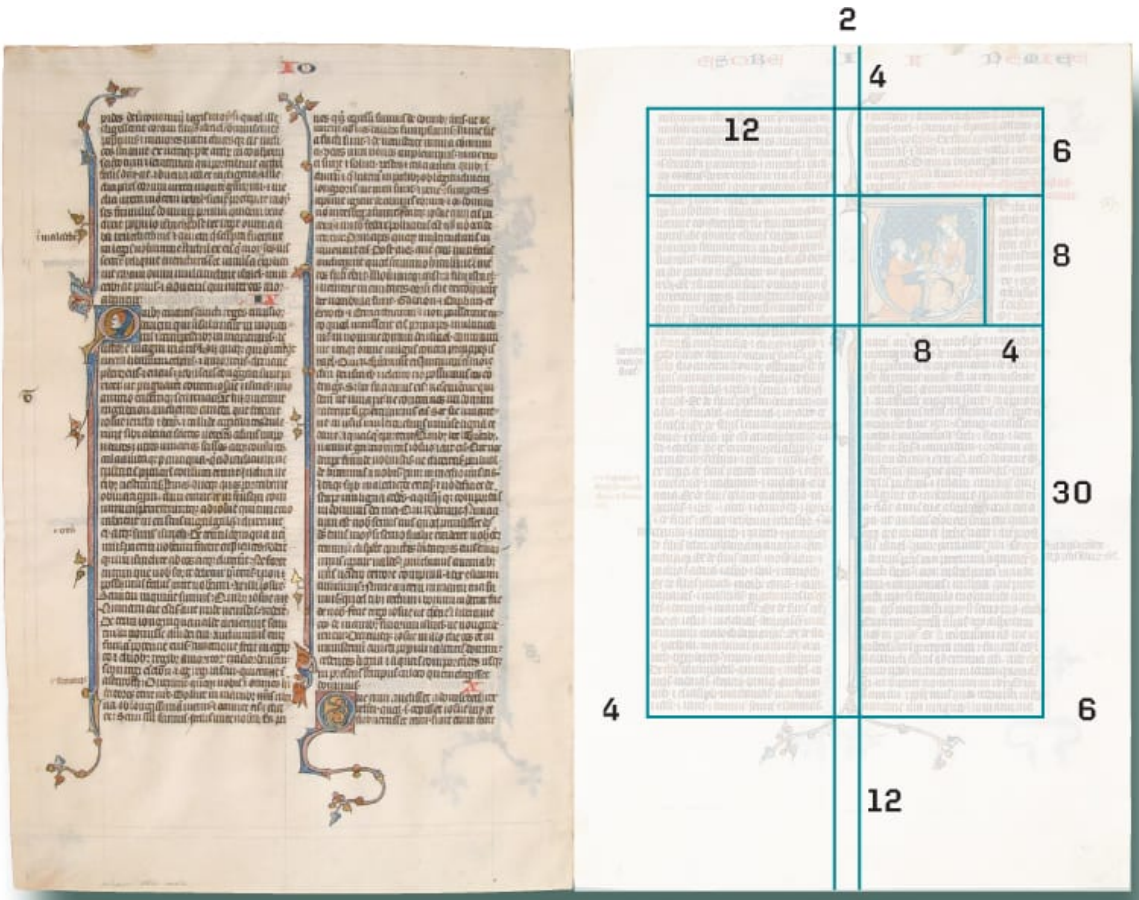
_ The codex's architecture dramatically influenced that of its content. The Roman slate's frames evolved into **margins** (spacious, empty borders), a layout convention that similarly protected content. The increasingly limited

area they imposed, further emphasized by the central binding area (or **gutter**), intrinsically tied column proportion to that of the format; most often, only one or two narrow columns of text could fit each page (less commonly, three or four columns could occupy wider pages). Either way, the spread established a convention for text columns situated opposite each other, across the gutter.

LAYOUT AS IDEOLOGY

Scroll and codex both were popular in the Roman Empire until followers of Christianity (a new sect of Judaism) co-opted the latter in the late first century CE to differentiate their religious works from the Jewish Torah, a scroll. As Christianity's status ascended to that of official imperial faith, the codex became a standard form throughout the empire . . . and not just the physical format.

_ Judaism assigned spiritual value to numbers, embedding such **numerology** in its writing. Hebrew letters correspond to numbers; spelling *Yahweh* (their deity's name) encodes numeric values considered divine. The layout proportions of Christian manuscripts, growing from this heritage, followed such sacred measurements. More important, the symmetry of two pages in a spread, joined as one, reflected their conception of God as a trinity of entities; and each page in a spread, with two columns of text unified by an emphatic vertical space, reiterated this Trinity at half-scale: a recursive, modular relationship. One is thus reminded that design not only reflects but constructs and perpetuates value systems through aesthetic gestures. This truth is evident in the visual output of all cultures, at every time, but the visual ideologies underpinning the evolution of grid-based document layout are arguably peculiar to European culture. As discussed, recursive geometry in design is ancient and universal. Almost exclusively, however, European designers embedded such explicitly **orthogonal** (90°), recursive systems in their publication design that, after the fall of the Roman Empire, manifested only in religious documents. Contrast this with Chinese layout (discussed earlier), or that of Islam, which came into being in the 600s CE. While grid-based geometry figures prominently in these cultures' decorative arts, it is far less evident in their typographic design. Islamic manuscripts of the seventh and eighth centuries CE, for example, did exhibit columnar layouts, but less commonly: Arabic writing differed in structure from Latin and Greek, with different considerations for layout. Further, Islam encouraged stylistic individuality in the writing of its Quran.

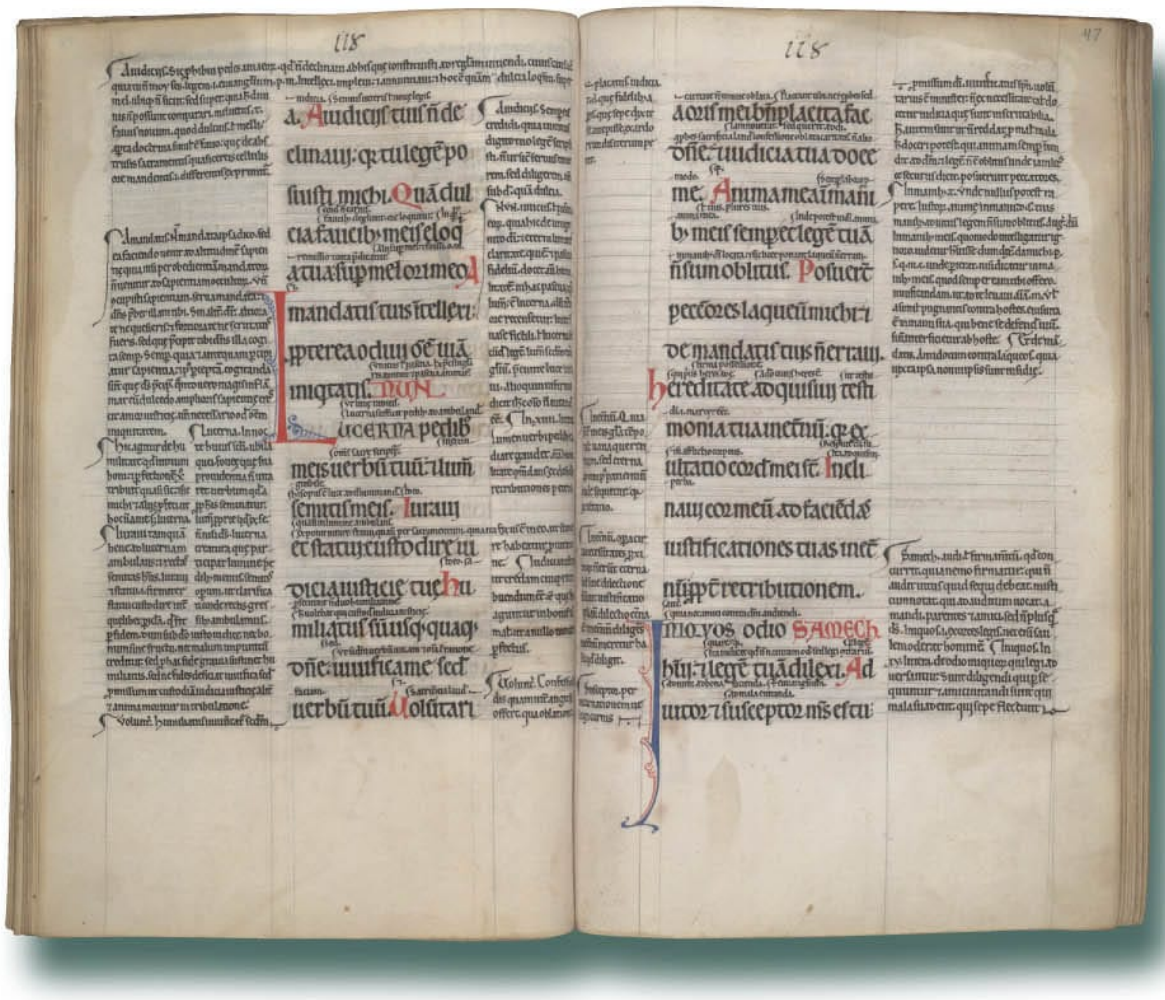


A typical Medieval manuscript; the overlaid diagram shows the numerological proportions of its page layout—all based on divisions and multiples of 12 to reference the Christian Trinity, the Bible's *Gospels*, and other such significant symbolic values/ca. 1040 CE/France

_ Medieval European designers (Christian monks) followed a **prescriptive** approach, striving to emulate model writing forms. Together with their institutionalized layout strictures, this preference for typographic conformity embodied their moral worldview—enforced by their religion's unifying cultural dominance over centuries of political conflict—an ideology that permeated Western design into the modern era, even as it confronted change.

_ A series of European attempts to reclaim Christianity's Middle Eastern birthplace from Islam (the Crusades of 1095–1291 CE) failed epically, but,

Crusaders, in their travels, rediscovered learning lost to them when the Roman Empire dissolved. Along with art and treatises on science and philosophy from antiquity came Islamic innovations in those disciplines as well new kinds of goods. Many Crusaders returned home as merchants; their trading posts at major crossroads grew into towns, then cities. European society stratified into multiple economic classes with access to formal education based on the Islamic **madrassa** (the university).



Greater variation in column structure and hierarchic details are evident in the layout and typographic styling of this late-Medieval psalter/ca. 1140–1160 CE/Germany

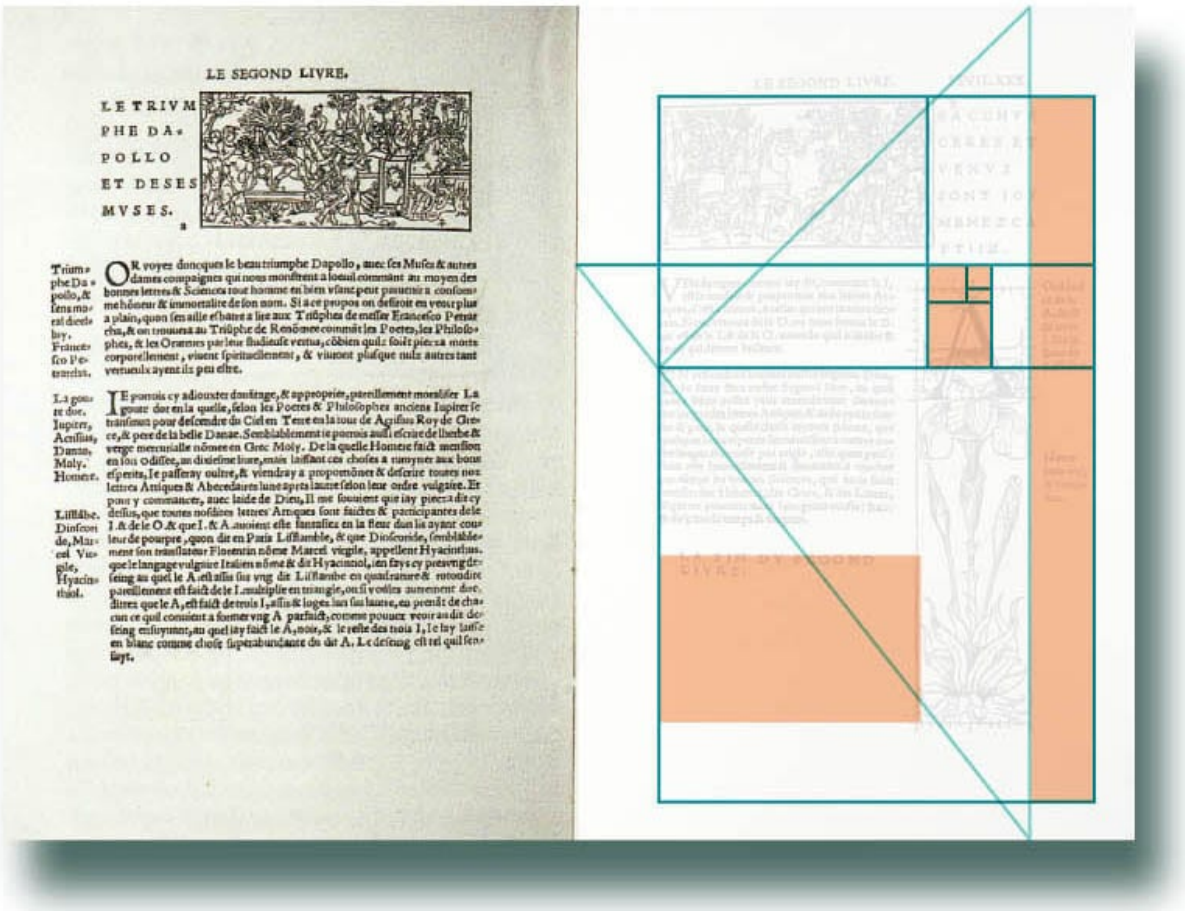
_ Increasingly specialized knowledge pushed for greater complexity in typographic structure and detail, and layout proportions shifted from those

determined by sacred measures to ones based on mathematical ratios like the rediscovered Golden Section—from a religious visual ideology to one that was scientific and secular. Although page layouts retained their age-old symmetry, column proportions began to differentiate with subdivisions that served a need for navigating more complex hierarchies: for notation like **marginalia** or **glosses;** for juxtaposing different kinds of text (translations or sub-articles, like **sidebars);** and for diagrams or images. When printing and movable type (both of Asian origin) replaced the handwriting of manuscripts in 16th-century Europe, the resulting explosion of printed media contributed not only to rising literacy and a shared, pop-cultural sphere—it also helped facilitate a new economic system.

Octaplus psalterii, Augustini Iustiniani Genuensis, predicatorii ordinis, Episcopi Nebiensis, dentem hebree de verbo ad verbum, tertia latinam communem, quarta grecam, quinta ptam, septima latinam respondentem chaldee, vltima vero hoc est octaua, con

Hebrea.	Latina respondens hebree.	Latina communis.	Greca.
ספר תהלים א	Liber hymnorum .I.	Dauid prophete carmen, & regis Deo. Incipit Psalterium A. siue liber hymnorū siue psalmorum siue soliloquiorum. Psalmus Dauid .I.	Δαβὶδ Προφήτου καὶ βασιλέως μέλος. Ψαλμὸς τοῦ Δαβὶδ ἀνεπίγραφος παρ' ἑβραίοις. α
אַשְׁרֵי־הָאִישׁ אֲשֶׁר לֹא הָלַךְ בַּעֲצַת	Eatus vir, B. qui non abiit, in consilium	Eatus vir qui non abiit in consilio	Μακάριος ἀνὴρ ὃς οὐκ ἐπορεύθη ἐν βουλῇ
רְשָׁעִים וּב	impiorum,	impiorum	ἀσεβῶν,
וּבְדֶרֶךְ חט	& in via	& in via	καὶ ἐν ὁδῷ
חַטָּאִים לֹא עָמָד	peccatorum non stetit,	peccatorum non stetit,	ἁμαρτωλῶν οὐκ ἔστη,
וּבְמוֹשַׁב לֵצִים לֹא	& in sede derisorum, non	& in cathedra pestilentie non	καὶ ἐπὶ καθέδρᾳ λοιμῶν οὐκ
יָשָׁב כִּי אִם בְּתוֹרַת	sedit. Sed in lege	sedit. Sed in lege	ἐκάθισεν. Ἀλλ' ἢ ἐν τῷ νόμῳ
יְהוָה חֶפְצוֹ	DEI voluntas eius,	domini voluntas eius,	κυρίου τὸ θέλημα αὐτοῦ,
וּבְתוֹרָתוֹ יֶהְגֶּה	& in lege eius meditabitur	& in lege eius meditabitur	καὶ ἐν τῷ νόμῳ αὐτοῦ μελετήσει
יוֹמָם וָלָיְלָה ׃ וְהָיָה	die ac nocte. Et erit	die ac nocte. Et erit	ἡμέρας καὶ νυκτός. Καὶ ἔσται
כְּעֵץ שָׁתוּל עַל־	tanq̃ arbor plantata super	tāq̃ lignū qđ plātatū est secus	ὡς τὸ ξύλον τὸ πεφυτευμένον παρὰ
פַּלְגֵי־מָיִם אֲשֶׁר	riuulos aquarum, que	decursus aquarum, quod	τὰς διεξόδους τῶν ὑδάτων, ὃ τὸν
פִּרְיוֹ יִתֵּן בְּעִתּוֹ	fructū suū dabit in tpe suo,	fructū suū dabit in tēpore suo.	καρπὸν αὐτοῦ δώσει ἐν καιρῷ αὐτοῦ.
וְעָלֵהוּ לֹא יִבּוֹל	& folium eius non defluet,	Et folium eius non defluet,	Καὶ τὸ φύλλον αὐτοῦ οὐκ ἀπορρυήσεται,
וְכֹל אֲשֶׁר יַעֲשֶׂה	& omne quod faciet	& omnia quecūq; faciet	καὶ πάντα ὅσα ἂν ποιῇ
יַצְלִיחַ ׃ לֹא־כֵן	prosperabitur. Non sic	prosperabuntur. Non sic	κατευοδωθήσεται. Οὐχ οὕτως
הָרְשָׁעִים כִּי אִם כַּמֹּץ	impii, sed tanquam festuca	impii non sic, sed tanq̃ puluis	οἱ ἀσεβεῖς οὐχ οὕτως, ἀλλ' ἢ ὡσεὶ χνοῦς
אֲשֶׁר־תִּדְּפֶנּוּ רוּחַ ׃	quam proiicit ventus.	quē proiicit vētus a facie terre.	ὃν ἐκρίπτει ὁ ἄνεμος ἀπὸ προσώπου
עַל־כֵּן לֹא־יָקֻמוּ	Propterea non surgent	Ideo non resurgunt	Διὰ τοῦτο οὐκ ἀναστήσονται (τῆς γῆς.
רְשָׁעִים בַּמִּשְׁפָּט	impii in iudicio,	impii in iudicio,	ἀσεβεῖς ἐν κρίσει,
וְחַטָּאִים בַּעֲדַת	neq; peccatores ī ɔgregatōe	neq; peccatores in consilio	οὐδὲ ἁμαρτωλοὶ ἐν βουλῇ
צַדִּיקִים ׃ כִּי־יוֹדֵעַ	iustorum. Quoniam nouit	iustorum. Quoniam nouit	δικαίων. Ὅτι γινώσκει
יְהוָה דֶּרֶךְ צַדִּיקִים	DEVS viam iustorum,	dominus viam iustorum,	κύριος ὁδὸν δικαίων,
וְדֶרֶךְ רְשָׁעִים תֹּאבֵד ׃	& via impiorum peribit.	& iter impiorum peribit.	καὶ ὁδὸς ἀσεβῶν ἀπολεῖται.

psalteriū & Citharā hoc interesse, qđ cithara deorsum percutitur, psalterium sursum hoc pluribus cōstare chordis, i. decē illā tm̄ sex, hoc superius habere concauitatem illā uero inferius Augustinus uero psalteriū sic dscripsit. Psalteriū est organū qđ qdē manibus portatur percutientis, & chordas distinctas hȝ sed illū locū unde sonū accipiut cordę, illd cocauū lignū qđ pendet & tactū resonat, qa teci



This page detail of the *Psalterium Octaplum* [top] shows multiple columns for translation and glosses /1516 CE/Agostino Giustiniani/Genoa, Italy

Page spread from the *Champs Fleury* [bottom]; the overlay diagrams Renaissance page proportions based on the Golden Section/1529 CE/Geoffroy Tory/Paris, France

COLONIALISM, CAPITALISM, CONSTRUCTIVISM

The global conception of graphic design *as it is practiced today* is rooted in the European **Industrial Revolution** (1760s–1850s CE); its resulting, intertwined economic and graphic traditions were exported by the West, for better *and* worse, as models for "modernization" by cultures that remained agrarian afterward, patronizingly considered "undeveloped."

_ The invention of the steam engine in the 1740s CE mechanized most production processes, fed by raw materials that flowed from the subjugation of African, Middle Eastern, Asian, and North American peoples colonized by European nations in the 1600s CE. Factory work crowded cities, and workers, in turn—now with some disposable income—generated demand for products to improve their quality of life. Design assumed the role of communicating the desirability of material goods, and of the superiority of one manufacturer's offering over that of another: **Advertising** redefined design as a service primarily devoted to the promotion of business and consumption.

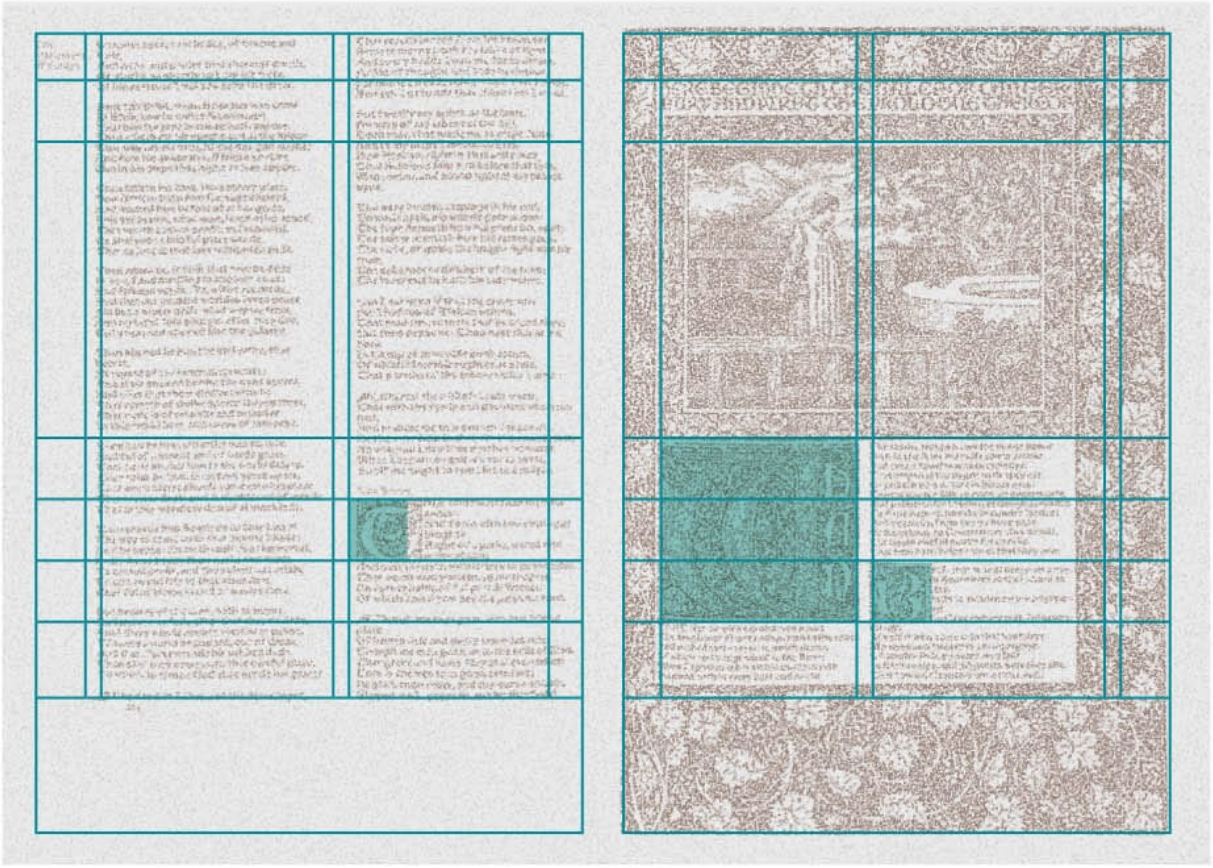
_ These changes brought aesthetic confusion. To compete for customers, manufacturers mixed styles associated with wealth and taste in their product designs with "exotic" ones (for novelty) from colonized cultures. Cost-cutting for profit and limitations in early machining flooded the market with poorly made goods that lacked aesthetic quality. Graphic design followed suit with wildly unrelated graphical styles and esoteric fonts to draw attention and generate excitement. For cultural critics in England, where industrialization originated, the solution to this degradation also lay in design.

Typographic and stylistic eclecticism in a Victorian, industrial-era poster advertising a circus/1890s CE/Bristol, England

_ Design, they proposed, must be socially and environmentally concerned, a force for good, and executed with attention to quality. This **Arts and Crafts Movement** (1860s–1910 CE), helmed by polymath William Morris, saw design and making as having split during the Renaissance, a rift made worse by industrialization. So, they looked back: Reunifying art and labor as they perceived it had been in the Middle Ages. Design for all products would come to follow this philosophy, but nowhere more explicitly than in publications—which became literally Medieval in appearance and structure.

_ Social concerns, like usability, dovetailed with a rebuke of eclecticism in a quest to authentically serve content; visual style would result from meaning and need. This notion that **fitness to purpose** inspires form became a founding tenet of European Modernism, more commonly cited as

"form follows function." Despite their base Medieval column structure, publications subdivided spaces asymmetrically, according to hierarchy and use; illustrations and type blocks shared proportional relationships to unify layouts and speed production. Reconnecting with nature was also of concern; organicism reflected Medieval decoration and new ideas from Japanese block prints. To Westerners, their unfamiliar abstract qualities merged the natural and the contrived, capturing for them a modern spirit. These qualities typically manifested in imagery, but did influence display type as the Arts and Crafts approach spread from England to the rest of Europe and evolved into **Art Nouveau** (1870s–1920s)—an even more organic response to the industrial world.



Page spread from *The Works of Chaucer;* the diagram overlay outlines its proportional layout system/1896 CE/William Morris, The Kelmscott Press/London, England *Author's schematic re-creation*

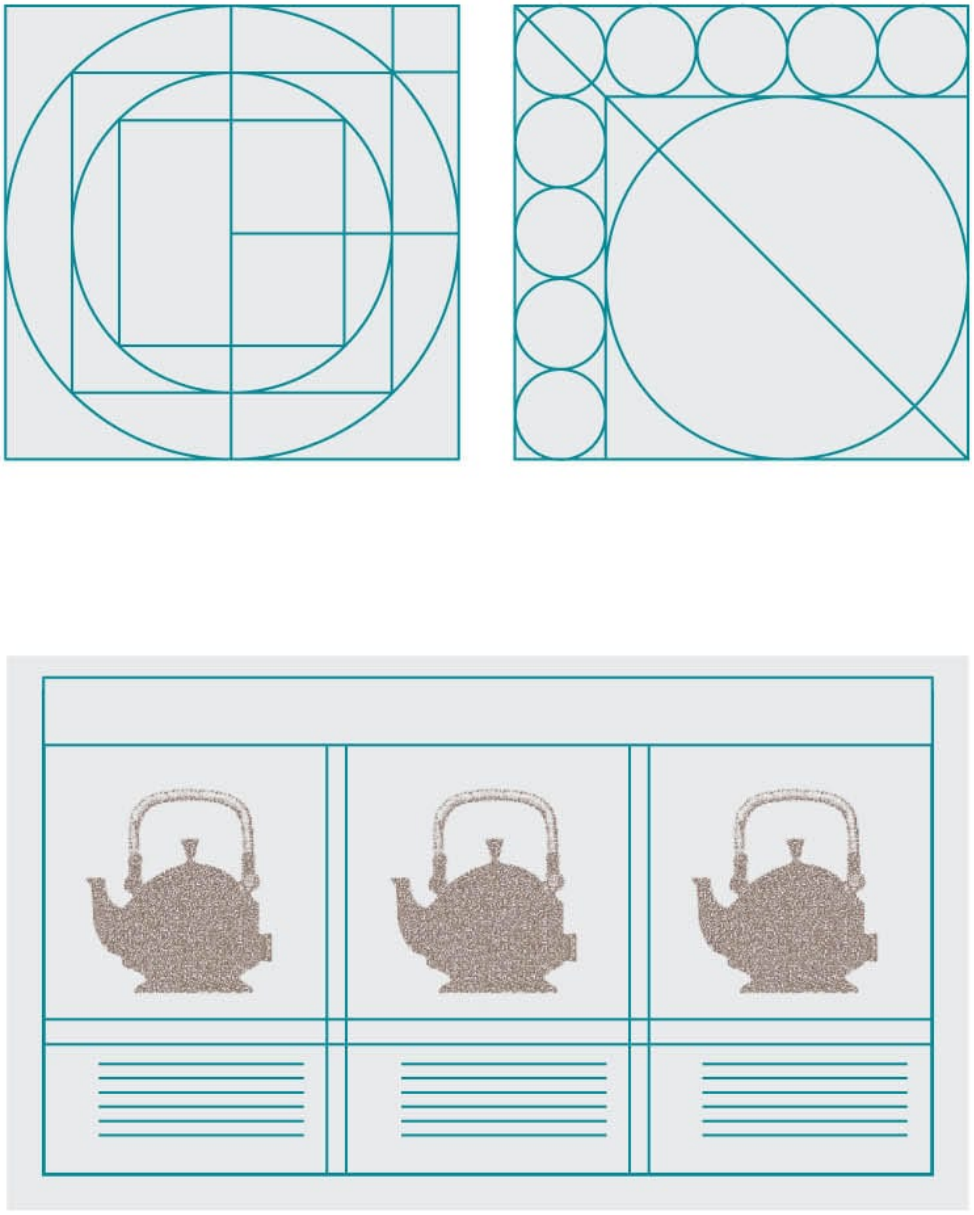
_ As the 19th century drew to a close, Western society became accustomed to the fact of industrialization. The Medieval flair of Arts and Crafts and the ornate floral style of Art Nouveau steadily morphed into a rectilinear geometry of increasing visual austerity. William Morris's work remained a guiding force, but new aesthetics were also discovered in colonial imports —most significantly, those of the Congo, from which textile patterns were, at times, literally lifted for use in posters, book covers, and page borders. Stripping down decoration to essentials in this way conveyed a mechanical quality; it also foregrounded a recursive modularity that Western designers now applied as Morris had, but even more systematically.

_ Graphic output by Viennese designers like Josef Hoffmann and Koloman Moser is significant for its early modularity, but the work of German Peter Behrens is considered pivotal. Prolific as an architect, engineer, product designer, painter, and graphic designer, Behrens embodied the **Gesamtkunstwerk** philosophy of a totality in art built on Morris's principles. He helped found the *Werkbund* association that strove for a universal culture through design. Taking cues from architectural principles developed by a teaching colleague, Dutch architect J. L. M. Lauweriks, he devised the first integrated branding system (for AEG, the German electrical company, in 1907)—with proportional grids and type style systems to unify advertising, brochures, promotional ephemera, and retail environments. The project indelibly linked corporate capitalism and graphic design. Behrens was also among the first to use the new sans serif fonts of the time as running text, the optical neutrality of which emphasized its shape against surrounding white space such that placement and interval assumed greater visual importance.

Exhibition poster [top] in the Secession style, showing the influence of geometric Congolese patterns/1906/Designer unknown/Vienna, Austria

Modular design structure [bottom]/After Josef Hofmann and Koloman Moser/*Author's schematic re-creation*

_ The appearance of **Cubism** around the same time (1906) supercharged the geometric thrust of early 20th-century European aesthetics. The movement drew on aspects of African sculpture and ritual masks, and on the phenomenon of cinema, just becoming known—and it liberated depictions of figure, space, and time from the constraints of naturalism—laying bare the planar visual order that underlies all form: Cubism is about construction on numerous levels. Its effect was seismic, initiating a multitude of tangential movements: Futurism, Abstract Expressionism, Surrealism, Dada . . . and **Constructivism,** the goal of which was the universal visual language that Behrens and others had proposed through pure geometry—to cross cultural boundaries with the fundamental and manifest the mechanized, rational world of modernity. The term comes from a Russian movement situated in that country's Communist Revolution of 1917 (in work by Valentina Kulagina, El Lissitsky, and Alexander Rodchenko), but it applies generally to all such Cubist-derived visual approaches—notably **De Stijl,** in the Netherlands (where it first surfaced in 1912 in work by Vilmos Huszár, Theo van Doesburg, Piet Mondrian, and Piet Zwart). While Russian Constructivism privileged triangular forms and diagonal composition, Dutch and German Constructivists emphasized square and orthogonal organization, even when rotating a 90-degree structure within a format. By the early 1920s, a Constructivist approach came to dominate the avant-garde in architecture, product design, photography, and graphic design, especially—given its direct correlation to the inherently rectilinear qualities of text.



Architectural proportion diagrams [top]/After J. L. M. Lauweriks/*Author's schematic re-creation*

Product sell-sheet layout, AEG identity system [bottom]/After Peter Behrens/1908/Berlin, Germany *Author's schematic re-creation*

_ The Bauhaus, an art and design school established in Weimar, Germany, in 1919, played a decisive role in cementing Constructivism as synonymous

with Modernism. Its interdisciplinary curriculum was first based on the painterly principles of German Expressionism, but its founding director, Walter Gropius (a former apprentice of Peter Behrens), recast it as he came under the influence of De Stijl designer Theo van Doesburg and the Hungarian Constructivist Laszlo Moholy-Nagy, who took over the Bauhaus foundation course and the print workshop in 1923. Together with his students (in particular, Herbert Bayer), Moholy-Nagy mixed photomontage and type-case elements in architectural, asymmetrical layouts. Throughout the 1920s, El Lissitsky (also active in Germany) engaged in ongoing dialogue with the Bauhaus and other designers, including van Doesburg and the German advertising designer and collage artist Kurt Schwitters. The Bauhaus would prove to be influential both as a proving ground for the Constructivist vision of Modernism and as an enduring model for design instruction. As pervasive as they seem, however, these innovations were known to a relative few in avant-garde circles: A majority of professional printers and designers were unaware of them, still generally holding on to 19th-century visual conventions.

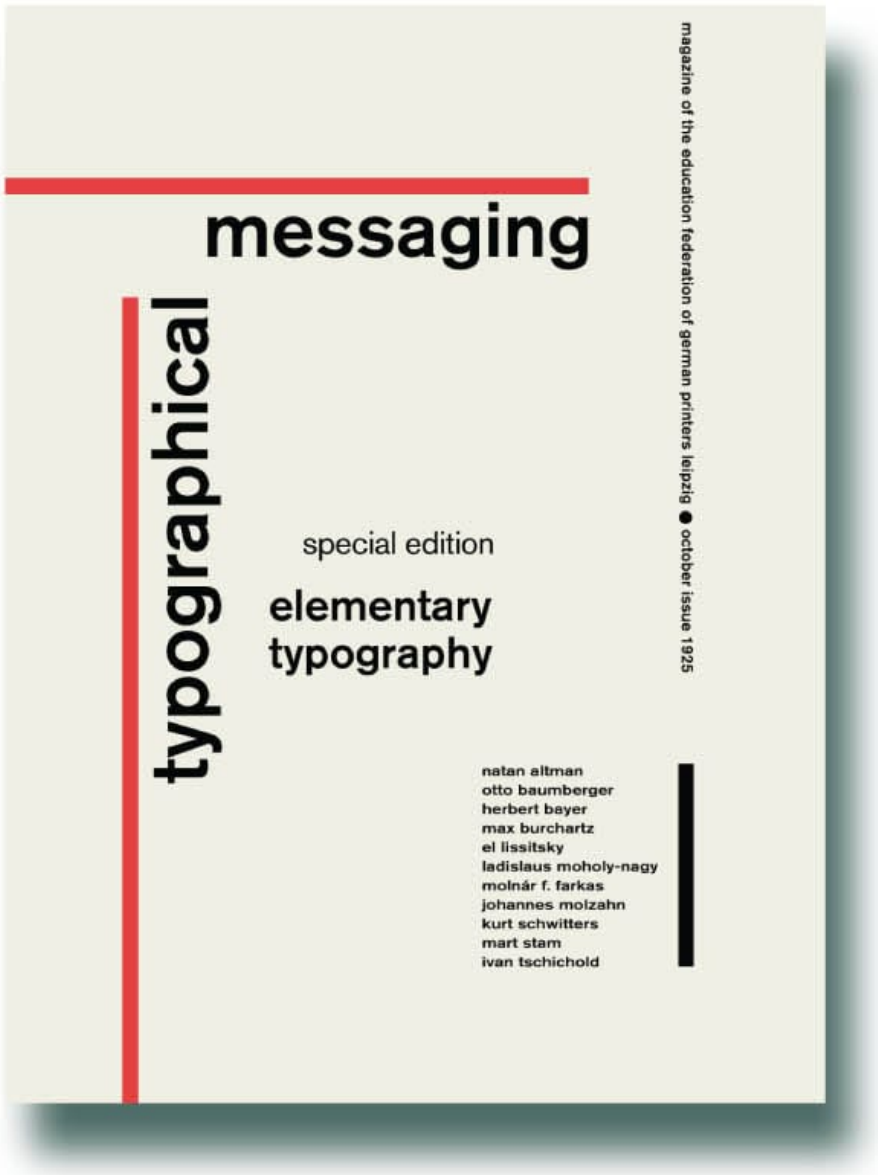
DISSEMINATION AND STANDARDIZATION

A young staff designer at the German publisher Insel Verlag, Jan Tschichold, changed that when he happened upon the first Bauhaus exhibition of 1923—and was enthralled. Within a year he had assimilated the school's approach and become familiar with the work of Lissitsky and other Constructivists. In 1925, he developed an insert for the *Typographische Mitteilungen*, a printers' magazine. *Elementare Typographie*, as it was titled, generated widespread enthusiasm in the profession for its reductive, functional aesthetic: stripping away ornament; giving priority to sans serif typefaces; and creating compositions based on the verbal function of words to "liberate the modern age." Visual changes among text elements, along with deliberate alignments and proportional intervals between areas of text, introduced hierarchical structure in documents from posters to letterheads. As early as 1927, the year before he published his landmark book *Die Neue Typographie (The New Typography)*, Tschichold codified this idea of structure and advocated its use to standardize printing formats—resulting in the current International Standards Organization (ISO) system—in which each format, folded in half, yields the next-smaller one.

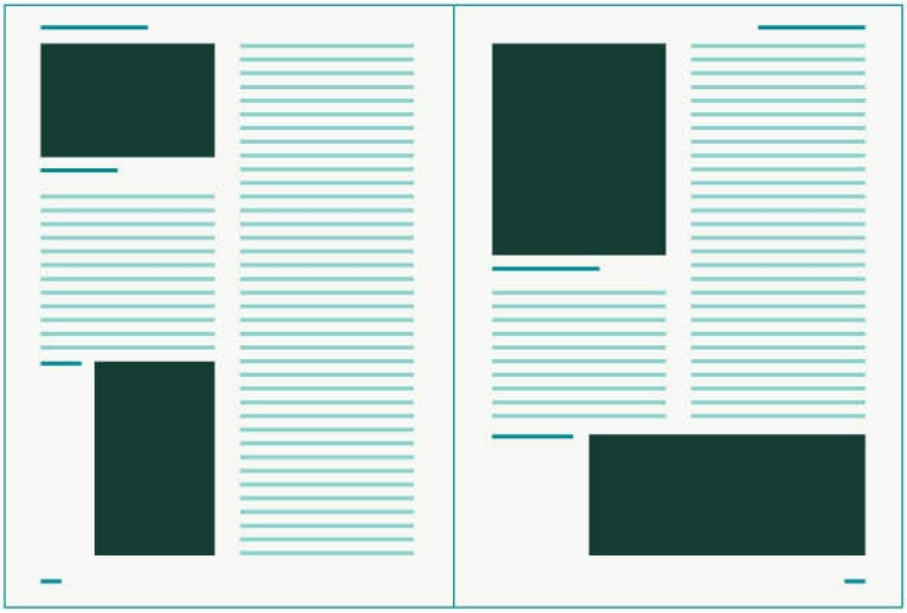
***View of Rooftops*/Constructivist photograph [above, left]/1917/Morton Schamberg/New York, NY**

Event poster [above, right]/1926/Herbert Bayer/Dessau, Germany/*©2003 Artists Rights Society [ARS] New York/V.G. Bild-Kunst, Bonn*

_ The developing Modernist aesthetic in Europe was abruptly sidetracked in the 1930s as the Nazi Party gained power in Germany. Designers and artists associated with the new visual language (many of them Jewish) were labeled degenerates and arrested or forced to leave. The Bauhaus officially closed in 1932 and, along with a legion of other Modernists, many of its faculty and students emigrated to America. Others, including Tschichold (who was arrested and held by the Nazis for a short period) relocated to Switzerland, which remained neutral and generally unaffected by the war—its iron grip on international banking keeping the country safe from invasion.



Cover [top] and selected page spreads [bottom] from *Elementare Typographie* [*Elementary Typography*]/1925/After Jan Tschichold/*Author's schematic re-creations; cover shown in English translation***



THE WILL TO ORDER

World War II devastated Europe; the continent had no choice but to commit itself to rebuilding. Business came to be seen as a benevolent cultural force working to reestablish normalcy, and designers sensed an opportunity to reform their surrounding cultures in the war's aftermath. Switzerland ascended to the status of commercial superpower because its economy remained essentially untouched and, therefore, quite robust. The United States established itself as a superpower for the same reason (as well as because of its military might, which now included nuclear weapons).

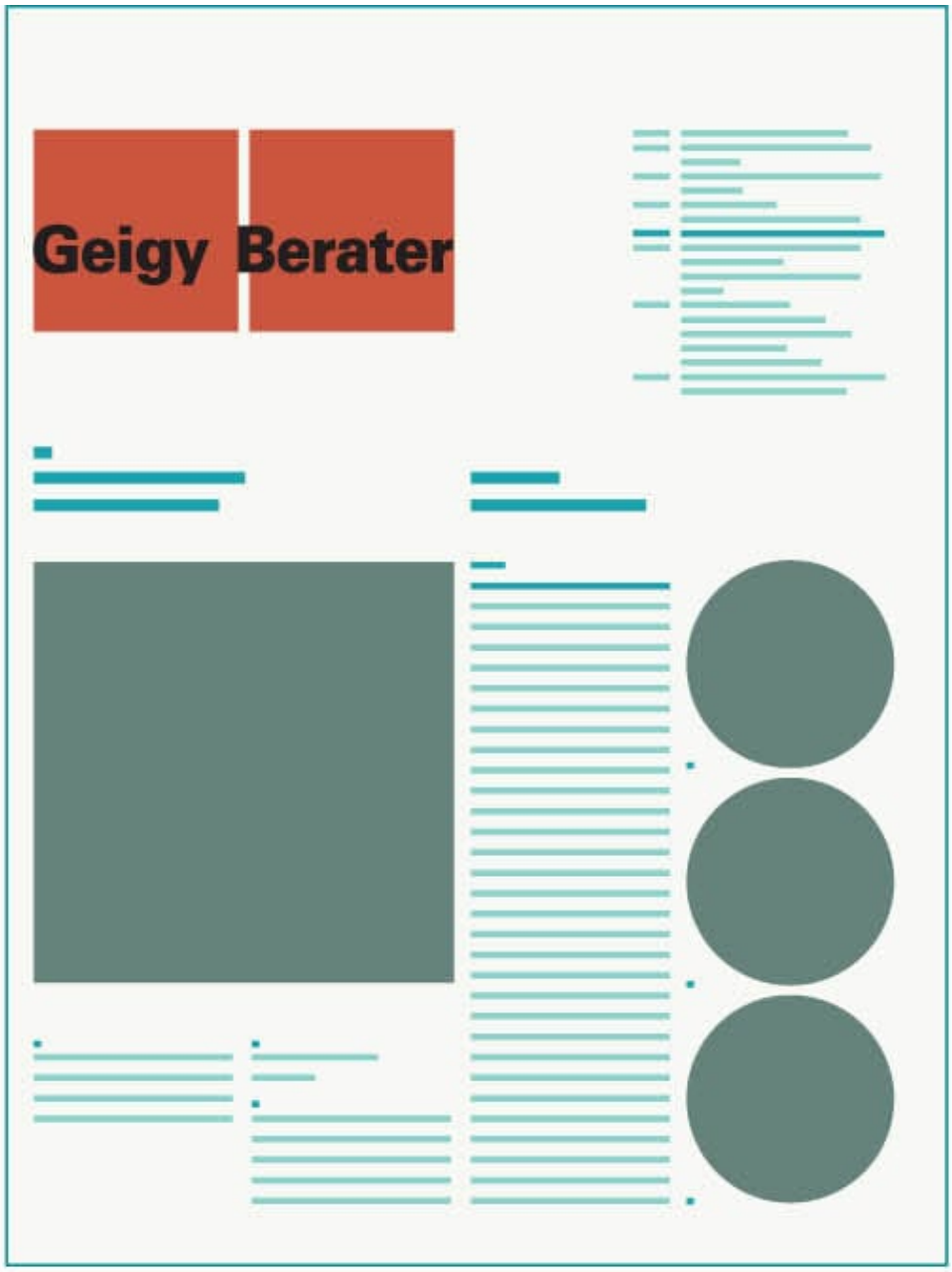
_ The Swiss had long honed a tradition of visual reduction and symbolic representation. Building on that heritage (and influenced to a certain degree by Constructivist principles that immigrated with Tschichold and Bauhaus refugees like Theo Ballmer and Max Bill), a new generation of Swiss designers and educators in Zürich and Basel came to advocate universality and neutral messaging through meticulously finessed form—a visual rebuke to the exclusionary, ethno-nationalist narratives that had given rise to the war itself. For them, the grid embodied this empathetic, humanist ideology: transcending egoistic, personal, and regional style. They aspired, as had others before them, to create a rational, shared, international culture through an elegant, intellectually driven formalism that privileged logic, organizational rigor, and pure typography over all else. This rationalist version of the so-called International Style, centered in Zurich (and its premier design institution, the *Gewerbeschule*, or School of Applied Arts), is the one with which most designers are familiar today. In contrast, designers in Basel, in particular those associated with that city's *Gewerbeschule*, emphasized symbolic form. Structural rigor was fundamental to the school's type instructor, Emil Ruder, but his approach, which emphasized intuitive formal relationships—not the mathematical—would come to play a more significant role in an eventual shift toward alternative visual strategies (see here–here).

Page spread [top] from *Neue Grafik* [*New Graphic Design*]/1950/After Josef Müller-Brockmann, et al./Zurich, Switzerland/*Author's schematic re-creation***

Page spread [bottom] from *Grid Systems in Graphic Design*/1962/Josef Müller-Brockmann/Niggli Verlag, Zurich, Switzerland

_ The more austere approach was taken up by Josef Müller-Brockmann, Carlo Vivarelli, Hans Neuberg, and Richard Paul Lohse in Zurich, who exposed this "International Style" to the rest of the world through their industry publication, *Neue Grafik* (*New Graphic Design*). The publication's grid marked a significant development: the realization of the "module," a small unit of space revealed by the crossing of vertical columns with horizontal rows that, through its repetition, could more thoroughly integrate content.

_ Müller-Brockmann eventually forsook imagery altogether for purely grid-based typographic constructions. His seminal book, *Grid Systems in Graphic Design*, is nothing short of a manifesto: "The grid system implies the will . . . to penetrate to essentials . . . to cultivate objectivity rather than subjectivity." Karl Gerstner, another Zurich designer, distilled these ideas further, and in nearly scientific terms, in *Designing Programmes*, writing: "The typographic grid is a proportional guideline for text, tables, pictures, etc. It is a formal program, a priori for 'x' unknown contents. The problem: to find the balance between a maximum of conformity with a maximum of freedom. Or: the highest number of constants combined with the greatest possible variability."



Cover design for promotional publication *Geigy Berater* [*Geigy Advisor*]/mid-1950s/After Karl Gerstner/Zurich, Switzerland/*Author's schematic re-creation***

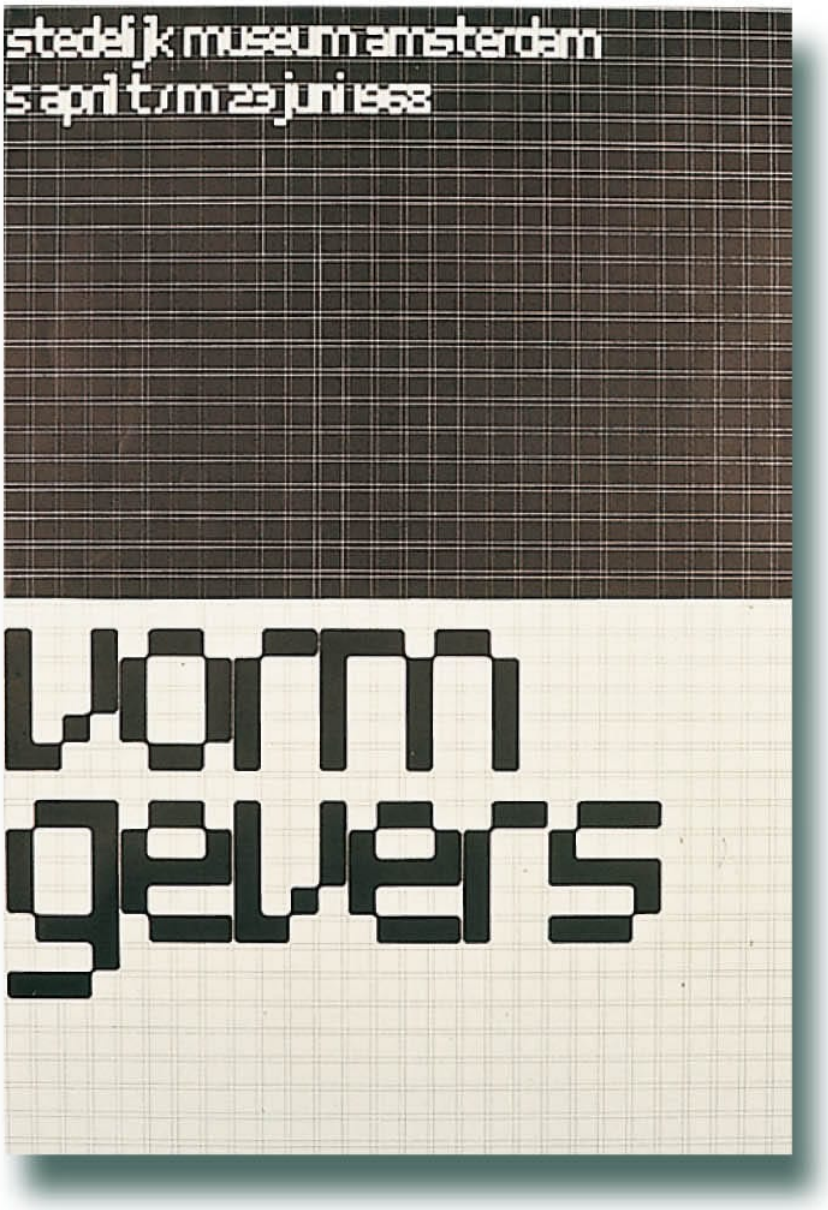
THE GRID AS INSTITUTION

The intensive, grid-based branding systems instituted during the 1950s and 1960s for municipal institutions and large-scale corporations with an increasingly multinational presence—like Gerstner's for Geigy, in Switzerland; that of Otl Aicher and Thomas Gonda for the airline Lufthansa, in Germany; and the Dutch postal service and the Stedelijk Museum (Total Design [Ben Bos, Wim Crouwel, and Benno Wissing])—demonstrated its usefulness for businesses and complex events, like the Olympic Games. Orchestrating a client's visual identity language across a modular structure reinforced its public look and built equity; it standardized formats, enabling team production; and unified communications of different scale, materials, and production constraints. Designers provided detailed manuals to ensure systematic conformity in every application.

Event poster produced as part of the 1972 Munich Olympic Games communication system/After Otl Aicher/*Author's schematic creation*

_ American CEOs quickly recognized these strategic benefits as necessary to compete, and designers, ever seeking the status of other professionals like doctors and lawyers, now found themselves to be indispensable business consultants. A relentless application of grid-based visual systems ensued between the 1960s and 1980s; exemplary projects from that time form a litany in the Western design cannon: Westinghouse, IBM, and

Morningstar Financial (Paul Rand); Chase Manhattan Bank and the U.S. Environmental Protection Agency (Chermayeff and Geismar); Citibank and Eastman Kodak (Anspach Grossman Portugal); CBS Television Network (Lou Dorfsman); Alcoa, Ford, Xerox, J.C. Penney, and Steelcase (Unimark International); and Sotheby's Auction House, Heller housewares, and the New York City transit system (Vignelli Associates). The U.S. government commissioned Unimark to develop the publication system for its National Park Service: a modular structure (called "Uni-Grid") divided into horizontal bands, encompassing 12 formats that could be imposed on a single standard-sized sheet of paper to reduce waste. Massimo and Lella Vignelli, two of the founding partners of Unimark, are often credited for that innovation: subdividing a modular grid into semantically distinct zones, given visual weight with heavy line rules, to enhance focus within the overall structure and better aid visual navigation.



Exhibition poster/1968/Wim Crouwel/Amsterdam, Netherlands/*Courtesy of the designer*

Piccolo Teatro di Milano

Ente Autonomo

Direzione Paolo Grassi - Giorgio Strehler

Milano - Palazzo del Broletto - Via Rovello, 2
Telefoni: 896915 - 803464 - 867206 - 867208 - 873585
Biglietteria 872352 - 877663

Ufficio Abbonamenti e Propaganda
Via Rovello, 6

stagione 1964/65 diciannovesima della fondazione
al Piccolo Teatro

da sabato 20 febbraio

lunedì, mercoledì, giovedì, venerdì, alle ore 21,10 precise
sabato alle ore 15,30 e 21,10 precise
domeniche e festivi alle ore 15,30 precise
termine spettacoli: pomeriggio: ore 18,10, sera: ore 23,50
martedì (esclusi festivi e prefestivi) riposo

La lanzichenecca

2 tempi (5 quadri) di Vincenzo Di Mattia
novità assoluta

regia di Virginio Puecher

Distribuzione:

Cosimo, appaltatore di imprese militari	Arnoldo Foà
Giuditta	Ilaria Occhini
Rutilio	Sandro Merli
Tancredi, capitano di ventura	Umberto Ceriani
Zenone, padre di Giuditta	Attilio Ortolani
Ubaldino, capitano di ventura	Alfio Petrini
Riga	Paride Calonghi
Albenico	Bob Marchese
Ugoccione, reclutatore	Cesare Polacco
Il Vescovo Agostino	Armando Alzelmo
L'Abigese, capitano di ventura	Alvaro Piccardi
Il Cappellano	Sandro Dori
Ottavio	Silvano Piccardi
Leonardo, inventore	Alvaro Piccardi
Giustiniano, capitano di ventura	Paride Calonghi
Pier Luigi, suonatore di liuto	Pietro Buttarelli
Gastone, capitano di ventura	Ivan Cecchini
Stauber, rappresentante tedesco	Bob Marchese
Teodeo	Giorgio Biavati
Il Duca	Guido Gheduzzi
Primo funzionario	Alfonso Cassoli
Secondo funzionario	Armando Alzelmo
Terzo funzionario	Sandro Dori
Primo soldato	Giancarlo Cajo
Secondo soldato	Piergiorgio Menegazzo
Primo straccione	Giancarlo Cajo
Secondo straccione	Ruggero Ondi
Prima cittadina	Alfonso Cassoli
Secondo cittadino	Guido Gheduzzi
Terzo cittadino	Ivan Cecchini

Scena di Carlo Tommasi
Costumi di Enrico Job
Musiche di Raoul Ceroni
Assistente alla regia Klaus Michael Grubel

Le scene sono realizzate dal Laboratorio di Scenografia del Piccolo Teatro
pittore scenografo Leonardo Ricchetti
costruttore Bruno Colombo

I costumi sono realizzati dalla Sartoria del Piccolo Teatro
Capitecnici: Angelo Bocenti e Ines Rezzonico

Direttore di palcoscenico: Luciano Ferroni
Capo elettricista: Mino Campolmi
Primo macchinista: Fortunato Michieli
Rammentatore: Sdebrando Buttò
Attrezzista: Aldo Dal Santo

Prezzi:
£ 1600 Poltrona di platea / £ 1100 Poltroncina di platea / £ 800 Balconata

Le prenotazioni si ricevono alla biglietteria del Piccolo Teatro (tel. 872352-877663) ogni giorno dalle ore 10 alle ore 19.
La vendita e la prenotazione dei posti vengono aperte con quattro giorni di anticipo.

I posti prenotati telefonicamente si ritengono rinunciati se non vengono ritirati entro le ore 18 del giorno successivo alla prenotazione.

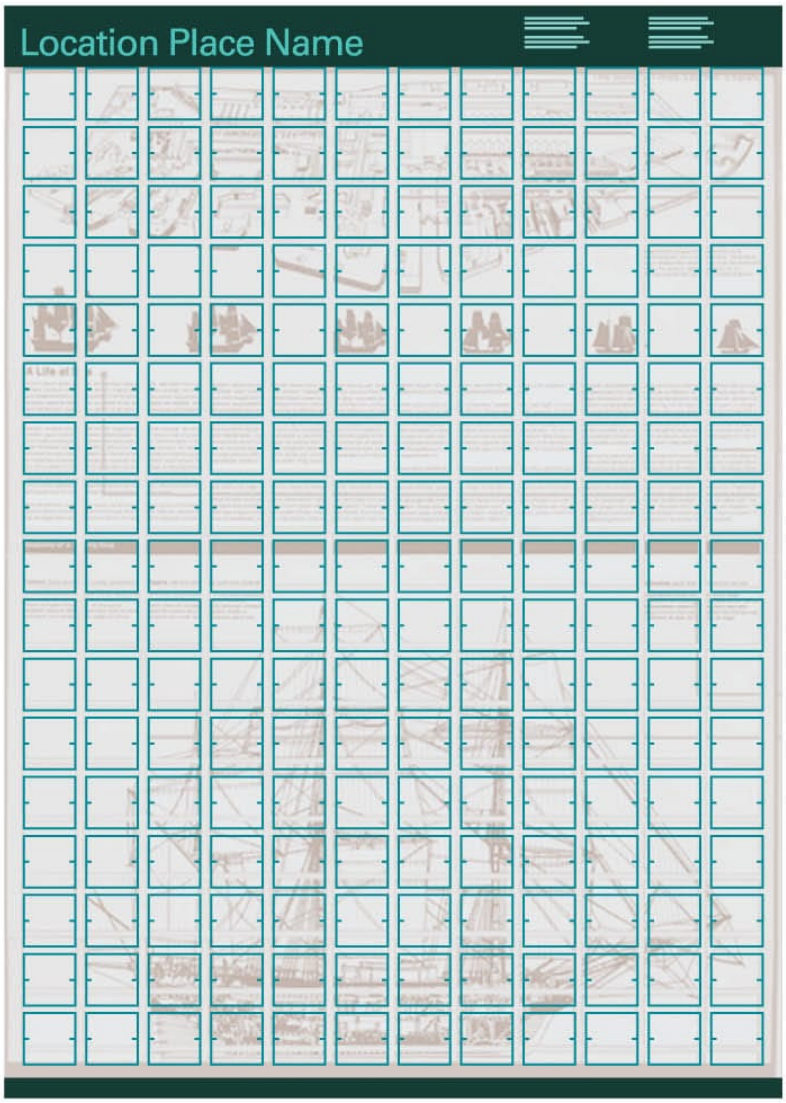
I prezzi su esposti includono ingresso e tasse
Posteggio autorizzato per automobili.

Vale il tagliando n. 4 degli abbonamenti.

Servizio di recapito a domicilio dei biglietti o dei posti in abbonamento prenotati telefonicamente.

Dico dunque che le milizie con le quali un principe difende il suo stato, o sono sue, o sono mercenarie, o alleate, o miste. Le milizie mercenarie e quelle alleate sono inutili e pericolose; e se un principe fonda le sicurezza del suo stato sulle milizie mercenarie non sarà mai saldo nè sicuro; perchè sono milizie disunite, ambiziose, senza disciplina, infedeli; gagliarde fra gli amici, vili con i nemici; non hanno timore di Dio, nè fede con gli uomini; e tanto si rimanda la rovina, quanto si rimanda l'assalto; e in pace sei spogliato da loro, in guerra dai nemici. La cagione di questo è che esse non hanno altro amore nè altra cagione di guerreggiare che un poco di stipendio, il che non è sufficiente a far sì che esse siano disposte a morire per te. Vogliono bene essere tuoi soldati finchè tu non fai guerra; ma come la guerra viene non desiderano che fuggire o andarsene.

Niccolò Machiavelli da
"Le milizie mercenarie"

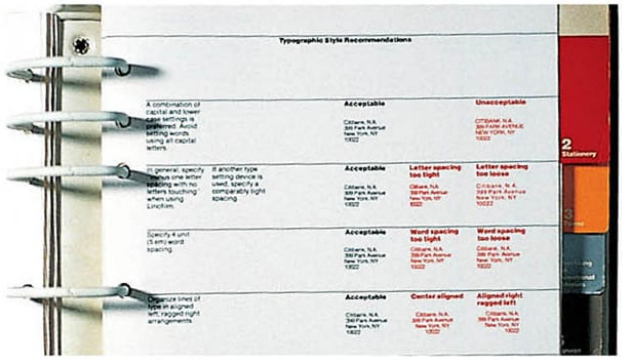


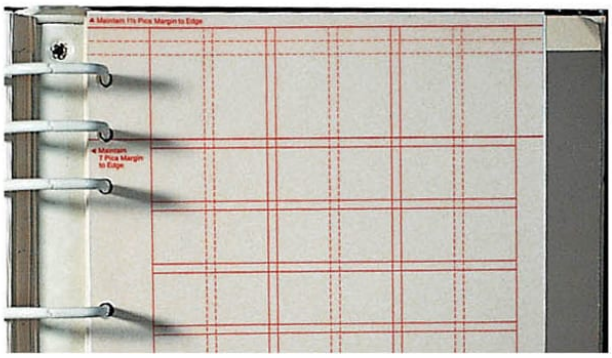
Poster for a theater's performance schedule [top], showing the earliest implementation of hierarchic bands on a modular grid/1964/Milan, Italy/Massimo Vignelli/*Courtesy of the designer*

Format and structure diagram of the Unigrid publication system for the U.S. Parks Department/After Unimark International/*Author's schematic re-creation*

_ The success of commercially applied grid-based systems (and their Modernist ideology) ensured them an enduring place in Western design culture . . . and, almost inevitably, everywhere else. European and American

business operations expanded into existing regions of colonial influence, and then beyond. The cultural and economic practices they modeled, and the marketing and design strategies that enabled them, induced industrialization wherever they went. Local cultures, especially those declaring independence from their colonial overseers, assimilated them simply to adapt to a global economy whose rules the West had established. Local aesthetic traditions tested those conventions, of course, but ultimately reinforced the grid's malleability. The grid also proved resilient against an inevitable cultural backlash in the West in the 1980s and 1990s (see pages 000–000); firms like 8vo, Experimental Jetset, MetaDesign, UNA Designers, and Method helped revitalize interest in structuralist ideas in the late 1990s and early 2000s after that period of eclectic experimentation. This book's publication serendipitously coincided with that shift, as did others: Kimberly Elam's *Grid Systems* and *The Designer and the Grid* by Lucienne Roberts and Julia Thrift. The revival was, in part, a typical "pendulum swing" from one aesthetic extreme to another; but part of it was driven by a technological revolution.





Poster [top] from a series/mid-1970s/Katherine McCoy/Detroit, MI/USA/*Courtesy of the designer*

Details of pages [middle and bottom] from the Citibank brand identity manual/mid-1970s/Anspach Grossman Portugal/New York, NY/USA/*Courtesy of Enterprise IG*

PIXEL: THE ULTIMATE GRID

Desktop computers of the late 1970s brought the digital accounting, data management, and e-mail capabilities of room-sized, industrial mainframes into the office and home, but 1984's Apple Macintosh presaged a radical future. Its **graphical user interface (GUI)** could display information with square pixels: Designers could manipulate images and text on screen to rapidly develop layouts; print production was streamlined; and, when the network that started as a U.S. government communication tool was made public in the mid-1990s as the Internet, the GUI screen became a portal into a wider world.

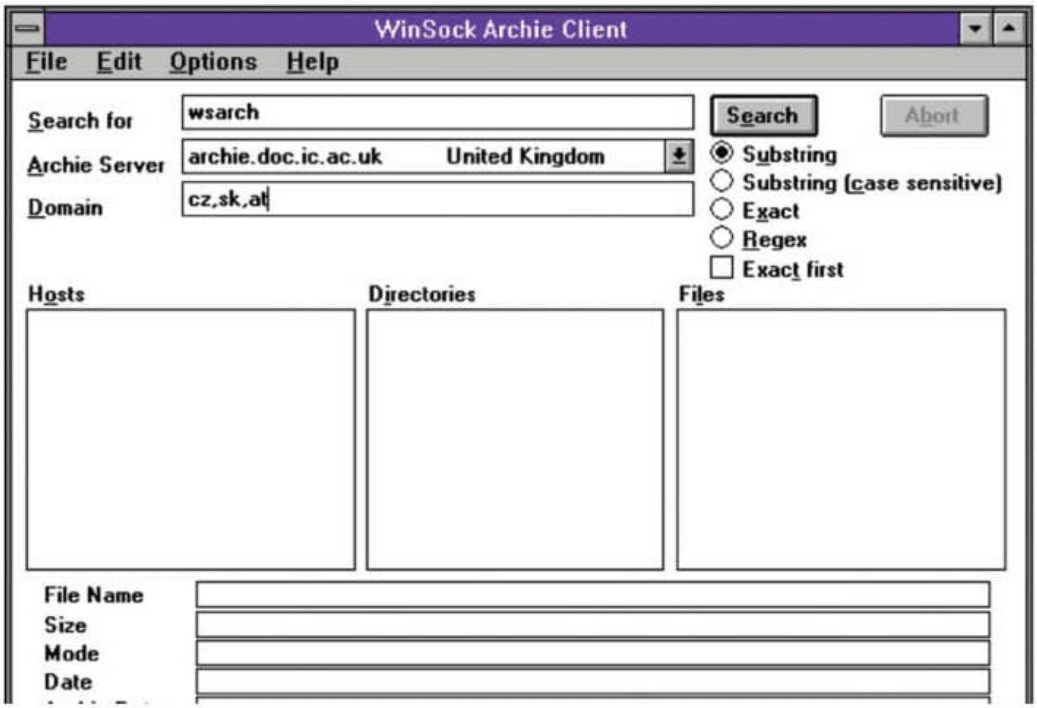
_ Early webpage display was limited by the pixel's X/Y coordinates of dark and light that it imposed, and layout structures derived from word-processing-based coding that permitted only tabular (and inherently grid-based) configurations. Over time, evolutions in coding languages allowed designers greater layout freedom (including the incorporation of images) but still, for a time, they were bound by pixel-based, nested-frame display. Further innovations in the late 1990s and early 2000s, like the animation languages of Flash and JavaScript, obviated all prior layout constraints, and while designers of that time experimented with free-form content and navigation layouts, further changes in technology eventually refocused attention on grid-based arrangement.

Page spread [top] from the design journal *Octavo*/1986/8vo/London, England/*Courtesy of Simon Johnston*

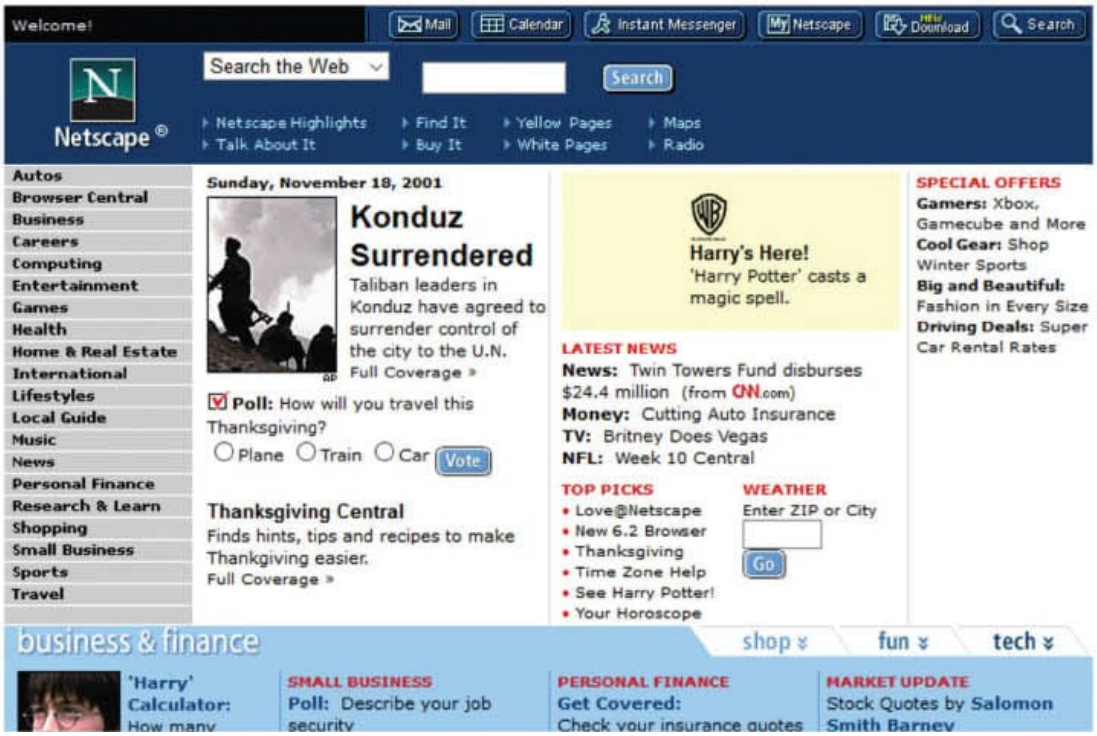
The author's collection of books about the grid [bottom], published around the same time as this one (and after),

attest to renewed interest in the subject in the early 2000s.

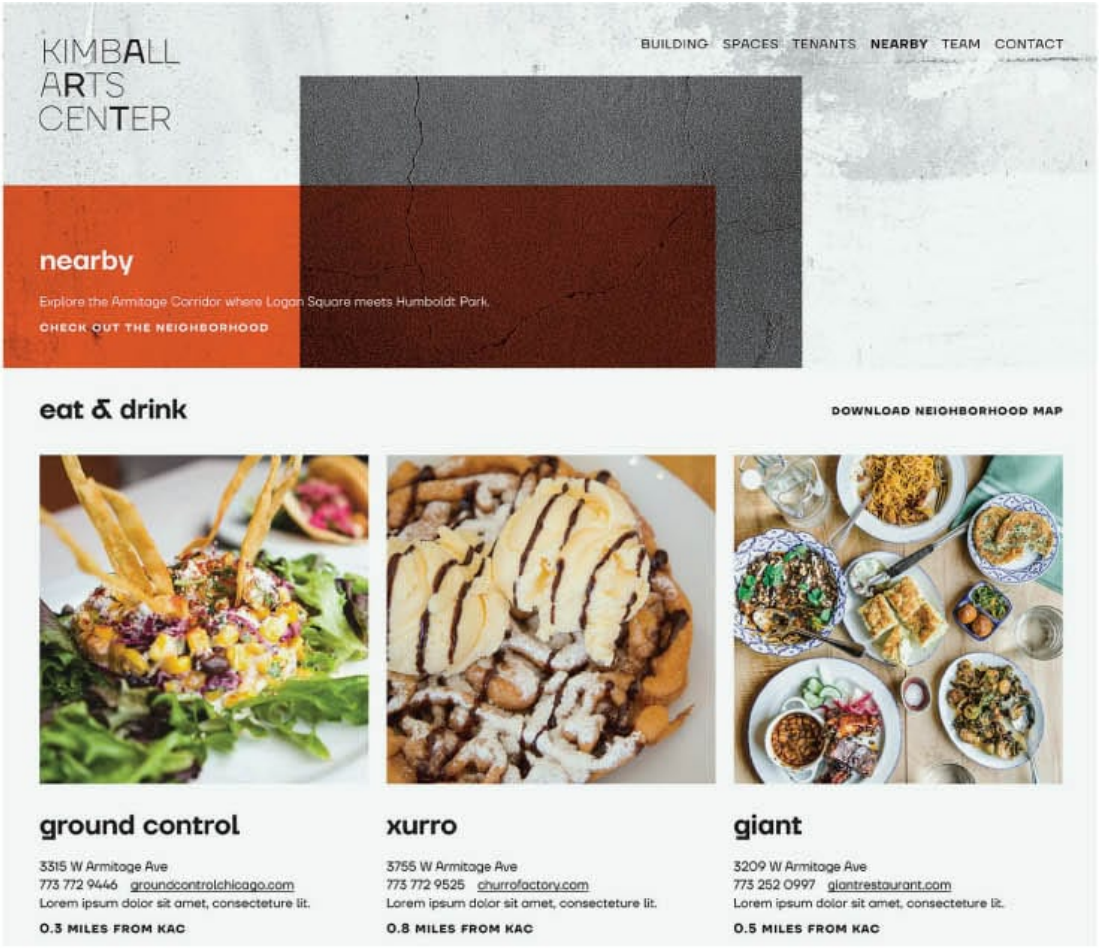
_ The smartphone, or mobile device, and the subsequent tablet (both of which were Internet-capable) required their own design conventions, but, most important, the layouts of web-based content needed to be able to adjust on the fly—in response to the display parameters of any given device. Responsive UX/UI design, as up-to-the-minute as it was, virtually demanded implementation of the grid's well-worn, recursive systematization to be effective. By 2014, it was a well-established convention that screen-based communications not only would be layed out using grids but would need to anticipate how content would be displayed in a variety of proportional spaces: The grid would prove invaluable, once again, for problem-solving practical challenges as well as helping maintain visual and conceptual continuity across multiple media—as it had been designed to do more than a century before.



HTML 1.0 SITE / CA. 1994 / DESIGNER(S) UNKNOWN



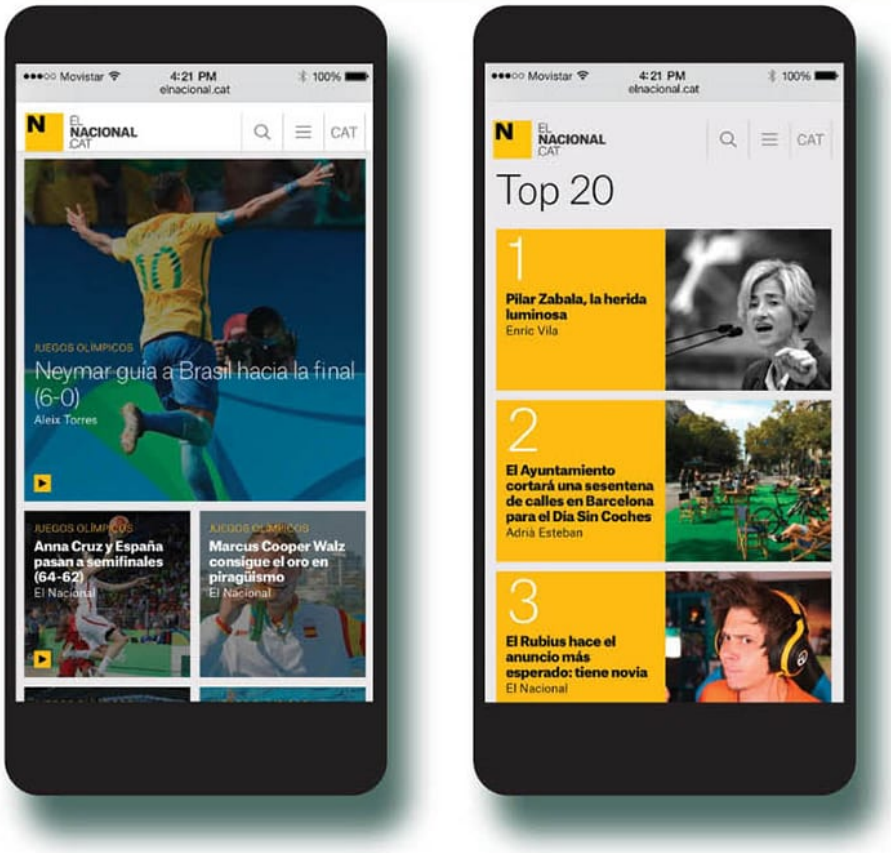
HTML 3.0 SITE / CA. 1999 / DESIGNER(S) UNKNOWN



HTML 5.0 SITE / 2019 / SPAN / CHICAGO, IL/USA

A chronological progression of webpage designs showing the evolution of grid-based layout in the context of evolving page description technologies

_ Who knows where the next few centuries will lead technology and graphic communication? As history has shown, the human predilection for order is strong, and the grid a valuable tool in achieving it; as such, it is likely to remain an abiding force in our endeavors.



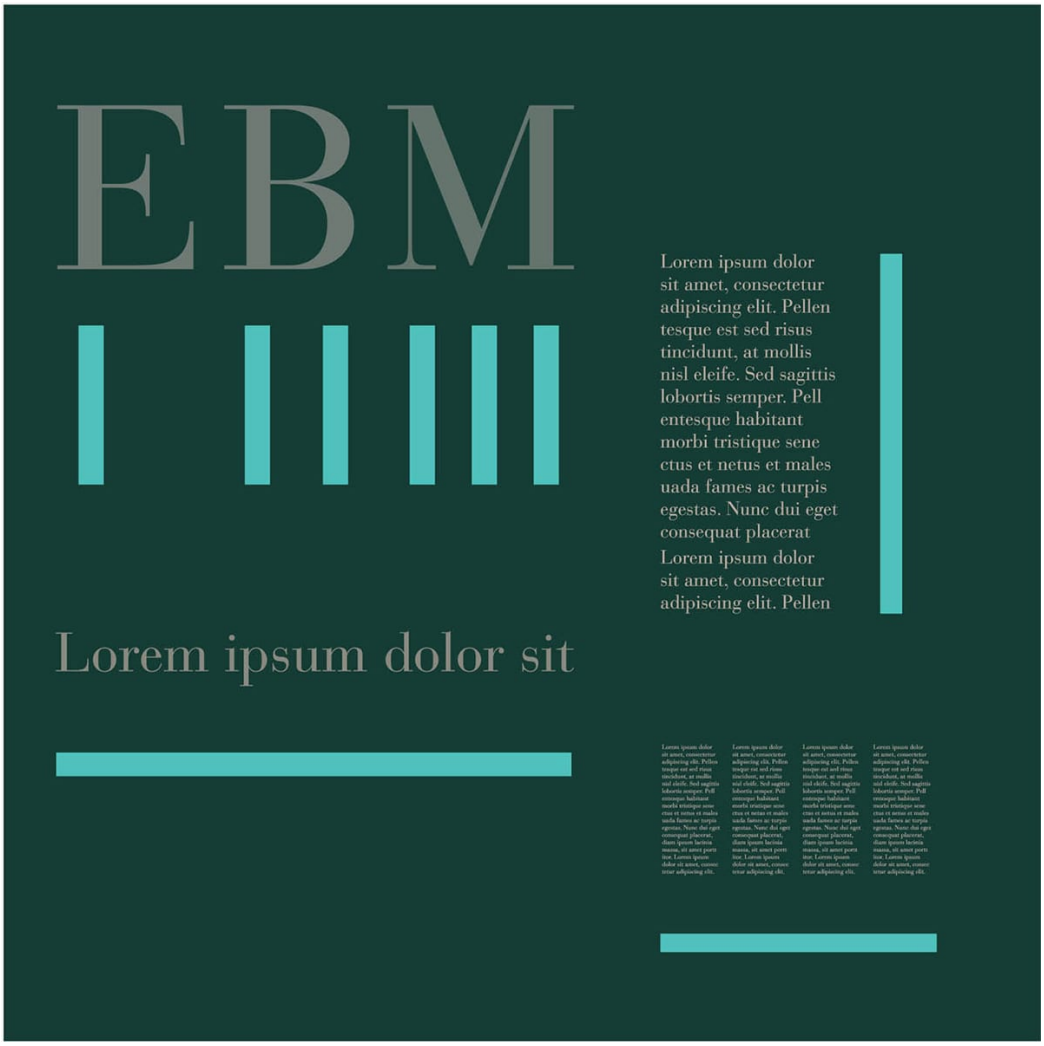
Desktop browser and mobile [smartphone] formats for a responsive news website/2016/Atlas/Balearic Islands, Spain/*Courtesy of the designers*

Understanding Grids

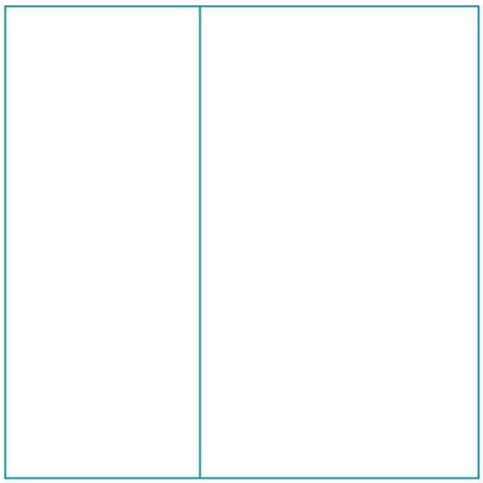
THE BASICS OF STRUCTURED ORGANIZATION

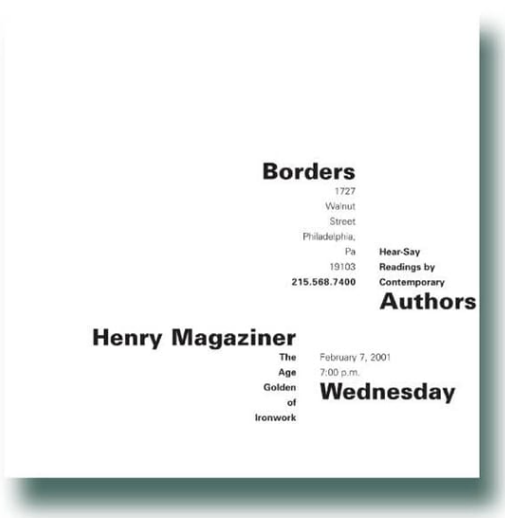
A grid consists of a distinct set of alignment-based relationships that serves as a guide for distributing elements across a format: where they may be placed; their height-to-width proportions; and, ultimately, the ease with which a viewer can navigate the layout.

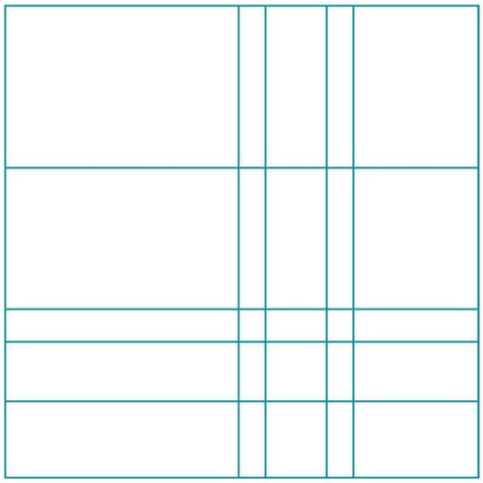
A grid's orthogonal (90° axis) logic, and all the thinking about how to work with it, derive from the fundamental verbivisual qualities of type. Choosing or developing a grid for a project depends on understanding these qualities, knowing what kinds of grids there are, and the possibilities for how type (and images) might interact within the structure.



Although grids may seem overtly mathematical, the notion of this structural approach grows quite organically from the nature of typographic form. At its most fundamental level, type is a system of vertical lines (these being the primary element of all the letters in the Western alphabet). Sequenced side by side to form words, and then sentences, the verticals form a horizontal line. Stacking horizontal sentences below each other creates a new vertical line—the column—and columns appearing side by side establish yet another horizontal structure.







Within any format, alignments between elements create structure. In these compositions, space is divided based on content: like information is grouped together, disparate information is separated; their resulting widths and heights subdivide the surrounding field. Changes in weight and scale introduce hierarchy (visual ordering) to the information. Groupings may give rise to a single axis that divides the space into two simple fields, as in the example at top; or they may establish numerous axes and, hence, more complex subdivisons. Within strict limitations, an enormous variety of possible layouts can be imagined. These, for example, both use the same type family and only a selection of possible sizes.

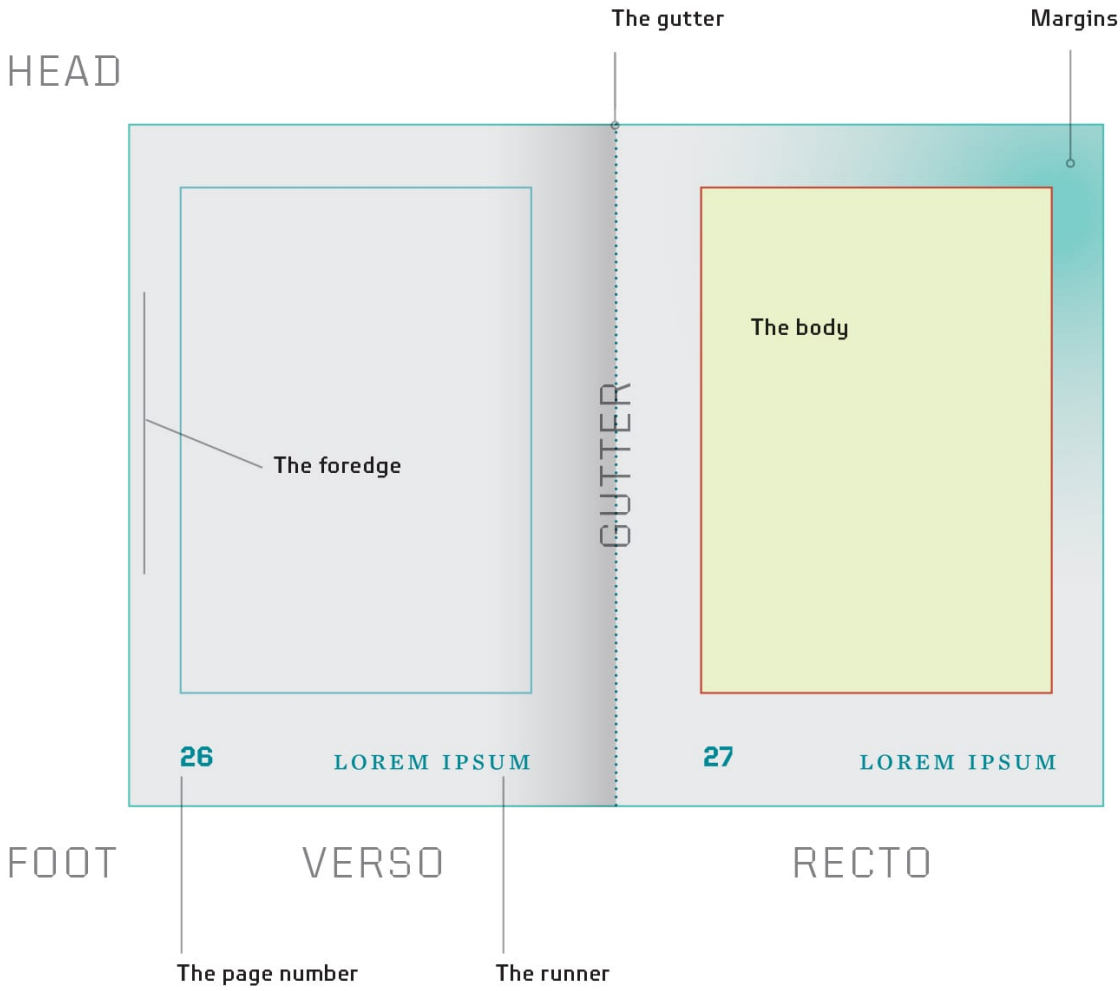
Typographic space is governed by the part-to-whole relationships that alignments define but, more importantly, by the relation of positive and negative they create. Thinking structurally about layouts means being able to see not only the forms, or positive elements, but negative spaces—“white space,” as it’s often called—as shapes of equal importance in the composition. A grid organizes space as much as it does the stuff that’s in it. In this book spread, the negative spaces actively enhance the up-and-down vertical rhythm of columns as a counterpoint to the strong horizontal axis that links various column parts together across the spread; being mostly horizontal in proportion, they echo that quality of the image.

TIMOTHY SAMARA / USA

Format Structures

Western page-layout conventions descend from the book format that developed between the rise of Christianity in the first century CE and the European Renaissance of the 15th century. Its predecessor was the codex, a scroll folded accordion-style to fit neatly between protective boards. A rolled scroll presented a continuous field of text, but the codex necessitated breaks in text to prevent it from traveling over the folded foredges—hence, the familiar block of text, surrounded by open space, as well as left and right sides, eventually resulting in what we recognize as pages. A right-hand page (*recto*, in Latin) and a left-hand page (*verso*) together define a page spread. The recto page is considered dominant because it's the one that comes into view immediately when a page is turned from one spread to the next; *verso* means "the reverse" or the back side, and so is considered secondary in importance. Over time, the components of the book format page structure evolved to become more complex, all denoted by specific terms.

_ In the Web's early days, programming limitations meant a page could be subdivided into simple, table-based fields to differentiate content from navigation, or areas of different content. Nowadays, everything is possible, so book-format conventions have at last come to the fore. A webpage is, after all, just another editorial medium. Current Web formats define margins around a body that emphasizes columns, rather than rows, as a way of controlling alignment relationships that will accommodate responsiveness (see the section *Building a Grid: for Interaction Design*, here–here).



HEAD GUTTER FOOT VERSO RECTO

GUTTER The gutter is the area in the middle, where the pages meet and roll inward to the spine.

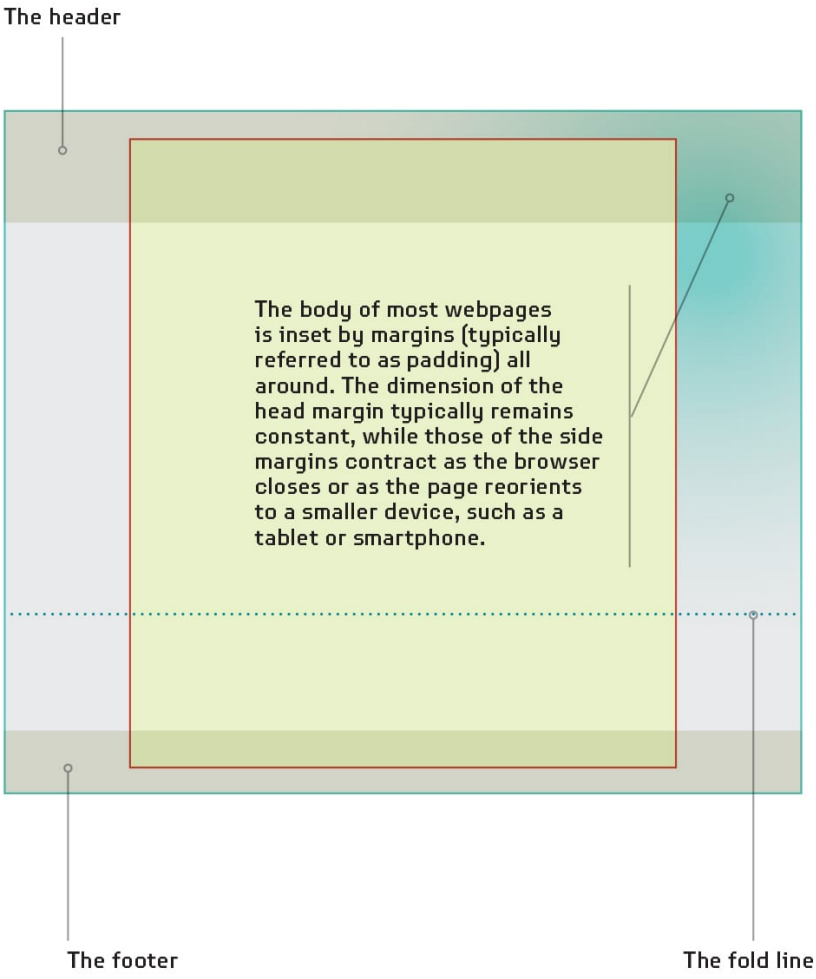
Margins are the negative spaces between the format edges and the content, that surround and define the live area where type and images will be arranged. Margins have different names based on where they’re located.

The foredge is the outside edge of the page.

The body is the structure itself, whether it is defined as a single, wide block for continuous text, or is broken into multiple subdivisions (columns or modules) as shown in the page structure diagram on the opposite page.

The page number is called a folio. Be aware that some contemporary editors use this term to refer to the combination of the page number and runner as a unit.

The runner is a navigational notation; it typically identifies the publication’s title and author. If it appears at the head (top) of the page, it’s called a running head or header; if it appears at the foot (bottom) of the page, it’s called a running foot, or footer. If it appears along the foredges of the pages, at the sides, it’s called a running side.

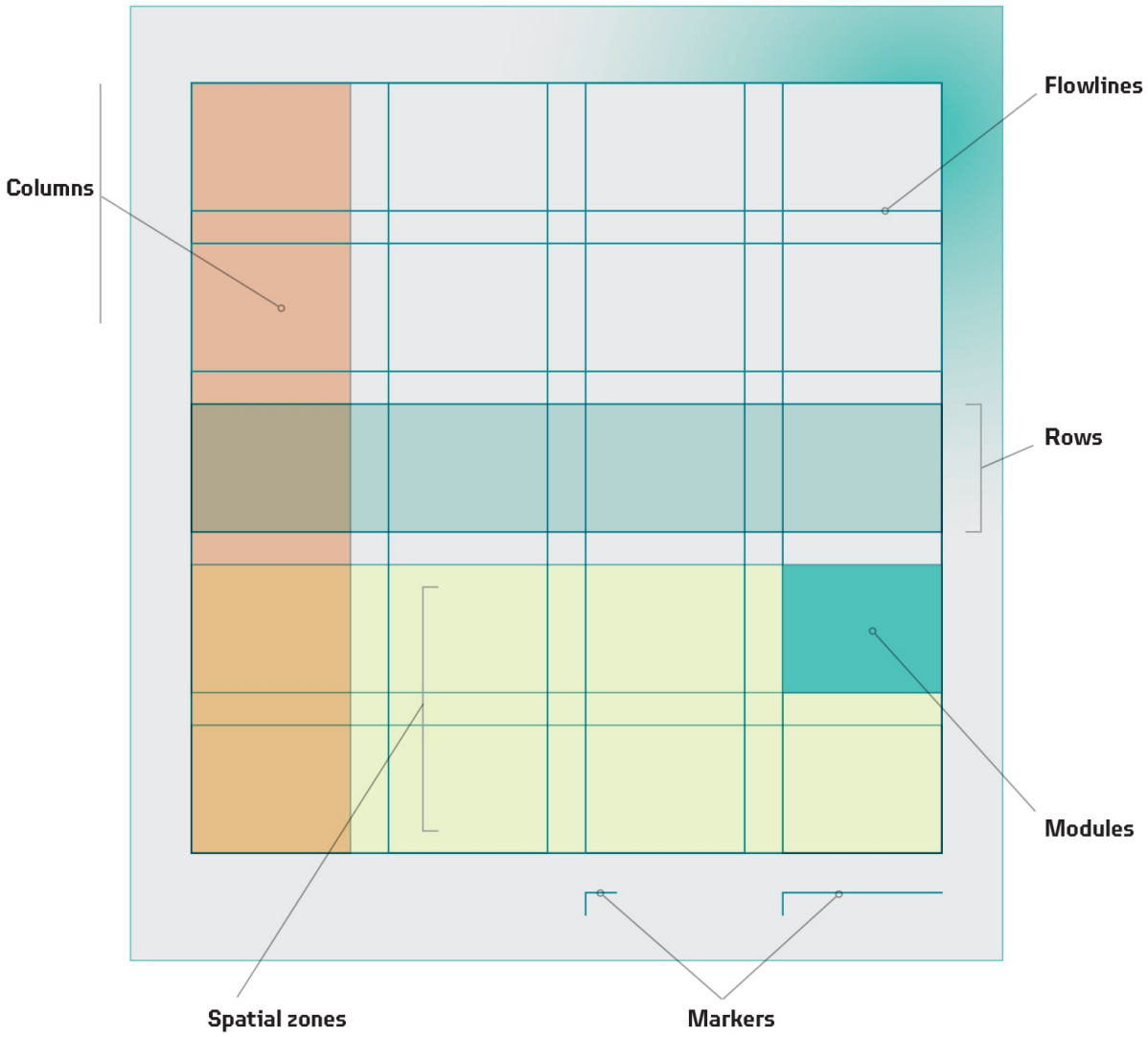


The body of most webpages is inset by margins (typically referred to as padding) all around. The dimension of the head margin typically remains constant, while those of the side margins contract as the browser closes or as the page reorients to a smaller device, such as a tablet or smartphone.

Page Structure

A grid, in essence, is what happens inside the margins of an individual page, within the body. Contemporary page design conventions consider diminished margins in order to maximize the body, accommodating more content and subdividing it for greater control.

_ Every grid contains the same basic parts, no matter how complex the grid becomes. These parts can be combined as needed or omitted from the overall structure at the designer's discretion, and the proportions of the parts are similarly dependent on the designer's needs.



Columns are vertical alignments of type that create horizontal divisions between the outside margins. There can be any number of columns; sometimes they are all the same width, and sometimes they are different widths. Each column is separated from its neighbors by a channel of space called a column gutter.

Spatial zones are groups of columns, rows, and/or modules that form distinct fields. Each field can be assigned a specific role for displaying information; for example, one horizontal field might be reserved for images, and the

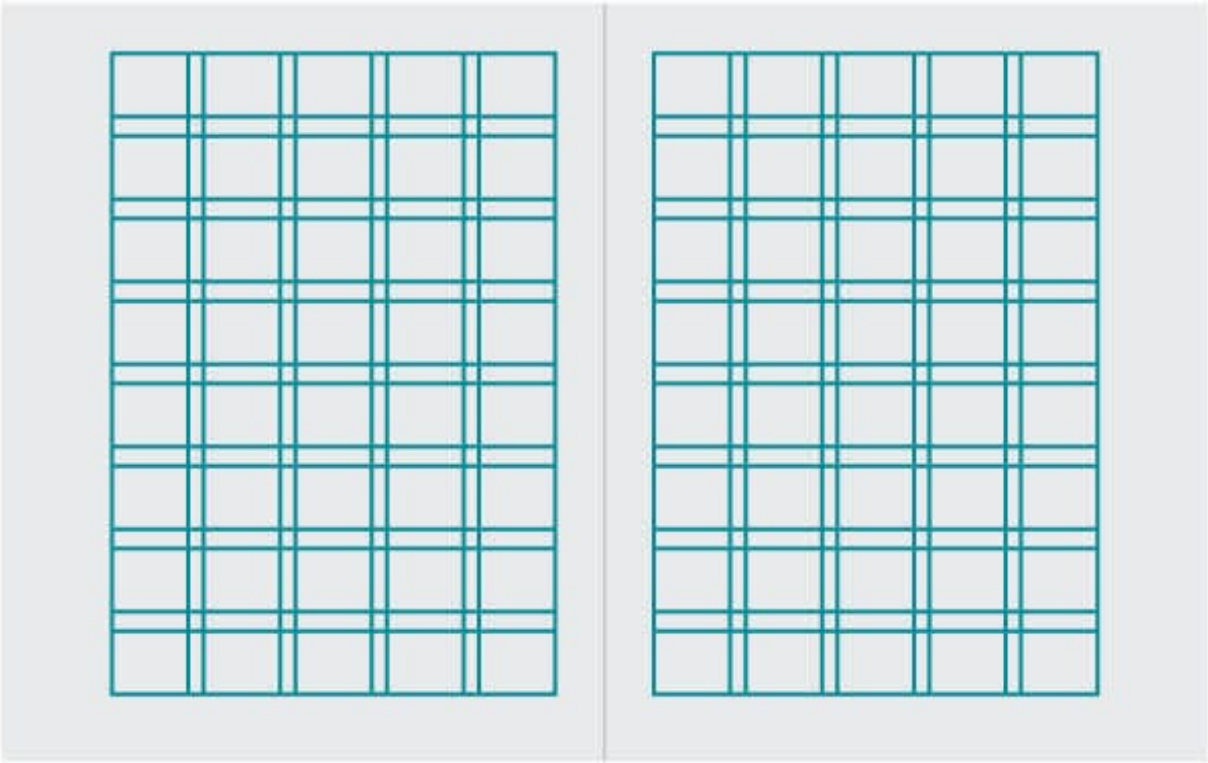
field below it might be reserved for a series of text columns.

Markers are placement indicators for subordinate or consistently appearing text, such as running heads, section titles, folios, or any other element that consistently occupies only one location in any sequence or series of layouts.

Flowlines are alignments that break the space into horizontal bands. Flowlines help guide the eye across the format and can be used to impose additional stopping and starting points for text or images. There may one flowline or several.

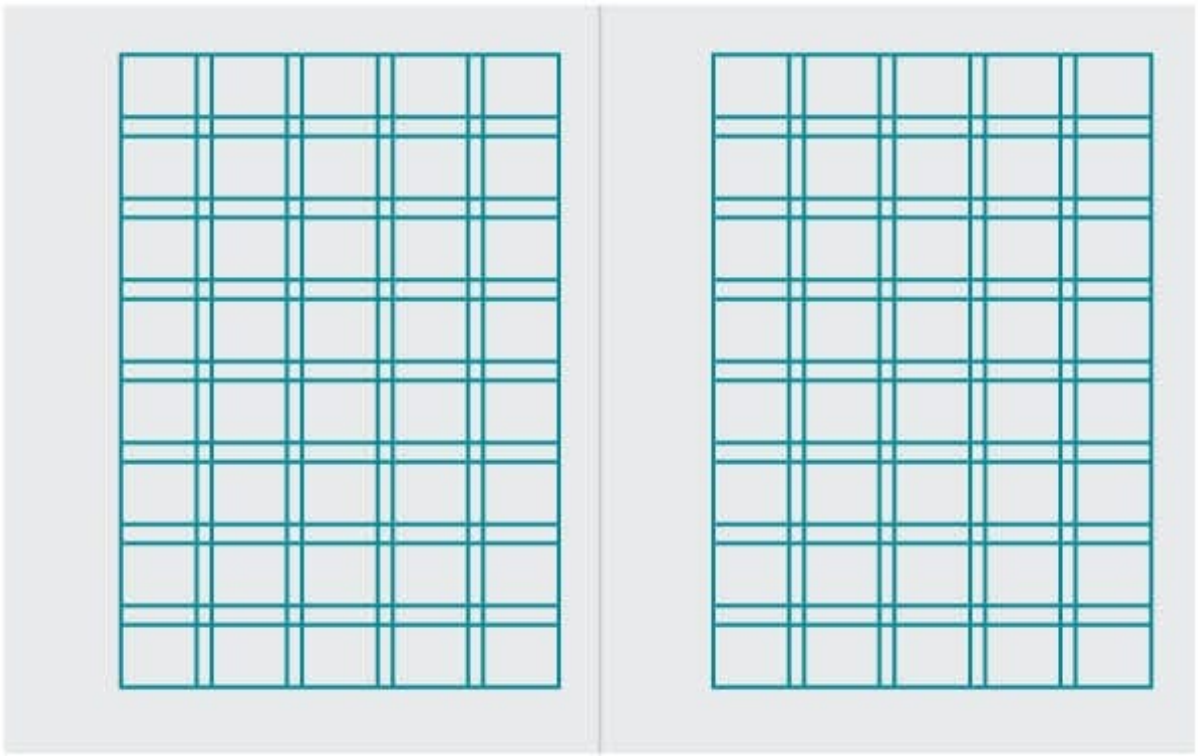
Rows result from numerous flowlines set at regular, repeated intervals from head margin to foot margin. Such horizontal rows intersect the vertical columns, further subdividing space and creating a counterpoint to the columns’ vertical emphasis. Rows also are separated by channels of space, the row gutters.

Modules are individual units of space created by the intersection of columns and rows. Considered another way: Columns and rows result from a grouping of modules.



MIRRORED STRUCTURE (SYMMETRICAL MARGINS)

The body may be situated within the page format in one of two ways: such that it mirrors itself across the page gutter (creating margins of symmetrical measure left and right); or so that it is offset within the page format, creating margins that are of different measure, left to right. In the context of a webpage, this thinking applies to a single body within the browser's frame, rather than to two bodies within a printed book format.

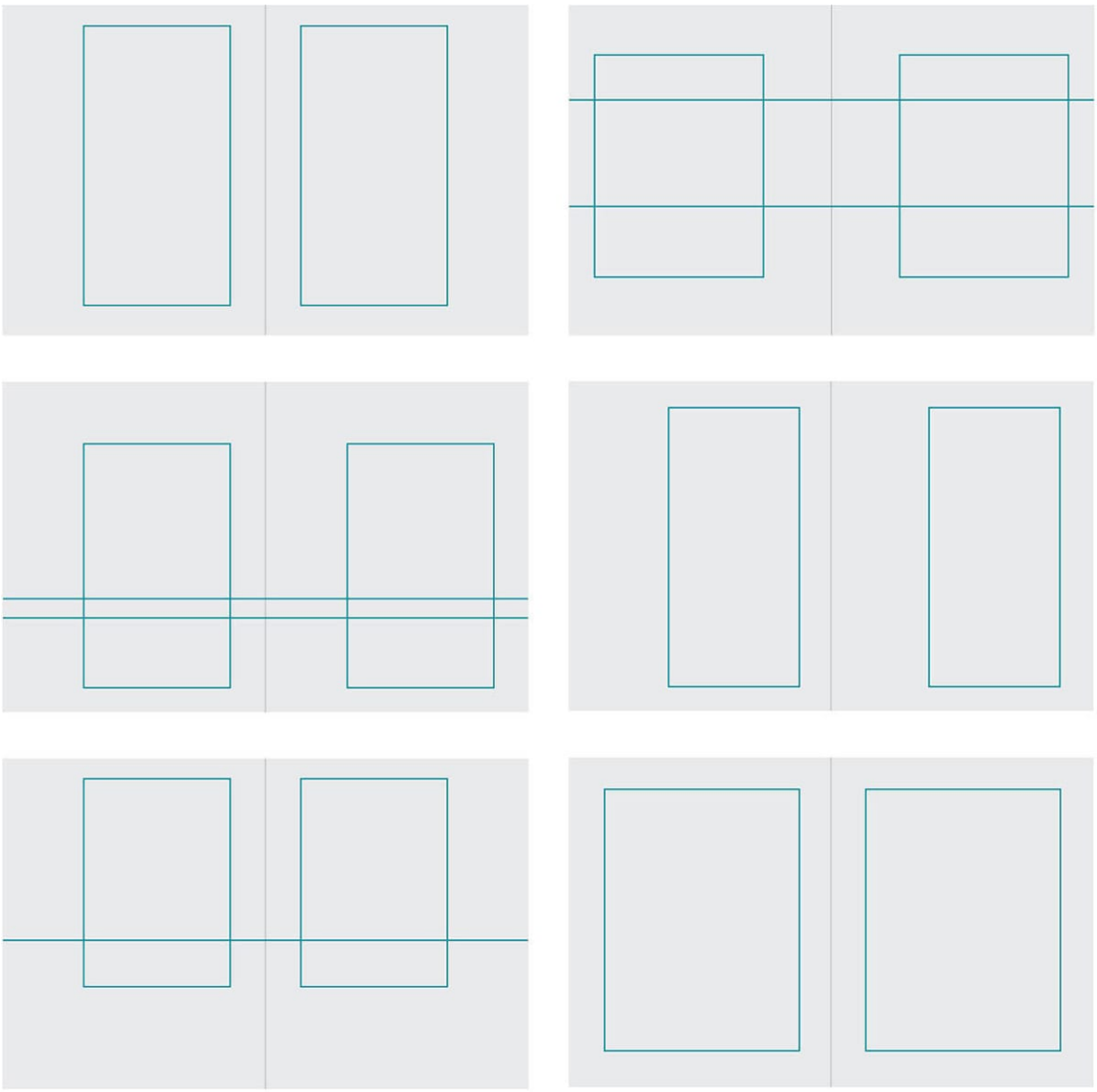


OFFSET STRUCTURE (ASYMMETRICAL MARGINS)

THE MANUSCRIPT GRID

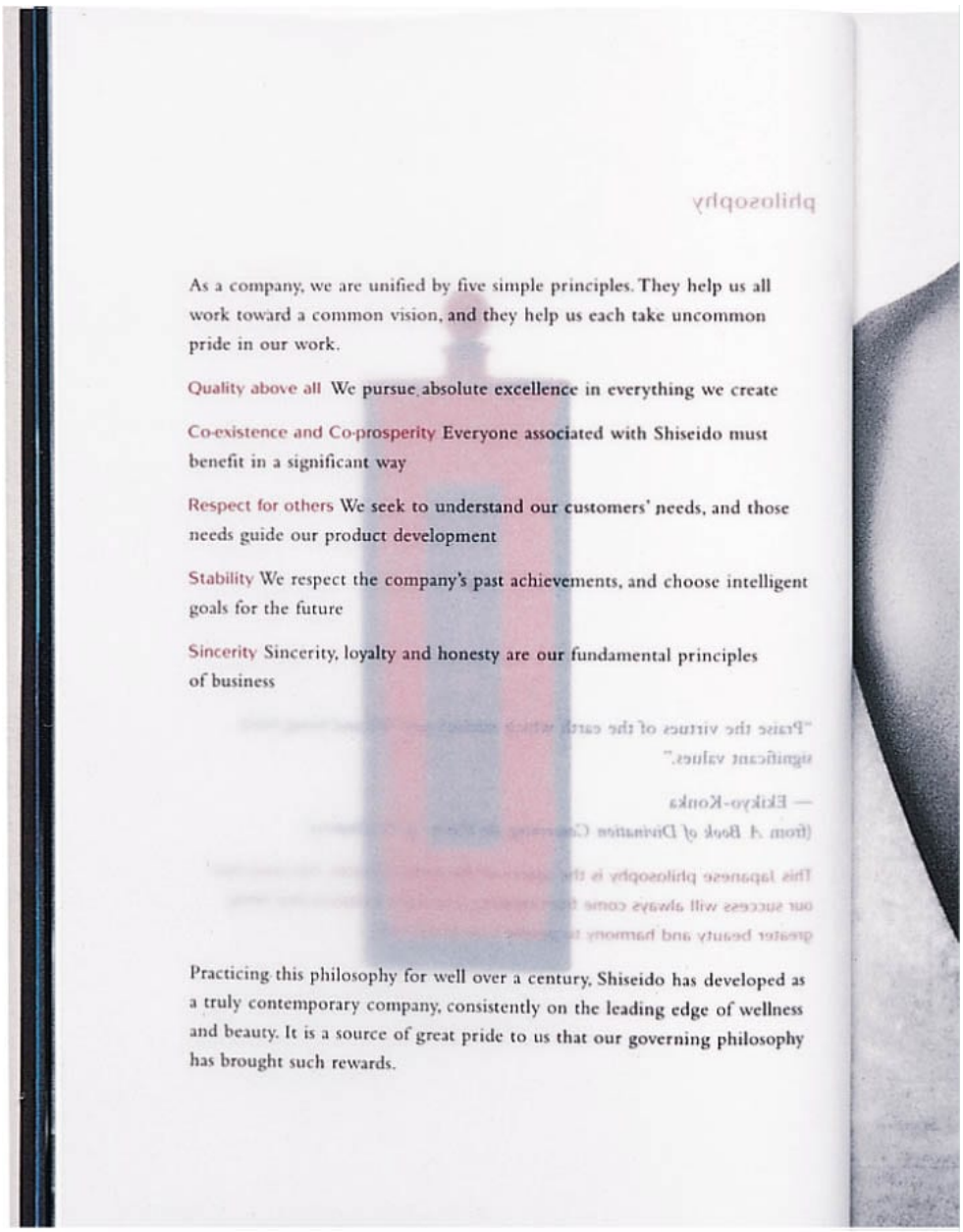
The block, or manuscript, grid is structurally the simplest kind of grid: It consists of a single, relatively large text block on each page of a spread, and its purpose is to accommodate extensive continuous text, like a book or long essay. An occasional image may be situated within the text area if need be; if the margins are ample, they may provide a place for notes, spot illustrations, or other editorial features that don't occur regularly and, therefore, don't really warrant the articulation of additional columns.

_ As its name implies, the manuscript grid developed from the tradition of written manuscript that led to book printing, and so carries with it a kind of classical quality that viewers will often interpret as historical, authoritative, institutional, or formal—a consideration that might be useful for one kind of project, but contrary to the goals of another that aims for a more contemporary feel.



These manuscript grid diagrams show the range of content distribution possible even with such a simple structure. The size of the text block may vary, relative to the size of the page; the margins surrounding it may be even, or dramatically different in width—causing the block to sit high or low on the page, closer to the gutter or further away, toward the foredges.

Further, the margins may situate the text blocks symmetrically or asymmetrically across the page gutter. Adding a flowline offers the possibility of separating titling or other elements.



The text block on this page detail of a cosmetics brochure is set low on the page, with an extremely deep head margin. Text seen on both sides of the translucent page—broken at specific intervals—suggests the presence of flowlines.

TOLLESON DESIGN/USA

VORWORT DES VORSTANDES

Liebe Aktionäre,

diejenigen unter Ihnen, die sich aktiv mit der Geldanlage in Aktien beschäftigen, wissen es aus eigener Erfahrung, die anderen haben es den Medien entnommen: Das Börsenjahr 2000 war insgesamt ein ausgesprochen schwieriger Jahrgang. Nachdem die relevanten Indices im Laufe des ersten Quartals 2000 noch vielfach neue historische Höchststände erklimmen konnten, setzte ab dem 2. Quartal 2000 eine gegenläufige Kursbewegung ein, die sich treffend mit »Crash auf Raten« beschreiben läßt. Viele Werte der »New Economy« haben in dieser Zeit 90 % und mehr ihres Kurswertes verloren.

Wir selbst haben aufgrund dieser Entwicklungen unseren eigentlich für den Herbst geplanten Börsengang verschoben. So verwundert es insgesamt auch nicht, dass das Geschäftsergebnis der Lang & Schwarz Wertpapierhandel AG mit Beginn des 2. Quartals 2000 deutlich hinter unseren und Ihren Erwartungen zurückgeblieben ist. Die Gewinn-und-Verlust-Rechnung dieses Geschäftsberichts belegt dies. Angesichts des schwierigen Geschäftsverlaufs schlagen Vorstand und Aufsichtsrat vor, für das Geschäftsjahr 2000 eine unveränderte Dividende in Höhe von 0,20 Euro pro Aktie auszuschütten. Wegen der gegenüber dem Geschäftsjahr 1999 gestiegenen Anzahl der im Umlauf befindlichen Aktien, steigt damit die Dividendensumme von 520.000 € auf 629.200 €.

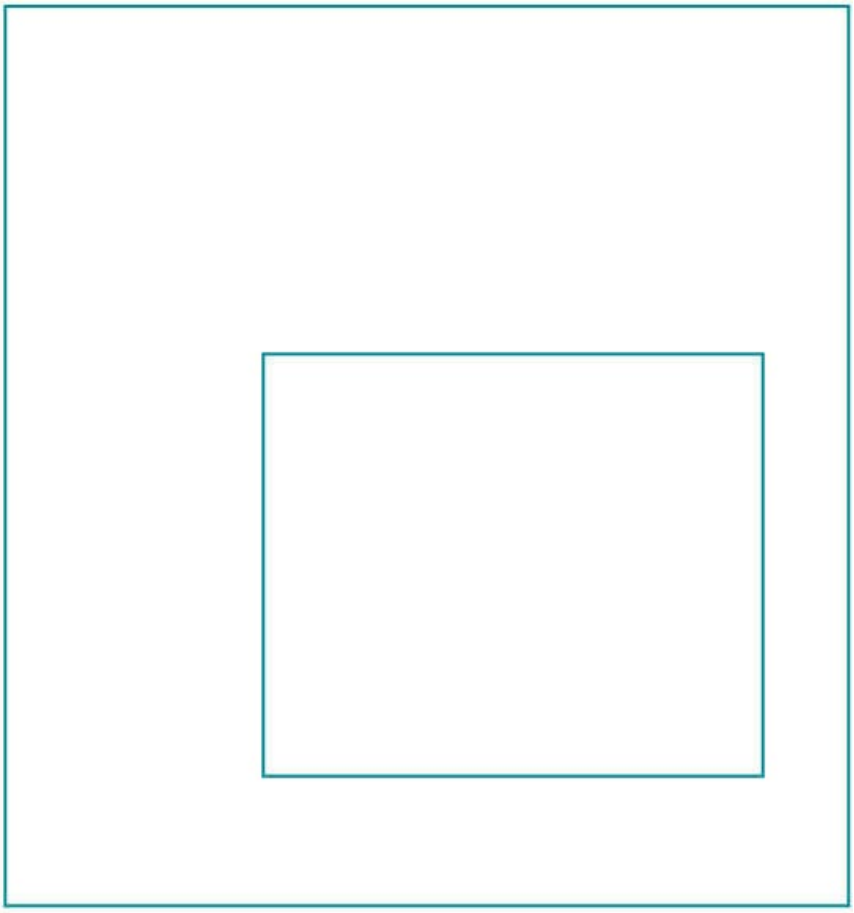
A WORD FROM THE BOARD OF DIRECTORS

Dear Shareholders,

Those of you who actively invest in stocks know it from your own experience; the others have heard it from the media: overall the year 2000 was a particularly difficult year on the stock exchanges. After the relevant indices had reached a series of new historic highs in the course of the first quarter of 2000, the second quarter of 2000 witnessed the start of retrograde price movements that are described well by the term "crash by instalments". During this period, many stocks of the "New Economy" lost 90 % and more of their value.

Because of these developments, we postponed our own IPO, which had been planned for the autumn.

All in all then it is no wonder that the business results of Lang & Schwarz Wertpapierhandel AG remained well below our – and your – expectations after the start of the 2nd quarter of 2000. This is demonstrated by the income statement in this annual report. Considering this difficult business development, the Managing Board and Supervisory Board propose paying an unchanged dividend of Euro 0.20 per share for fiscal year 2000. Because of the higher number of shares in circulation compared to fiscal year 1999, the total dividend will rise from Euro 520,000 to Euro 629,200.



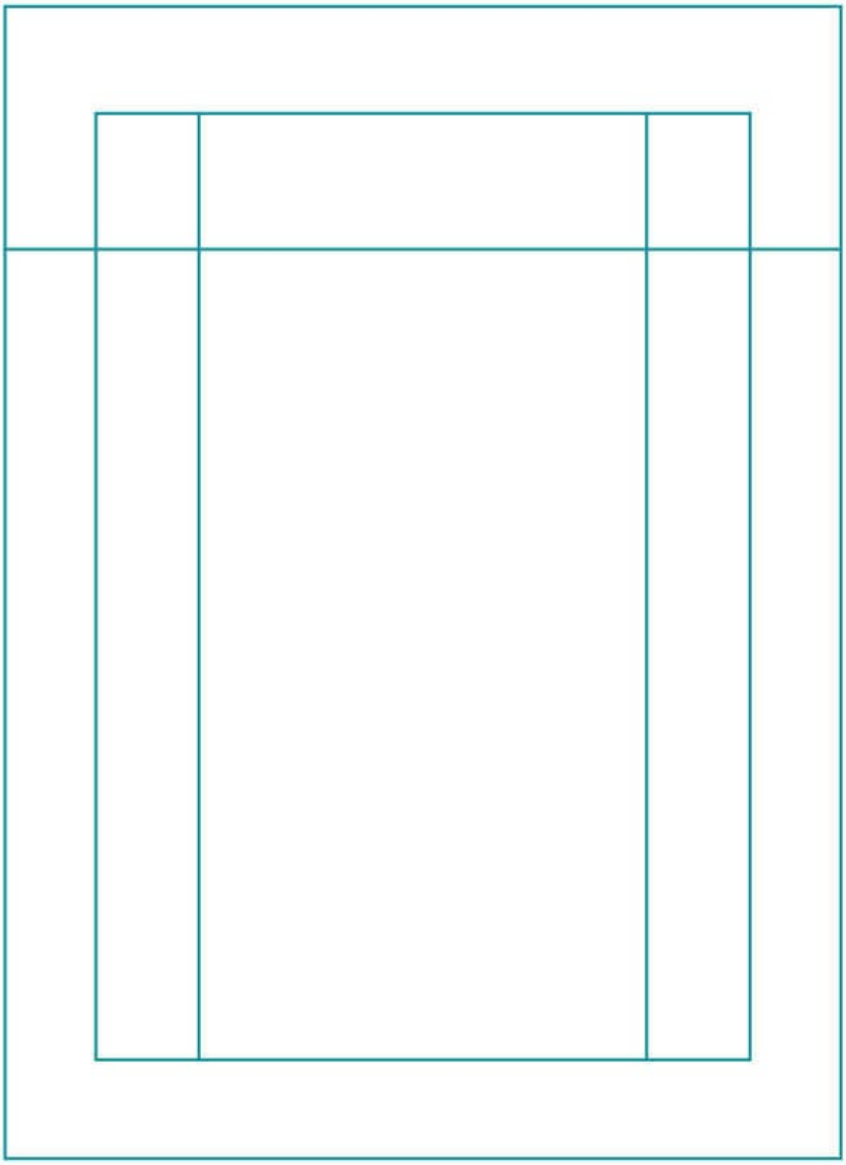
Dramatic margins, line and marker details, and strong contrasts in typographic weight create unexpected interest within this otherwise conventional manuscript grid.

IN[CORPORATE GMBH/GERMANY

PREFACE

One day in December of 2012, frustrated and disappointed with our love lives, we came up with the idea for an experiment. We had been good friends and peers in the graphic design world for years, and we were constantly surprised by how consistent our opposite relationship problems were. Based on the adage that it takes forty days to change a bad habit, we decided that "dating" each other for forty days, even though our relationship had always been platonic, would force us to explore our issues and maybe even break our own bad love habits. At the beginning of the experiment, we established six rules designed to enforce this emotional and physical investment in each other during the forty days, such as filling out a daily questionnaire, keeping a journal, and seeing a couple's therapist once a week. We thought that if we could carry this out with as much sincerity as possible, then maybe we could not only help ourselves, but potentially create a larger dialogue to help the many others out there, who, like us, are looking for love.

We did not make the decision to create the 40 Days of Dating blog until after our experiment. In the blog, we shared what we each had recorded in our journals while we were dating, which most sane people would never reveal to the world. Well, neither of us was prepared for the fact that the project would go viral, or that we would be featured in major news media all over the world. Suffice it to say, it's been an amazing journey!



This page spread shows evidence of nested, or doubled, bodies, each with its own set of margin measures—narrower ones for actual text, and more generous ones for the grouping of photos.

SAGMEISTER+WALSH/USA

For Ando, architecture works upon the body as well as the mind. In fact he avoids the distinction, feeling that his own philosophical and architectural traditions reveal ways for touching the spirit through an intensification of the experience of things. He refers to this in terms of *shintai*, a word which is scarcely translatable, but which for him implies the power of architecture to reveal an invisible order in physical terms, through light, geometry, material, the sense of gravity, and the experience of space and time.[18] More than that, architecture translates the body's physical states (equilibrium, compression, movement, weight) into its own terms. He might well agree with Geoffrey Scott's thoughts on architectural perception in *The Architecture of Humanism* (1914):

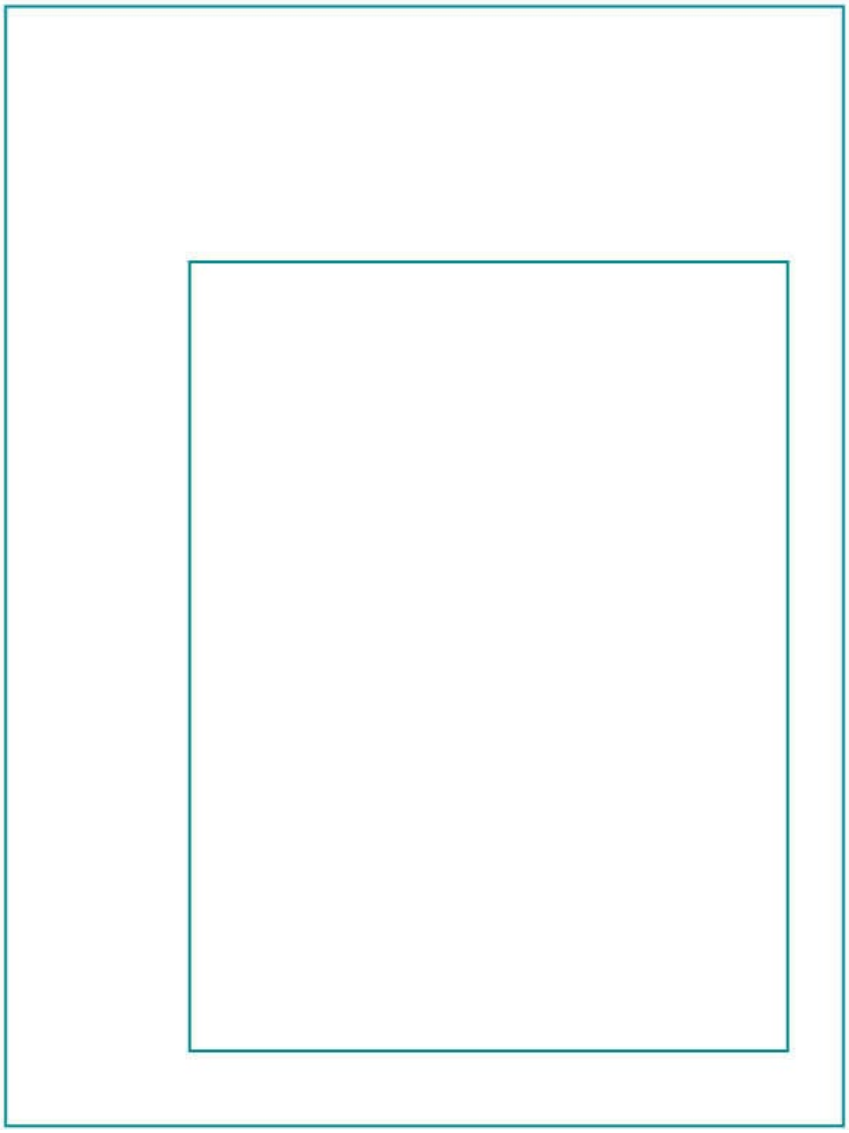
> Architecture, simply and immediately perceived is a combination, revealed through light and shade, of spaces, of masses and of lines ... through these spaces we can conceive ourselves to move; these masses are capable, like ourselves, of pressure and resistance, these lines, should we follow or describe them, might be our path and our gesture.[19]

The visitor to The Pulitzer Foundation for the Arts returns by the same route in reverse as far as the cylindrical column seen soon after entering the building. More than just a foyer, this area serves as a small exhibition gallery. One passes from it through the west wall into the sculpture court on the other side. Here, freestanding concrete walls develop away from the main volumes and turn the direction south. These define and release space, cutting out the middle distance and leaving bits and pieces of St. Louis buildings visible along their top edges. Horizontal levels linked by steps descend gradually across the site. It is the theme of the main gallery but restated in terms of a precinct which is open to the sky.

The lowest and largest of these platforms is to the southern end and is the setting for a Torqued Spiral sculpture by Richard Serra. This is made out of plates of steel which have rusted golden brown. Its tilting profiles and eruptive curved volumes make an immediate contrast with the verticals and horizontals of Ando's architecture, and with the silver gray of the concrete walls. Depending upon the point of view, it suggests a taut surface, a turning form, or a curling plane. It is sensitive to light and there is persistent ambiguity between the shape of the outline and the sense of a looming mass. It exists in a state of high tension and activates the space around itself even as it suggests the possibility of a tightly coiled space within. An object possessed, it strains and turns even as one stands still.[20]

But if one walks around the Torqued Spiral there are startling changes in appearance and mood. If there is a vertical line somewhere, one scarcely perceives it, for leaning diagonals and accelerating curves are the predominant vectors at work. From one angle one has the feeling of constrained physical force; from another, of a monumental calm. The piece is big enough (twelve feet high and roughly forty-five across) to be read as an architectural element and, in combination with Ando's rectangular forms, even touches memories of the complex curves of Le Corbusier's late works.[21] There is an inevitable tendency to simplify the experience in terms of a vessel or container, but the Torqued Spiral refuses to be pinned down to a single form. It also transmits its energy beyond its immediate setting, implying a much vaster space: Serra's work often conflates near and far in this way.

The Torqued Spiral stands to the end of the open-air court, some distance from the western flank of the building and the southern boundary wall: it therefore reacts within limits. It is positioned in such a way that its single, narrow entrance is visible the moment one steps into the court. This invites the line of approach in rather the same way that Kelly's Wall Sculpture did in the main gallery. The opening is at a tilting angle and it affords a glimpse of the concave inner surface and the edge of the steel plate, permitting one to gauge the thickness of the material (only two inches). One is immediately able to sense the inside and the outside simultaneously and to grasp that the whole thing is made from an apparently continuous strip of steel. The exterior forms are the result of an as yet unknown inner space pushing outwards against the skin. One begins to feel the presence of a void.



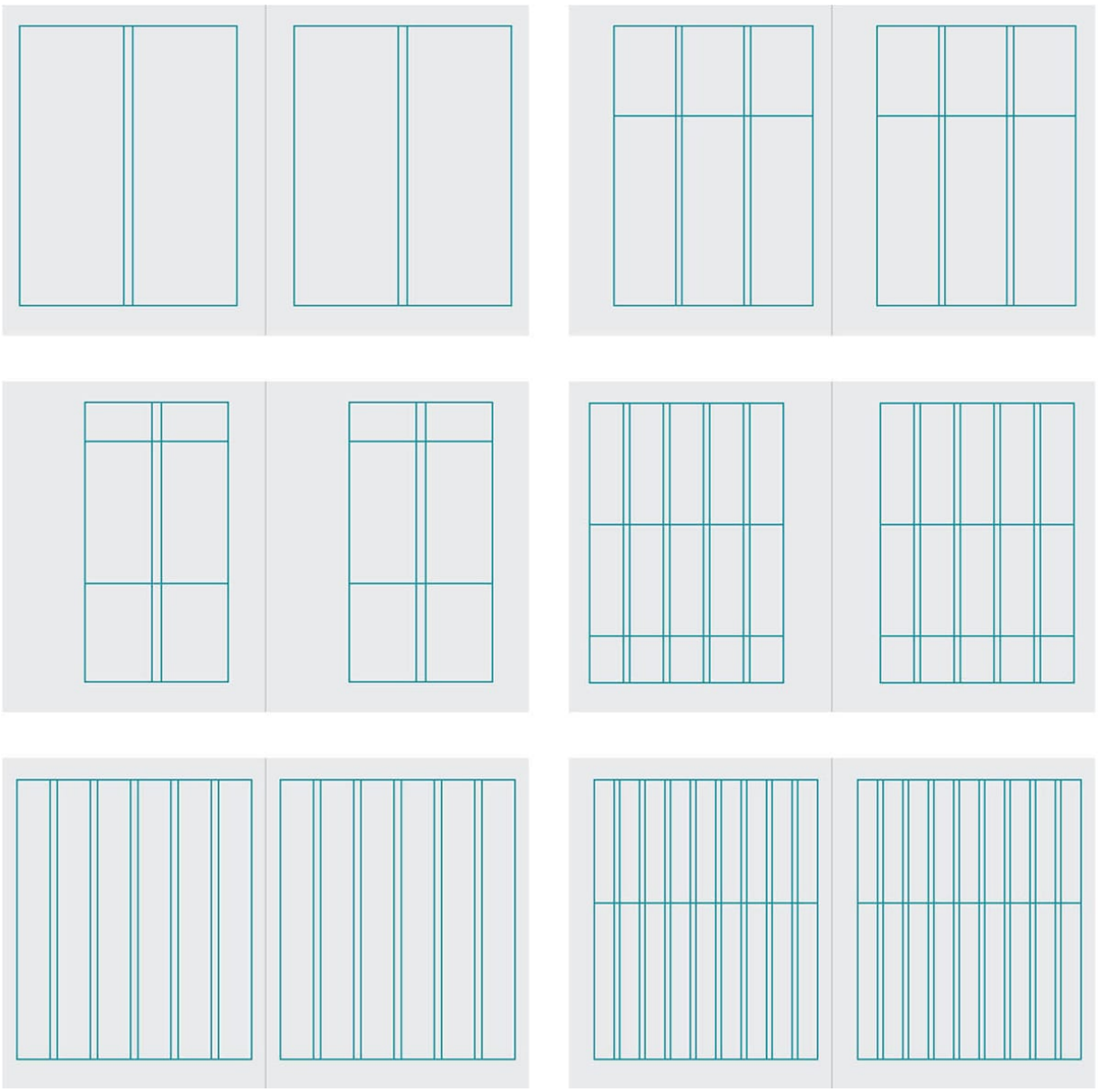
The grid used for this exhibition catalogue essay spread positions the text block asymmetrically on each page, in contrast to the other works shown here. Note that the folios and runners follow suit, also arranged asymmetrically relative to the spread.

LYNN FYLAK/USA

THE COLUMN GRID

Information that is discontinuous benefits from being organized into a grid of multiple columns. Because columns can be dependent on each other for running text, independent for small blocks of text, or crossed over to make wider columns, the column grid is very flexible and can be used to separate different kinds of information. For example, some columns may be reserved for running text and large images, while captions may be placed in an adjacent column.

_ Although their widths must always correspond to those of one or more columns (edge to edge), both images and chunks of text may be of any depth, and positioned freely within the margins from top to bottom of the page; a designer may choose to align them at times, or not at all. If a designer wants or needs consistent horizontal alignments—for the location of titles, as opposed to that of the beginning of text—he or she defines a flowline (or more than one) to denote a place for such alignments. The more constants needed, for whatever reason, the more flowlines to be incorporated.



The column grids diagrammed here are but a tiny fraction of the kinds of structure that fall into this category of grid.

Three-column grids are ubiquitous in publishing, both print and online—they're a real workhorse when it comes to flexibility, are simple to work with, and familiar to a broad audience, so easily navigated. The one shown here demonstrates these qualities, as well as the potential for compositional dynamism offered by this go-to structure. The presence of three strong flowlines creates horizontal emphasis in contrast to the overall verticality of the page.

IDEAS ON PURPOSE/USA

Shock of the new

D&AD chief executive David Kester ruminates on whether new technology is paying its way

The other day I read an article about 'Future Shock', which was first published in the New York magazine, Lapis. The essay's central premise was that technological creativity is now too dog wagging novelty's tail. The author restored the ideas of the Luddites and suggested that all new technological innovations should be measured against a series of searching questions. These included: what problems does this innovation solve? Who benefits from it? Who pays and, what are all the possible consequences?

Having read this thought-provoking bit of a bit downbeat polemic, I reckon on D&AD's own humble constituency to innovation and the application of technology, our recent CD and CD ROM for all new D&AD website, which went live at the end of '98. As the same questions could be leveled at us or any organization applying new technologies.

In the final analysis, I am pleased to say that I believe D&AD measures up well. We have a clear rationale against the web and DVD, such as, improving benefits for members, award-winners and all our core constituencies; such as improving communications internationally and widening access to D&AD Awards and education projects.

We know that D&AD's website is already popular, receiving over 200,000 hits from around 2,500 separate 'hosts'. In one week nearly 300 people downloaded our 'Go Call' for Entries. So we know who is using the site, why and where they are from. As we now gradually collect e-mail addresses and hard-out passwords, I am convinced that our website services will become highly valued membership-benefits.

Nevertheless, the article posed some salutary questions, which I shall continue to use when reviewing the nature and pace of technological innovation. But does DVD spell the end of the Filmas, as we know it? I think not. **David Kester**

26 January
Annual General Meeting
The 32nd Annual General Meeting of D&AD will be held at D&AD's offices at 6.00pm on 26 January 1999. Full members are invited to attend and to vote on the various resolutions listed in the notice sent out at the end of December. If you would like to attend or have any queries, please call the company secretary on 0171 840 1111.

10 February
Terry Gilliam
Your chance to ask questions of the man who laughed at the movie industry when they threatened legal action over the phenomenal overspend of Baron Munchausen ... and lived.
7.15pm, Logan Hall, The Institute of Education, London WC1
Tickets £15/£10 D&AD members/£5 nonmembers. To book please call John Green on 0171 840 1119

22 & 23 February
ICOGRADA London seminar
For further details see News on page 4 or call Claire Fennimore on 0171 840 1117.

25 February
Julian Temple, 'Vigo'
An interview with Julian Temple, followed by a special preview of his new film 'Vigo'. Following his directorial debut with 'The Great Rock 'N' Roll Swindle', Julian Temple became established as one of the pioneers of music videos, directing films for such performers as the Rolling Stones, David Bowie, Neil Young, the Kinks, Tom Petty and Janet Jackson. After two further feature films ('Absolute Beginners' and 'Earth Girls Are Easy'), Temple began to develop 'Vigo' in the early '90s. Inspired by the life and work of the visionary French film-maker Jean Vigo, the film is a passionate love story about Jean's relationship with his wife Lyda, and their struggle against both serious illness and the pre-war French establishment which tried to ban Vigo's work.
7.15pm, UCI Plaza, Piccadilly, London SW1
Tickets £15/£10 D&AD members/ £5 nonmembers. To book please call John Green on 0171 840 1119.

8 March
Judging for the 1999 Awards begins.

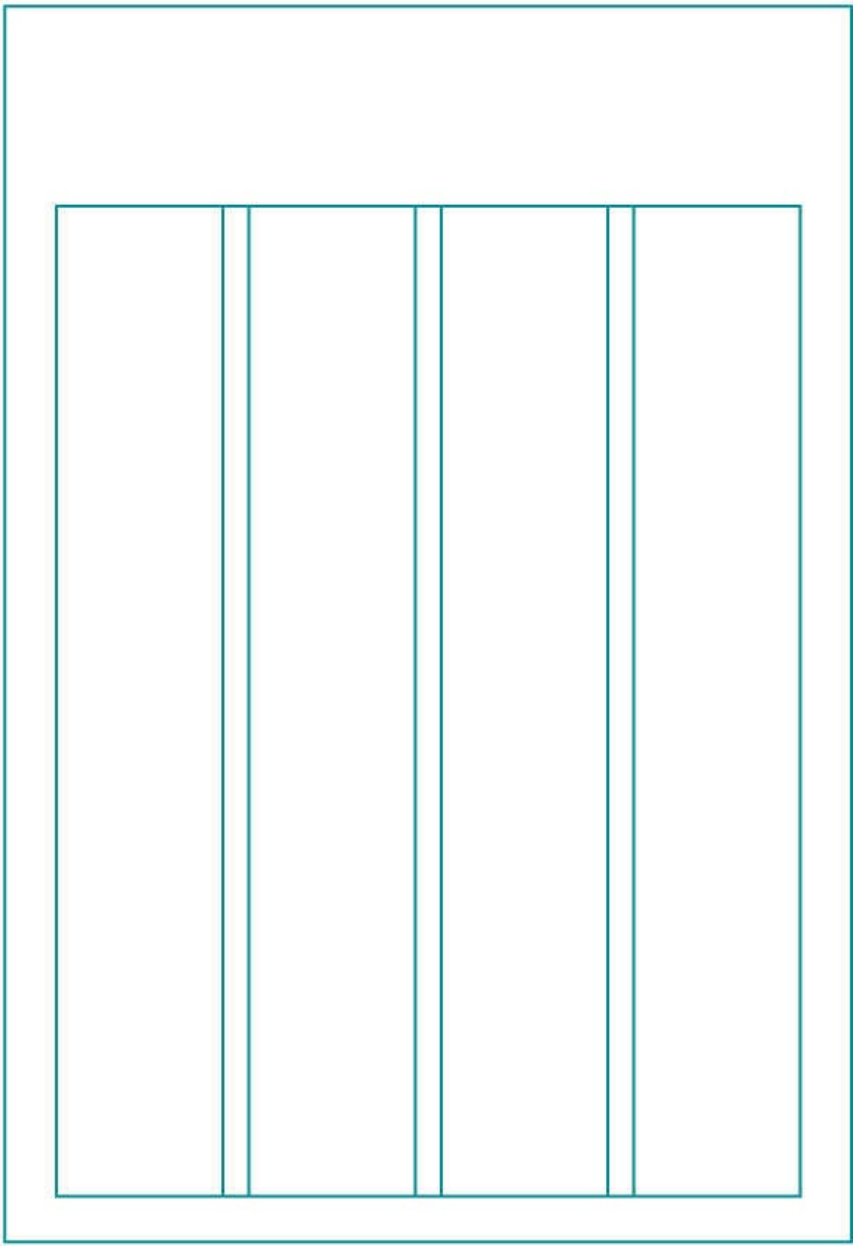
22 March
Bob Gill
Bob Gill describes himself as a New Yorker: a designer, an illustrator, a copywriter, a teacher, a film-maker and a terrible jazz pianist (in that order). He went to London for a few weeks, stayed fifteen years and was the Gill in Fletcher/Forbes/Gill (later known as Pentagram). Gill now works independently in New York. His work is represented in many design collections and he was elected into the New York Art Director's Hall of Fame in 1991.
7.15pm, Logan Hall, The Institute of Education, London WC1
Tickets £15/£10 D&AD members/ £5 nonmembers. To book please call John Green on 0171 840 1119

26 March
Deadline for entries to 1999 Student Awards

5 May
1999 Awards Ceremony at Olympia
Book now for our last big bash of the century. Join the cream of the creative and media industries to celebrate the cream of '99 in true D&AD style. The evening starts at 6.30pm with a reception where you can meet up with friends until the show goes up at 7.30pm.
For further details or to book tickets please call Louise Power on 0171 840 1120.

This diary is sponsored by

VENTURA



A precise four-column grid doesn’t necessarily preclude dynamic layout. In this particular spread, the scale change of typographic elements is a foil to the grid.
FROST*COLLECTIVE/AUSTRALIA

I 雄勝を知る——調査

石巻市雄勝地区の概要と東日本大震災による被害

雄勝地区の総面積は4,609haで、そのほとんどを山林が占める。主な産業は水産業であり、ほたてやわかめ、牡蠣などの海面養殖や沿岸漁業・底曳漁業が行われている[*1]。

2011年3月11日に発生した東日本大震災では漁村集落が壊滅的な被害を受けた。雄勝地区では20集落のうち15集落が津波により甚大な被害を受け、約250名の死者・行方不明者があり、1,348棟が全壊。総合支所や公民館、小中学校、公立病院など、エリア内の公共施設のほとんどが壊滅し、道路や漁港施設にも大きな被害があった[*2]。半島部ではこうした社会インフラの復旧とともにT.P20m[*3]以上の場所への高台移転による新たな居住地の造成が進められている。住民の多くは震災から4年が経過する今もなお仮設住宅での生活を余儀なくされており、地域外へ避難してそのまま移住してしまう住民も多い。

地区名	震災前（H23.3月末）		現地の作業状況（H26.3月末）	
	世帯数	人数	世帯数	人数
名振	87	201	17	33
船越	131	331	3	7
荒	57	92	10	12
大浜	199	557	177	487
桑浜	46	132	39	96
月浜	45	129	17	44
鹿浜	30	86	11	34
立浜	10	160	1	5
大須	45	113	8	23
小島	78	222	58	161
雄勝	69	201	1	5
合計（人口）	618	1668	22	74
内訳　仲掘地	122	323	0	0
下雄勝	116	313	0	0
上雄勝	130	322	0	0
仲掘荘	202	340	39	71
集計	68	171	3	3
桑浜	27	83	6	23
水浜	126	329	16	27
立浜	46	117	2	8
雄勝	22	51	1	12
現地作業従事者	—	—	125	234
その他	1637	4300	534	1230

※1 震災前の値は、H23.3月末現在
※2 現地作業従事者は、H26.3月末現在

▲表1 雄勝地域の地区別世帯数および人数[*4]

*1 参考文献：水産庁・宮城県漁業協同組合雄勝支所ヒアリング
*2 石巻市震災復興基本計画、石巻市、2011
*3 東京湾平均海面を基準にした表示
*4 震災前の値は、H23.3月末現在

II 地域計画

高台移転の背景

雄勝では震災後に防災集団移転事業で高台への居住地移転を行う計画決定がなされ、石巻市によって事業計画が作成されてきた。日本大学では事業計画作成の初期から、様々な案の高台移転地について建築やまちづくりの視点を導入した造成・まちづくりに関する計画案を作成してきた。こうした大学による計画案は市の作成する造成計画の素案となり、次章「雄勝の未来に向けて——実践」で述べるような宅地造成の実施設計へと結び付いていった。この章では、実際の高台移転候補地に対して、大学が作成した計画案を示し、新しいまちづくりの可能性と課題を検討する。

雄勝の高台移転の難しさ

雄勝では親も集落ごとに、防災集団移転事業として元の浜の近傍の高台へ居住地を移転する計画が検討されてきた。雄勝での計画の難しさは以下の3点である。

①各集落の規模がかさく、分散していること
②平地な土地が極めて少ないこと
③幹線道路が少なく、アクセス可能な高台移転候補地が限定されること

各集落では、漁業などの生業をもとに相互扶助的なコミュニティが形成されており地縁意識が強く、集落の統廃合は極めて困難である。そのため、半島部では従前の集落ごとに高台移転が計画されている。

高台移転の計画について

従来の集落調査や高台移転地の調査、植生調査などを通じて、雄勝半島の各地区は、地形や気候風土、人口、主業など様々な違いが見られ、新たに造成される高台移転地の周辺環境や規模も多様であることが明らかとなった。そのため、各地区の高台移転地の計画は、画一的に行うのではなく、それぞれの地域の特性に応じたきめ細かな計画が求められる。

ここでは高台移転地の周辺環境や規模が異なり、それぞれに特色を持つ名振・船越・荒浜地区の3地区をとりあげる。各計画は高台移転地の敷地調査やヒアリング調査を経て、集落ごとの特性を把握し、住民の生活様式を詳しく理解した上で作成したものである。

高台移転地の計画

各地区の生業と被災前の人口、そして地区の特徴を[表2]に整理した。高台移転地での想定戸数は、震災後に行った防災集団移転促進事業アンケートから算出した。

▲表2
各集落の地勢と立地

集落名	船越	荒浜	名振
衛星写真			
生業	漁業（定置、養殖）	漁業（定置、養殖）	農業（畑作、牛飼養）
被災前人口	131世帯／331人	87世帯／316人	22世帯／51人
特徴	・北西が海に面する ・北北西方向が集落 ・湾中心の集落形	・北側が海に面する ・北北西方向が集落 ・湾に沿うL型の集落形	・東側が海に面する ・南側を高台に囲まれる ・東側などの開地を持つ
被災した住戸数	107	89	12
移転想定戸数（集合再建）	55	7	4
移転想定戸数（自宅再建）	26	26	8

● 移転想定戸数は2013年6月現在　● 「衛星写真」はGoogle Mapsをもとに作成

▲図1
船越地区計画イメージ

船越地区の高台移転地の計画

船越地区の概要

船越地区は雄勝半島の北部に位置し、地区の北側を海に開く。集落は三方を山に囲まれたわずかな低平地にあり、海から各地区を結ぶ県道に向けて緩やかな登り坂がのび、その道を中心として家々が隣接して、井隈性を生み出していた。船越地区を襲った津波は海抜17mの高さに達し、海抜20m以下にあった集落の住宅はほとんど流出した。土砂崩れなどの危険を考慮し、現在居住の認可が下りているのは1軒のみである。この集落の被災前の人口は131世帯331人で、ワカメ、カキ、ホタテ、ホヤなどの養殖や小型定置網漁を主な生業とする。アンケートによると、今回の高台移転では54世帯が船越に戻ることを希望している。

船越地区高台移転地の特徴

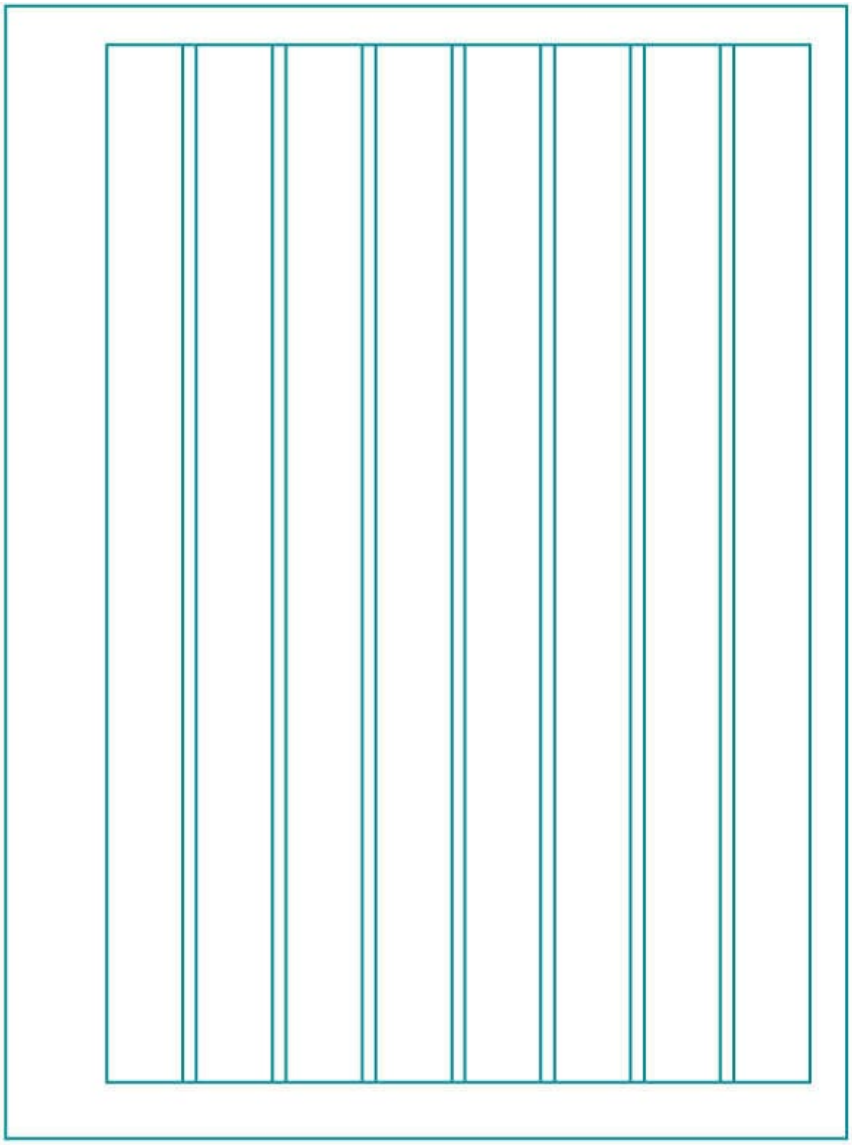
高台移転候補地は、船越地区のほぼ中心に舌状に張り出した海抜30m以上の高台に位置する。高台の北端には、海に面して、雄勝法印神楽(無形民俗文化財)が奉納される船魂神社がおかれる。計画地は、神社本殿の後方の鎮守の森の奥(海側)にあたり、10~15m程の樹木で視界が遮られ、海を望むことのできない場所もある。居住場所と神社境内との緩衝等の計画が重要な課題である。また、海から吹き上げる風の対策も必要である。

船越地区高台移転地の計画[図2]

高台移転候補地では周辺に居住者のない新たな土地に、船越地区に見られたような、道から人々の生活を感じられる井隈性のある集落を形成することを目指し、以下の流れで計画を行った。

a. ループ状道路の設置と井隈性を生む住宅の配置[図3]

▲図2
[ループ状道路(ボコンセプト)]イメージ図



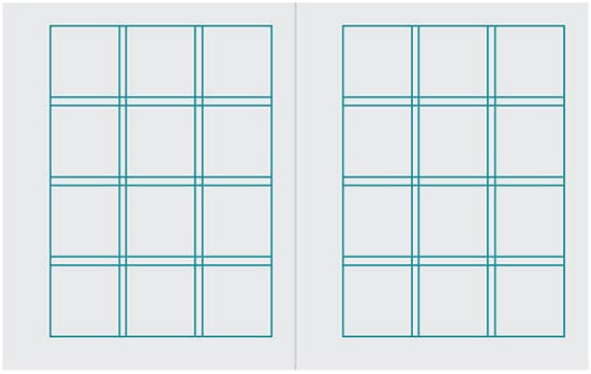
This publication also demonstrates the column grid’s flexibility and usefulness for distinguishing between different kinds of information. There are eight columns in the grid. What appears to be a wide, asymmetrical left margin is actually two of the grid’s narrow columns combined. It’s used for captions and callouts, while the grid’s remaining six columns are divided into two groups of three—for primary text. It’s important to always bear in mind that several narrower columns may be combined to create the appearance of wider ones.

NAKANO DESIGN OFFICE/JAPAN

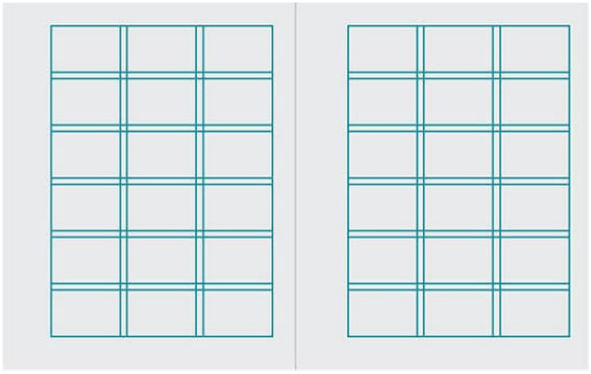
THE MODULAR GRID

For extremely complex projects involving many different kinds of information, a modular grid may be the most useful choice. A modular grid is a column grid with a large number of horizontal flowlines that subdivide the columns into rows, creating a matrix of cells called modules. Each module defines a small chunk of informational space. Grouped together, these modules define larger chunks of space, all proportionally related to each other, as well as areas called spatial zones, to which specific roles may be assigned. The degree of control within the grid depends on the size of the modules. Smaller modules provide more flexibility and greater precision, but too many subdivisions can become confusing or redundant.

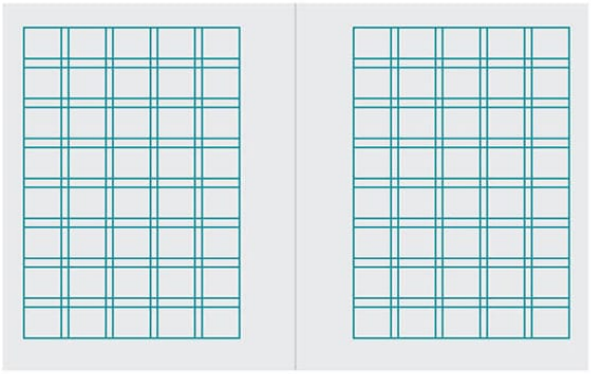
_ Aside from its practical uses, the modular grid has developed a conceptual, aesthetic image associated with the rationalist ideals of the Bauhaus and Swiss International Style. Designers who embrace these ideals sometimes use modular grids to convey this rationalism as an interpretive overlay to a given communication—even for projects with simple informational needs.



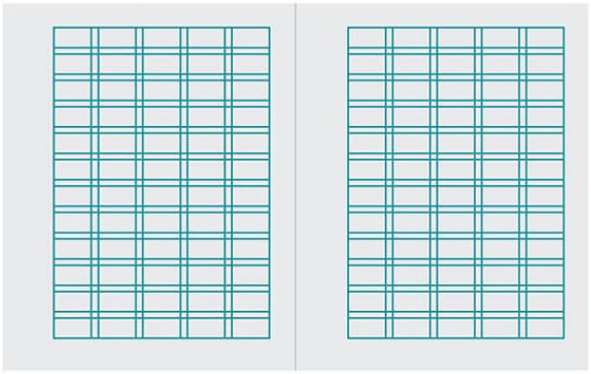
3×4 MODULAR GRID



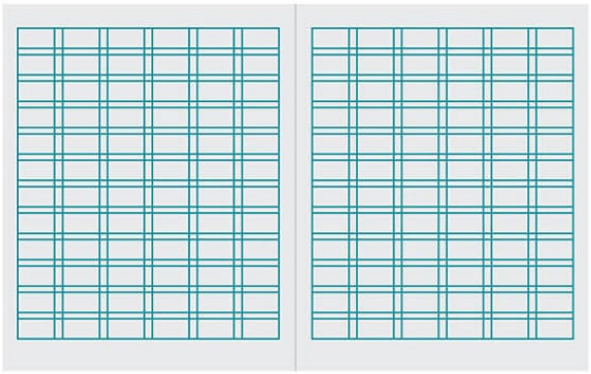
3×6 MODULAR GRID



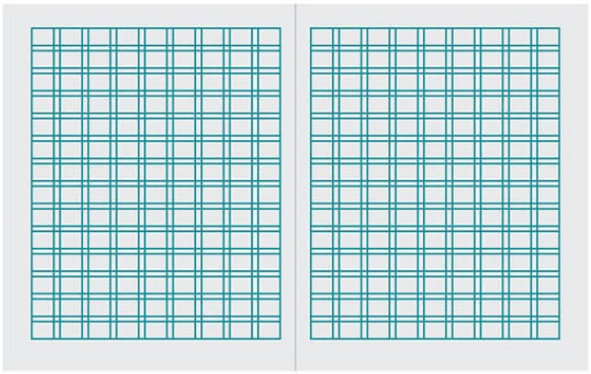
5×8 MODULAR GRID



5×12 MODULAR GRID



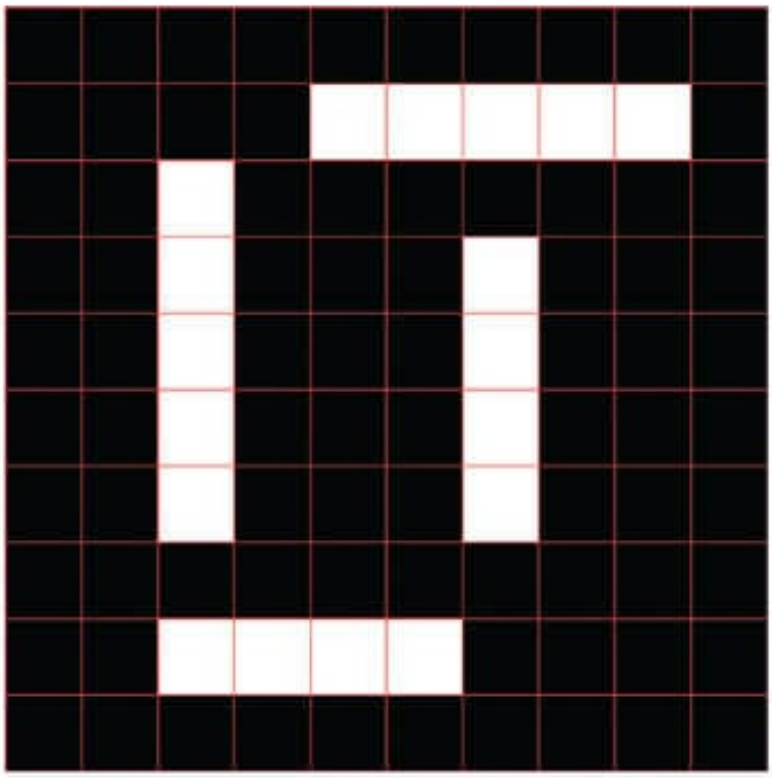
6×12 MODULAR GRID



9×14 MODULAR GRID

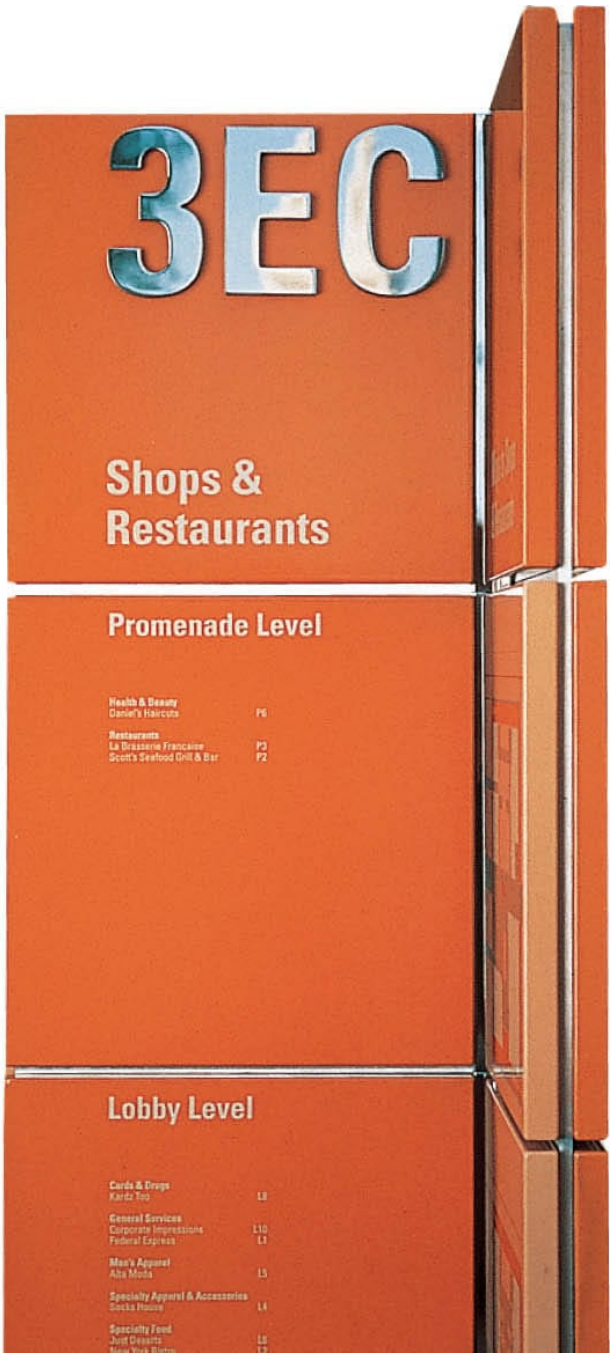
Module proportions can be vertical or horizontal in proportion, and determined in a variety of ways. Modular grids are described with a notation that marks the number of columns present and the number of rows (C# × R#).

Another variant of the modular grid is one in which there are no gutters between rows or columns, a so-called graph paper grid. Typically, these use a square module, small enough in measure to create a typical column or row gutter.



The modular grid that holds the abstracted letters of this logo together creates a maze of interlocking strokes and spaces that conceptually supports the narrative suggested by the client’s name.

PISCATELLO DESIGN CENTRE/USA



A simple modular grid provides the basic component shape and organization of these sign panels. They can be combined in any configuration, for any given need at a particular location.

POULIN+MORRIS/USA

vivacity still celebrating the new

The show must go on and it did. Heralded with fireworks, parties and parades, the first year of the new Millennium continued with a non-stop extravaganza of the arts and of artists right across London. The Millennium Festival, funded by the National Lottery, broke all the rules by happening everywhere all the time – well into the summer of 2001. And last century's year-by-year focus on different artforms culminated in our new century with the *Year of the Artist*, which brought living artists together with a vast number of people in a wide variety of extraordinary places.

Since Carnival has become the most potent symbol of the colour, creativity and vitality of the arts in this most diverse of cities, the Carnival Gala at the Millennium Dome in August 2000 offers as good a start as any to this retrospective of a thrilling year. The Gala built on Carnival's central role in the Millennium Eve celebrations and attracted an audience of 4,000 to Greenwich, a huge increase on previous years. Many there felt this was the best yet: great bands, great costumes and a great show that captured the year's sense of celebration and renewed energy.

Equally emblematic of a city entering a new phase of confidence and enterprise was Tate Modern, the converted power station that provoked an unprecedented outpouring of enthusiasm for contemporary art. Far sooner than anyone expected, this world-class new gallery for London broke all records for public visitors.

The newly refurbished Royal Court created a different kind of buzz with its upstairs Studio Theatre showcasing a vast range of writers and plays from both home and abroad, including Sarah Kane's prescient *4:48 Psychosis*, *Mr Kolpert* by young German playwright David Gieselmann and Caryl Churchill's *Far Away*, which subsequently transferred to the West End.

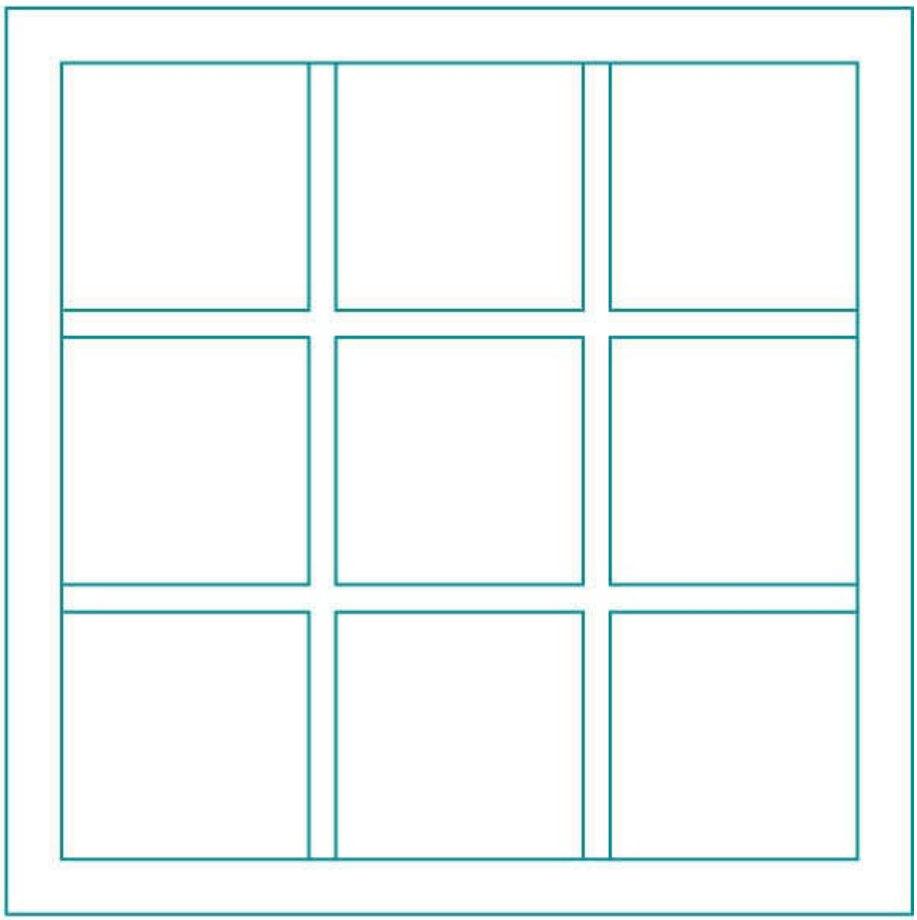
Smaller in scale but often with ambitions at least as big, a clutch of other new and refurbished buildings opened up for business across the city. Soho Theatre and Writers' Centre was just one. With its central location and its young audiences, the venue not only puts on new writing in the main theatre but helps to make it happen in the first place. With around 2,000 scripts to read a year, it has 60 writers enrolled on a development programme that opens up studio-space for workshops and readings and offers rooms equipped just for people to come and write.

The year also brought reminders that all these new developments have their roots in decades or more of faith, hope and charitable giving. One signal event was the centenary exhibition at the Whitechapel Art Gallery, an institution that has a record of reaching out to people and bringing them in to see what the arts have to offer.

Opening moves

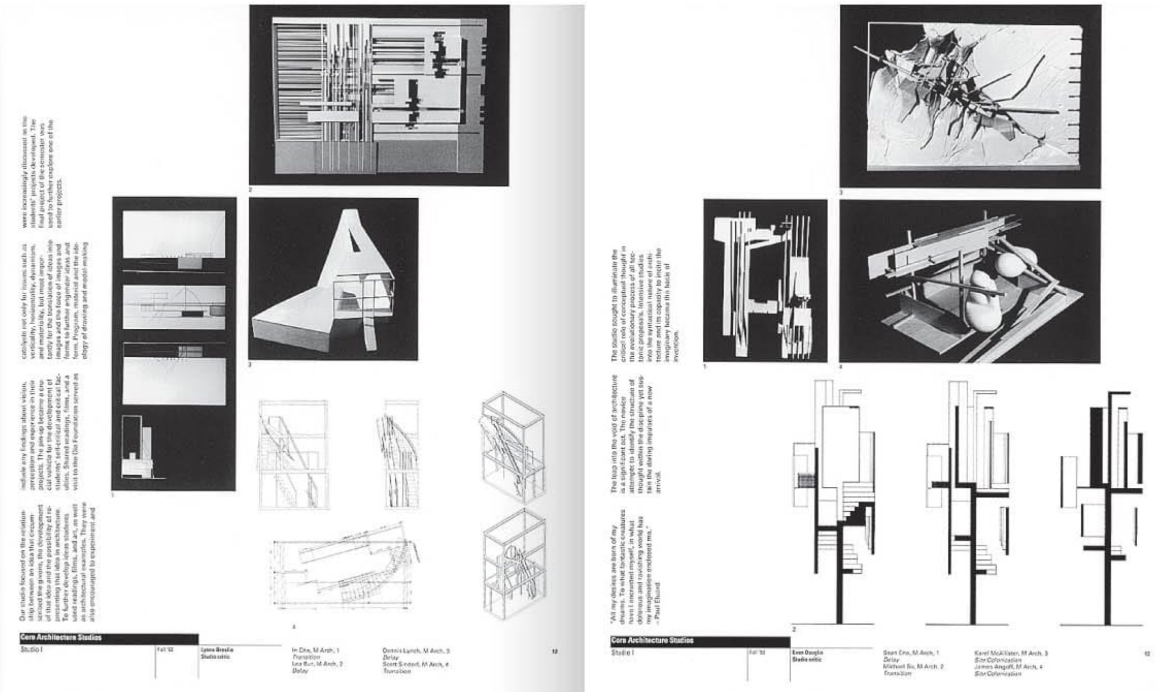
Coinciding with all this celebratory activity was the election in May 2000 of Ken Livingstone, London's first ever mayor, and the creation of the Greater London Authority (GLA). The GLA has a commitment to developing a cultural strategy for the new Millennium. KidsLink was an early project launched by the Mayor. This scheme to engage 7-11 year olds in London with cultural events and institutions was developed by London 2000 with London Arts as a partner and funder of the enterprise. Hosted and managed by the London Tourist Board, the project twinned over 170 primary schools with London attractions and venues. As well as going on free visits, pupils reviewed the attractions in words and pictures, posting them on a website with links to www.londontouristboard.com, now the capital's main visitor website. Like many other Millennium initiatives, KidsLink has left a positive legacy, inspiring a new scheme from the GLA offering school groups free travel to cultural events and venues.

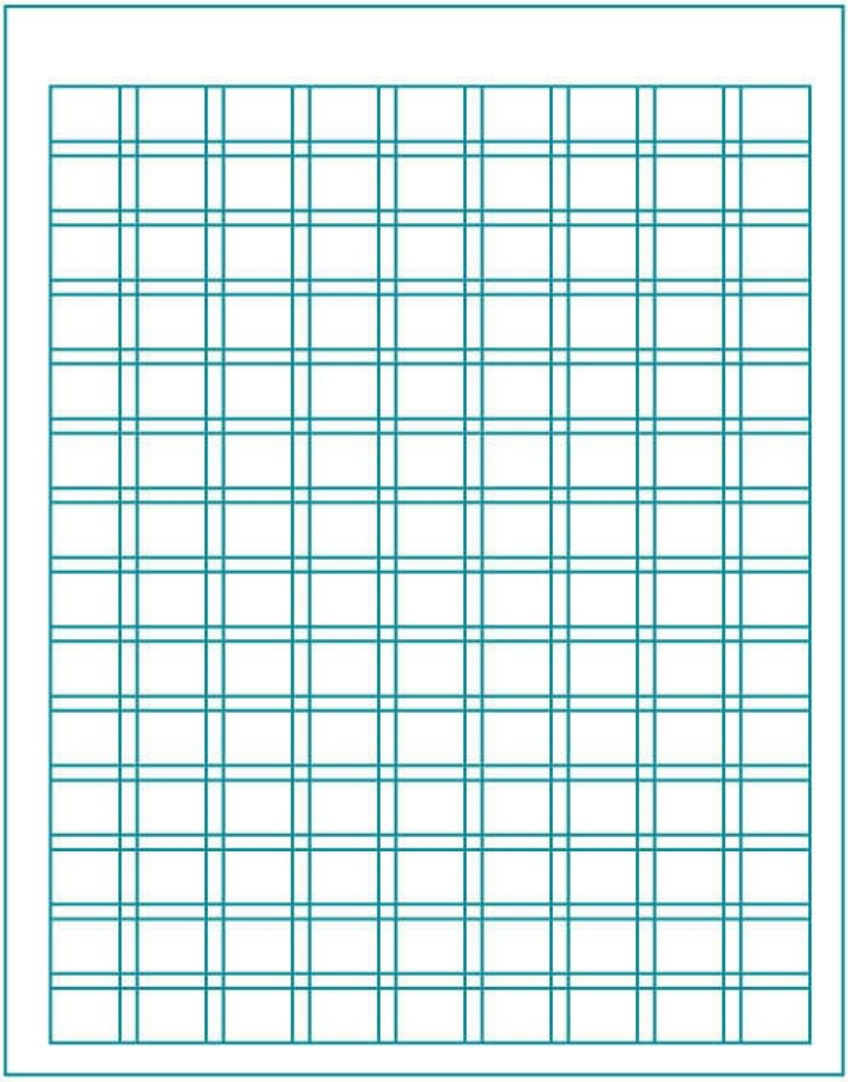
The epicentre of the Millennium celebrations was Greenwich. The borough has undergone a cultural renaissance with the development of the new Laban Centre on its border, the relocation of Trinity College of Music, the renewal of the Woolwich Arsenal, the development of creative industries in the Thames Gateway area, and a major arts and regeneration project with Lewisham and the National Theatre. In recognition of



Even a simple, or “loose,” grid of three columns and three rows—referred to as a 3 x 3 modular grid—can give rise to a tremendous number of shapes in the way the modules are combined.

WHY NOT ASSOCIATES/UK

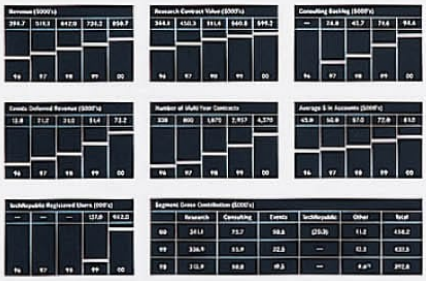

Core Architecture Studios
Studio I
Fall '03
Lynne Breslin
Studio critic
In Cho, M Arch, 1
Transition
Lea Bun, M Arch, 2
Delay
Dennis Lynch, M Arch, 3
Delay
Scott Sindorf, M Arch, 4
Transition
Core Architecture Studios
Studio I
Evan Douglis
Studio critic
Sean Cho, M Arch, 1
Delay
Michael Su, M Arch, 2
Transition
Karel McAllister, M Arch, 3
Site Colonization
James Angoff, M Arch, 4
Site Colonization



The precise, or “tight,” modular grid here consists of 9 columns and 14 rows, or 126 modules on each page. A quick glance at the spread’s layout shows a large variety of content types in a range of proportions and numerous spatial zones—with plenty of spatial separation between each.

WILLI KUNZ STUDIO/USA

x_F.H+1



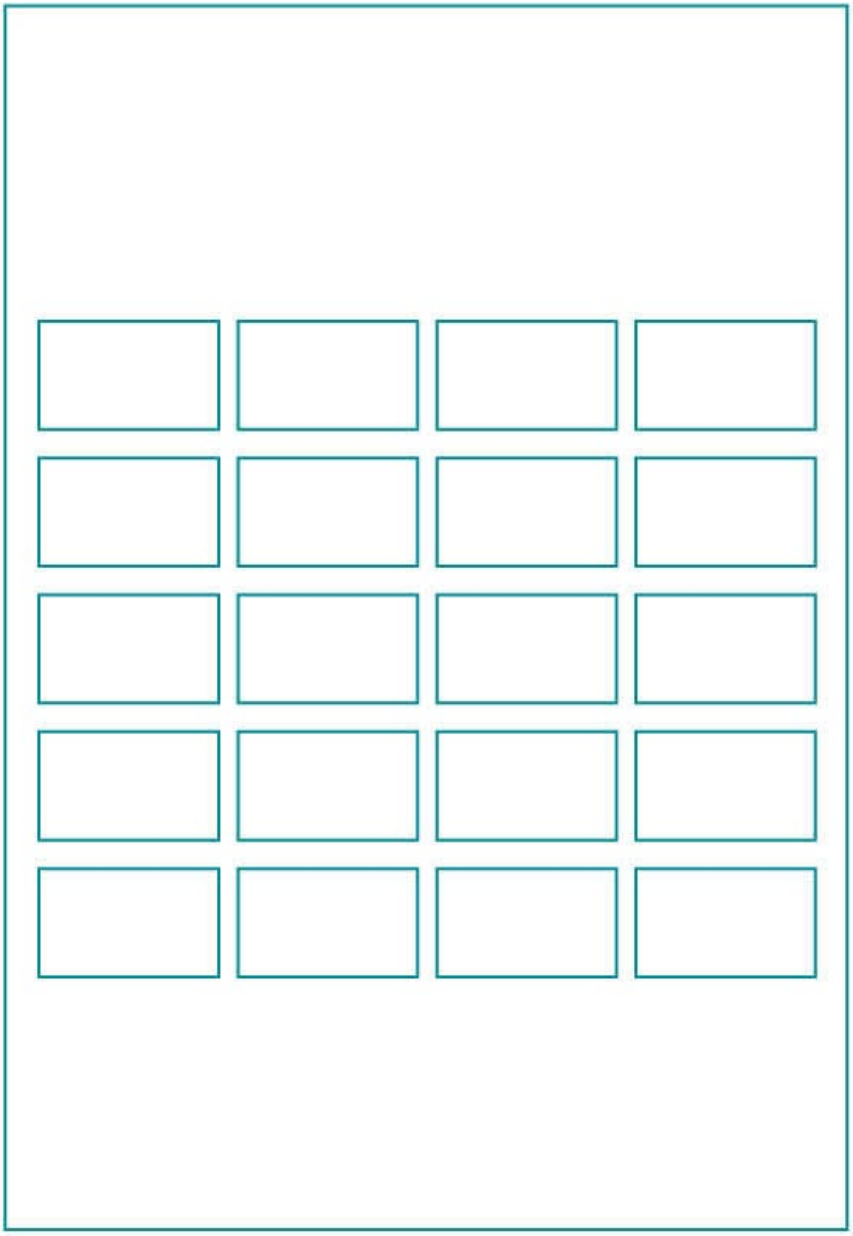
[1] Represents the sum of Other and Learning gross contributions for the fiscal year ended September 30, 1998.

x_F.H+2

Fiscal Year Ended September 30, (in thousands, except per share, employee and client data)	2000	1999	1998	1997	1996
Total revenues	$ 856,671	$ 734,234	$ 644,957	$ 511,339	$ 398,672
Ongoing revenues[1]	$ 856,671	$ 734,234	$ 622,889	$ 469,925	$ 382,453
Net income	$ 23,545	$ 88,271	$ 88,247	$ 73,100	$ 16,438
EBITDA[2]	$ 151,867	$ 170,610	$ 178,628	$ 134,814	$ 47,217
Earnings per common share:					
Basic	$ 0.29	$ 0.86	$ 0.88	$ 0.77	$ 0.18
Diluted	$ 0.29	$ 0.84	$ 0.84	$ 0.71	$ 0.17
Cash[3]	$ 0.37	$ 0.92	$ 0.91	$ 0.76	$ 0.20
Weighted-average shares outstanding (diluted)	81,329	104,948	105,699	102,731	98,854
Cash provided by operations[4]	$ 75,565	$ 143,915	$ 145,048	$ 123,990	$ 95,104

As September 30,	2000	1999	1998	1997	1996
Client organizations[5]	10,014	9,692	9,114	8,124	7,241
Research contract value	$ 599,869	$ 560,779	$ 511,472	$ 450,276	$ 344,106
Consulting backlog[6]	$ 94,441	$ 71,630	$ 42,687	$ 26,839	—
Events-deferred revenue	$ 72,212	$ 51,443	$ 30,958	$ 21,312	$ 12,830
Employees	4,422	3,402	2,972	2,885	2,429

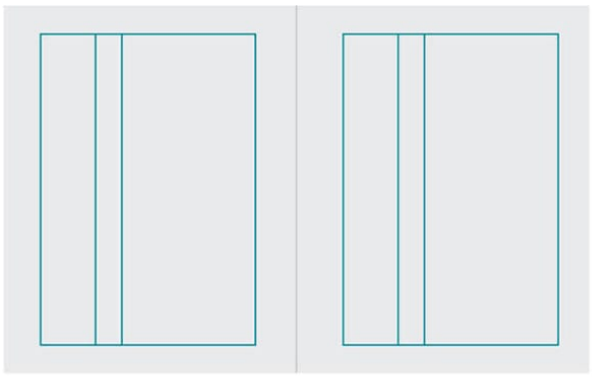
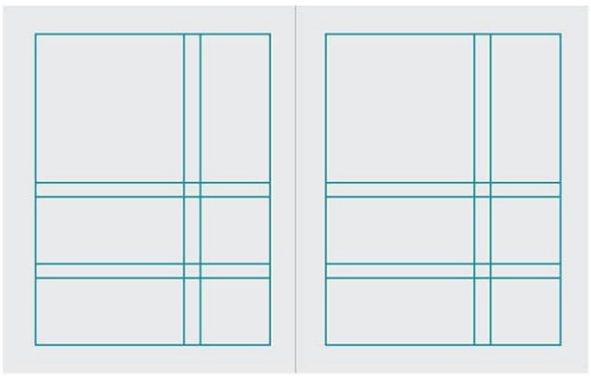
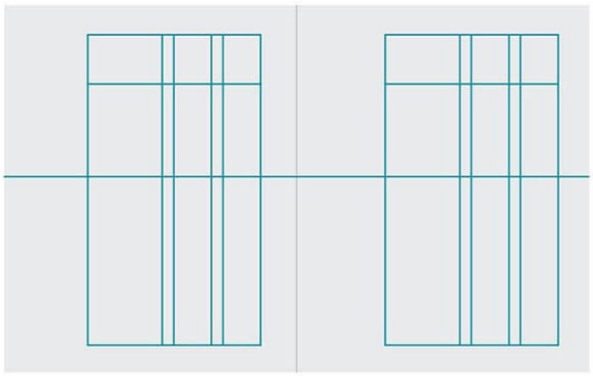
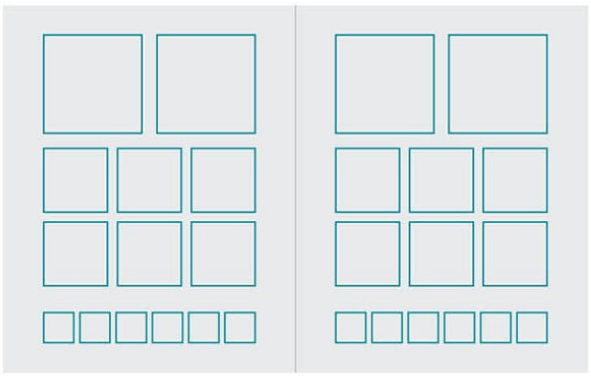
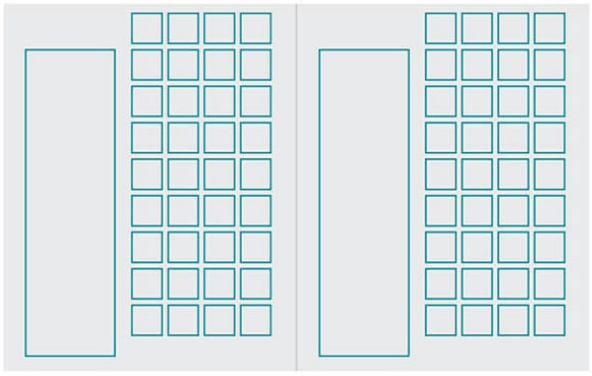
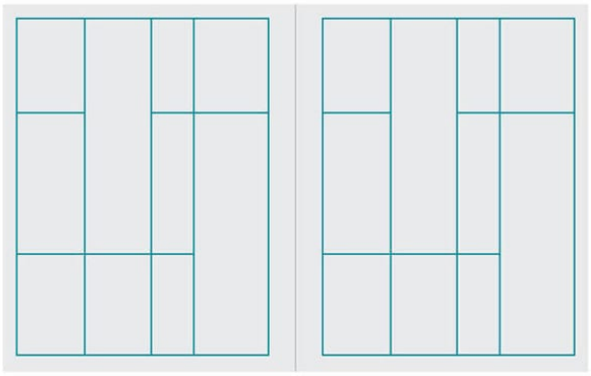
[1] Excludes CarrierLearning revenue, a unit sold in fiscal 1999.
[2] EBITDA is defined as earnings before interest, taxes, depreciation and amortization. The EBITDA calculation includes other charges.
[3] Cash EPS excludes other charges and the amortization of intangibles (net of tax benefits).
[4] Restated for required reclassification of tax benefits.
[5] Excludes Datapro and CarrierLearning.
[6] Consulting backlog was not a calculated business measurement in 1996.

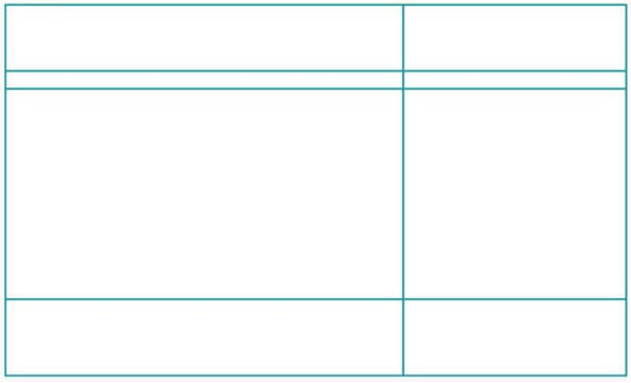


A modular grid also lends itself to the design of tabular information, like charts, forms, or schedules. The rigorous repetition of the module helps integrate them with the structure of surrounding text and image material.
CAHAN & ASSOCIATES/USA

THE HIERARCHIC GRID

Sometimes the visual and informational needs of a project require an odd grid that doesn't fit into any category. These grids—called hierarchic grids—conform to the needs of the information they organize, but they are based more on an intuitive placement of alignments customized to the various proportions of the elements, rather than on regular repeated intervals. Column widths, as well as the intervals between them, vary depending on context and use; they may make use of several rows grouped together in only one part of a format, joined by a single column; or they may consist only of broad, simple divisions defined by a few guidelines. Whether used to build books, posters, or webpages, it's an organic approach to ordering information in space that still holds all of the parts together architecturally with clear, orthogonal relationships.



The dynamic content of most websites requires a flexibility of width and depth that precludes a strict modular approach, but still requires a standardization, or templating, of alignments and display areas. This website for a museum breaks the page space into three major horizontal zones, and then subdivides the middle zone left to right to create areas specifically for text and image content.

SWIM DESIGN/USA

Ryan Waller

Tell us about how you came to teach at Pratt.

I taught in the undergrad program for a year. I guess this was in 2007 and 2008; it was a weird situation in which someone had recommended that I teach there, and I was called in by the chair. So I met with her and she asked if I wanted to teach, and I had never thought about it, but I said okay and I tried it out.

Why do you keep teaching?

I think that a lot of the way I've always worked was developing projects that were my projects, starting earlier as making zines and little printed things: posters and T-shirts and things. I've always been interested in making work. Certainly by the time I was in graduate school, I was developing larger research-based work, and the reason I think I like teaching now is because I think that all of the projects that I would want to work on with students are things that I would want to do myself. All of the classes that I teach are usually based on something that I'm currently reading and want to figure out how to make something from it.

Ryan Waller is one of the partners of the design studio Other Means, with Gary Fogelson, Phil Lubliner, and Vance Wellenstein. He also is one of the founders of Primetime, a gallery space located in Carroll Gardens, Brooklyn.

» *NYC Makers: The MAD Biennial* catalog

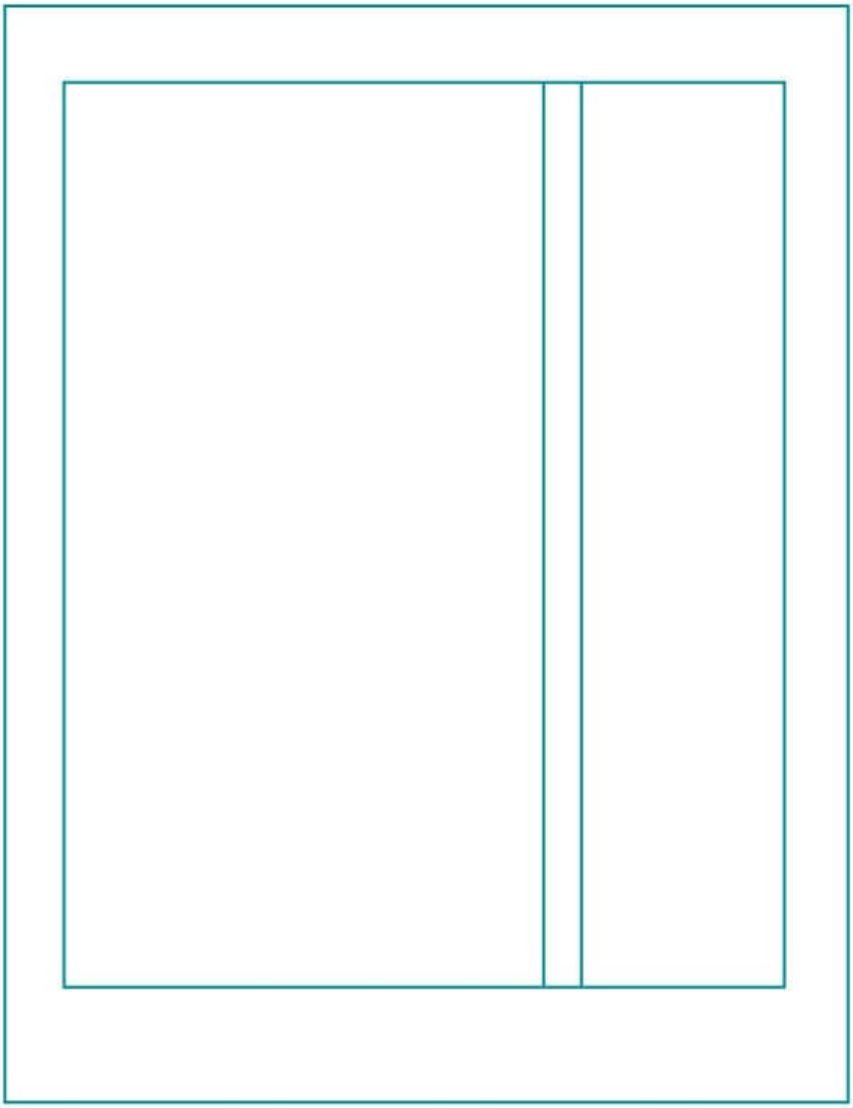
› Website for Retrospective Art Space

In the Typography II class and in the Visual Language class, there is always a project that's related to the concept of collecting and curating and developing a thing from that. A lot of projects that we've actually done as a studio sort of relate to that, and there is always one in the works, so it's something that I'm always kind of interested in. Just seeing how other people might do it.

The projects that I would want to work on with students are things that I would want to do myself.

How do you think your work at Other Means has influenced the way that you teach?

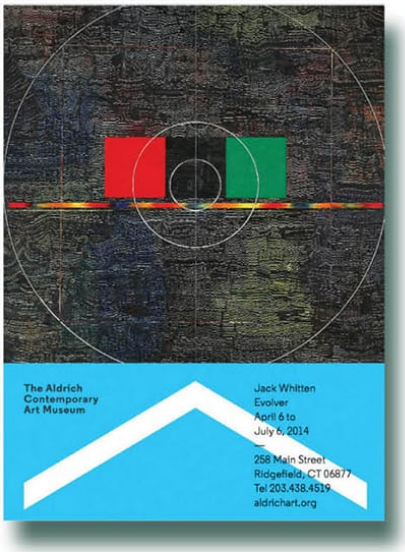
So it's sort of the same thing—I mean, they are totally and completely different, but at least the initial up-front part of the development of an assignment versus the development of a project that we're doing in here. When were working on a project here, we tend to bring into it things that we are reading or current ways of thinking.



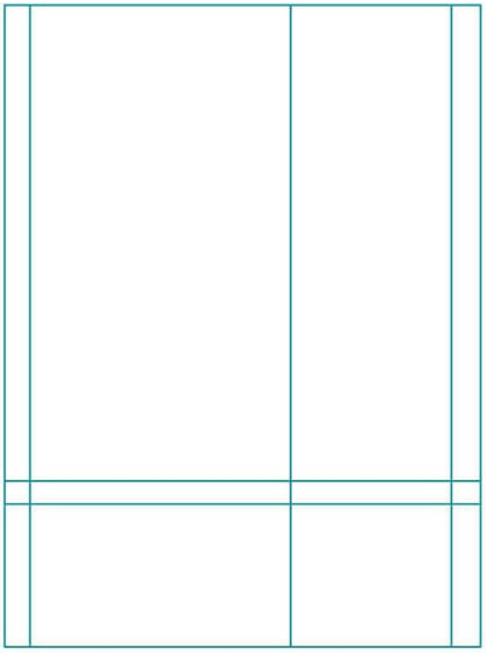
The hierarchic grid of this promotional book for a graphic design program orders information in two columns: a wide one for text and primary images, and a narrow one for captions and secondary, or support, images. The proportions of the two columns are independent of each other, and content can spread across the width of both columns combined.

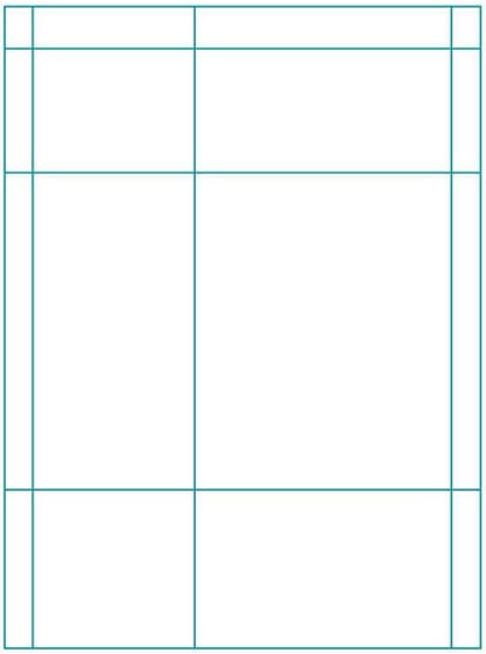
LEVEL DESIGN GROUP/USA


The Aldrich
Contemporary
Art Museum
James Mollison
The Disciples
On view through
March 9, 2014
—
258 Main Street
Ridgefield, CT 06877
Tel 203.438.4519
aldrichart.org


The Aldrich
Contemporary
Art Museum
Jack Whitten
Evolver
April 6 to
July 6, 2014
—
258 Main Street
Ridgefield, CT 06877
Tel 203.438.4519
aldrichart.org


The Aldrich
Contemporary
Art Museum
April 21, 2006
Mr. Stefan Sagmeister
Sagmeister & Walsh
206 West 23rd Street 4th Floor
New York, NY 10011
Dear Sir or Madame,
Contact
258 Main Street
Ridgefield, CT 06877
203.438.4519
aldrichart.org
—





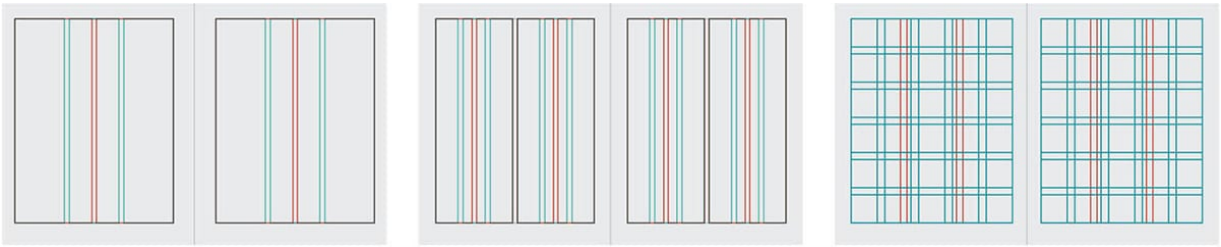
A simple hierarchic grid, consisting of a wide and narrow column—broken by a single flowline—is used to structure layouts for applications in this museum’s identity materials. The grid’s lateral orientation (wide column left, narrow column right, as seen in the brochure covers) is flipped in the opposite direction when applied to the design of the letterhead, below.

SAGMEISTER+WALSH/USA

COMPOUND GRIDS

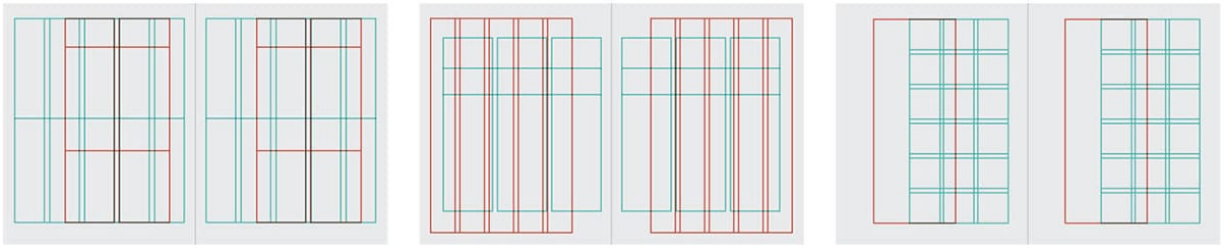
Sometimes—to address content issues or to achieve a desired look—a designer might use multiple grids in the same project, either between sections or even within a single page spread. Each grid can be assigned a particular kind of content to organize, or material can be articulated across divisions within the multiple grids. Working with several grids together can take several directions.

_ The first option is simply to use two or more different grids that share outer margins, adjusting their internal alignments and widths or depths to correspond somewhat, or allowing them to be arbitrary. A second possibility is to overlay grids whose margins are each independent of the others; perhaps some of their internal alignments correspond—or not. A third option is to combine grids on a single page but to separate them for specific purposes. For example, primary text or images might occupy a three-column grid in the upper two-thirds of the page, but a five-column grid might hold captions or other secondary content in the lower third of the page.

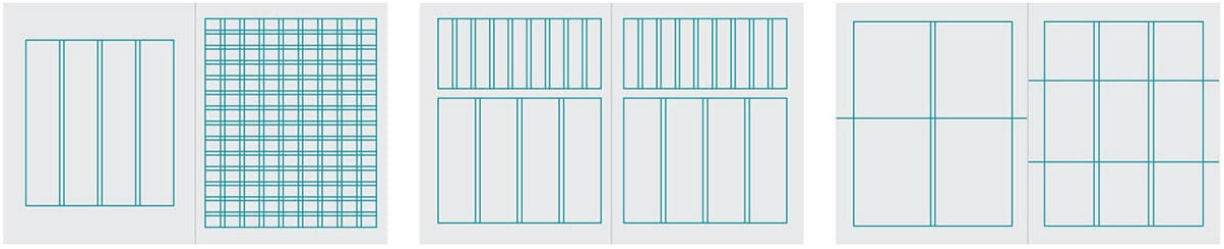


Each row of these grid diagrams shows one of the compound grid varieties described here:

Two grids sharing all margins (top, bottom, outer, and inner)



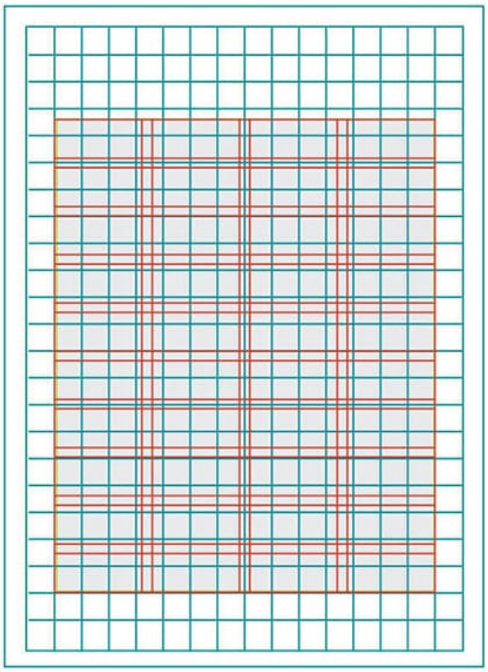
Two grids with different margins

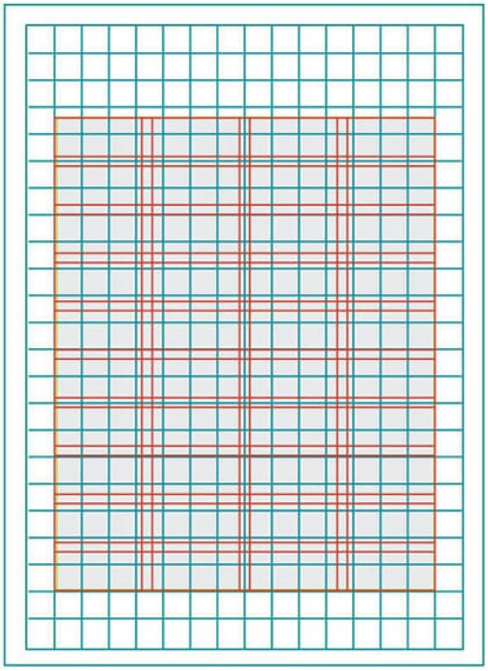


Two grids separated spatially across the format (opposite each other across the spread’s gutter, or top to bottom on the same page)


SELECT RESEARCH
PROGRAMS
1 ANGIOPOIETINS
Each tissue in the body depends upon a complex system of blood vessels to supply nutrients, oxygen, and factors important for combating infection. The initial stages of blood vessel formation are controlled by Vascular Endothelial Growth Factor, or VEGF. Regeneron's scientists have discovered an entirely new class of molecules, called the Angiopoietins, which work in collaboration with VEGF to form mature blood vessels.
Blood vessels respond to changes in our bodies by altering the amount of fluid, growth factors, or immune cells that leak out of blood vessels into surrounding tissues. This property is called "vascular permeability." If a blood vessel is too permeable, blood cells and immune molecules can leak out of the vessels in excess and cause damage. In 1999, Regeneron made an important discovery that Angiopoietins can influence the permeability of the vascular system. In 2000, we demonstrated that administration of Angiopoietins can both promote the survival of blood vessel cells and prevent inflammation. Based on this information, Regeneron is evaluating the potential for an Angiopoietin-based drug to treat diseases where permeability is a problem, including edema, ascites, and diabetic retinopathy.
2 MUSCLE PROGRAM
There are very few therapeutic agents available to address the array of conditions that cause a loss of muscle mass, called muscle atrophy or sarcopenia. Muscle atrophy often accompanies injuries that cause a limb to be immobilized, as may occur after knee surgery or when a broken bone is put into a cast. Muscle atrophy also arises during an extended period of inactivity, such as a prolonged hospitalization. Regeneron scientists, together with our collaborating scientists at Procter & Gamble Pharmaceuticals, have discovered key cellular pathways that can protect a muscle during atrophy-inducing conditions. In 2000, we worked on determining mechanisms for stimulating these muscle-preserving pathways in order to screen for appropriate therapeutic agents.
3 REGENERON ORPHAN RECEPTORS (RORs)
Osteoarthritis is a disease associated with aging that causes deterioration of the joint cartilage. Our scientists have discovered two key receptors, called "RORs" or Regeneron Orphan Receptors, which may play a role in growing cartilage. In 2000, we continued to study how to activate the RORs, and whether this activation will provide benefits to patients suffering from osteoarthritis.
We also have active research programs underway covering additional Cytokine Traps, Ephrins, DORs, G-Protein Coupled Receptors, and monoclonal antibodies.


1. RESEARCH
Led by Dr. George Yancopoulos, Regeneron Research Laboratories has generated the array of product candidates that fill our pipeline today. It is comprised of approximately 200 talented and dedicated scientists, including over 65 M.D.'s and/or Ph.D.'s, and is directed by some of the most respected scientists in their fields. We have exciting research programs underway in areas where there are clear market opportunities, including obesity, inflammatory diseases, cancer, asthma, angiogenesis, blood vessel damage and leak, muscle atrophy, liver fibrosis, osteoarthritis, and bone disorders. Certain of these efforts are conducted in partnership with Procter & Gamble as part of our long-term collaboration. We also collaborate with Medarex Inc. to develop monoclonal antibodies as potential drugs.
R
E
S
E
A
R
C
H
" WHAT EXCITES ME ABOUT WORKING IN THIS LAB?
OUR COLLECTIVE DRIVE TO EXCEL. THIS IS A TEAM. WHEN WE MAKE
A BREAKTHROUGH IN ONE AREA — SAY, DEVELOP A NEW DRUG DISCOVERY
TECHNOLOGY — IT LEADS TO BREAKTHROUGHS IN OTHER AREAS.
WE'RE ALL IN THIS TOGETHER. "

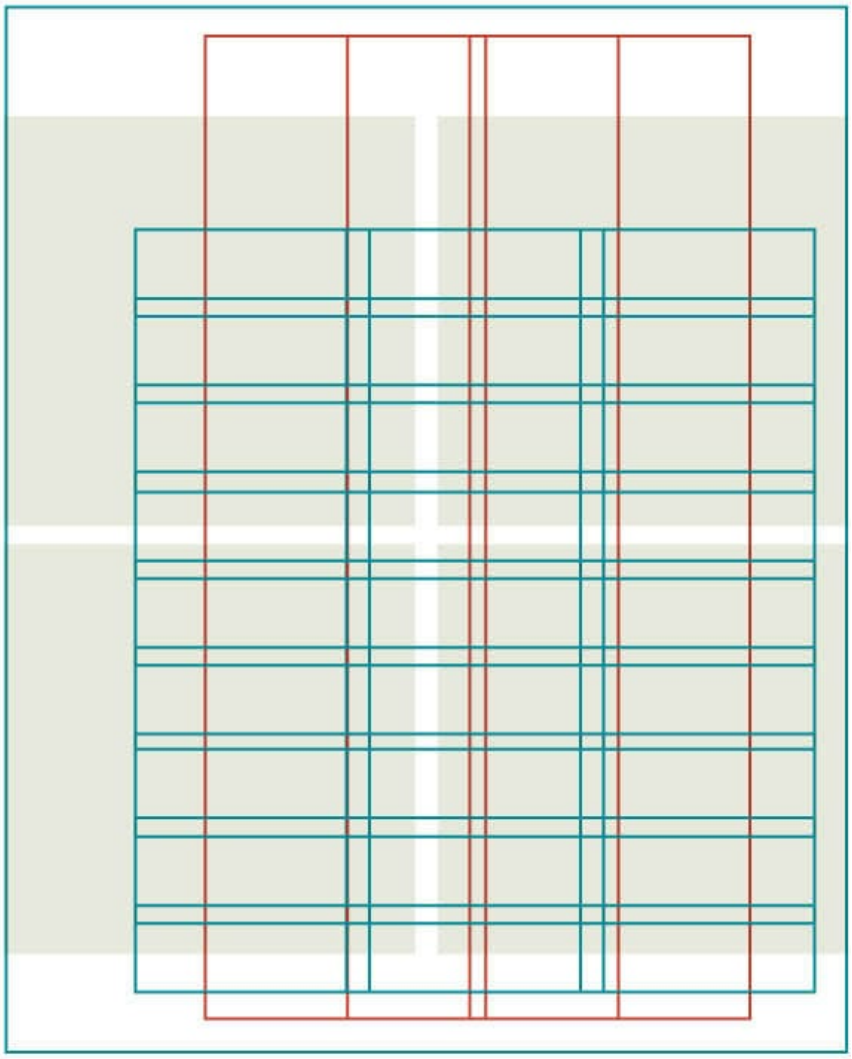




In an unusual deviation from regular modular grids, where the same module governs every page regardless of the information being presented, this small-format annual report uses three separate articulations of a modular grid, each with its own module proportion. The differences in margin measure between each grid correspond to the dimensions of the smallest-module grid, which is shown

explicitly as a graphical element overlaying the portrait on the right-hand page of the spread at bottom. Different combinations of the three grids, corresponding to the page spreads, are shown.

IDEAS ON PURPOSE/USA



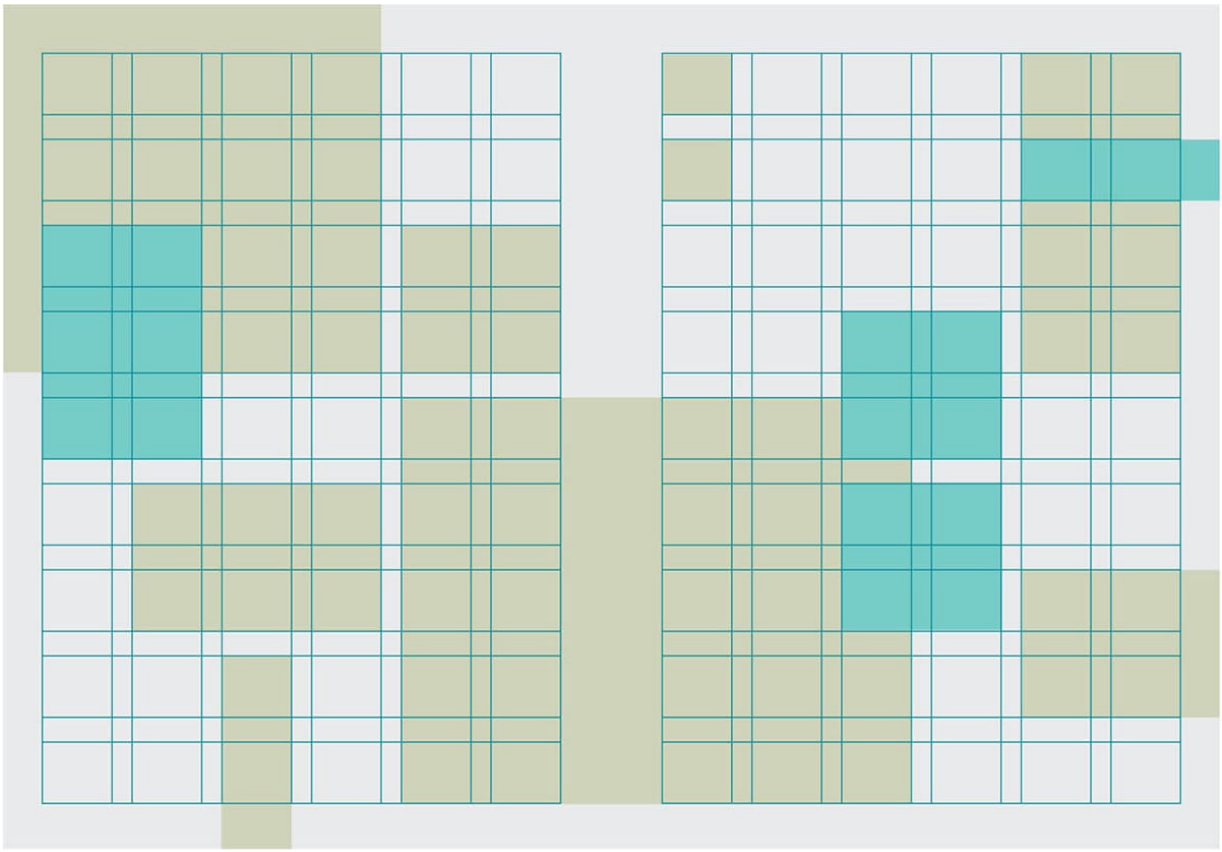
In this project, the designer implements a separate grid for each kind of content—primary text, callouts and other secondary texts, and images. The resulting irregularities create tension between order and organicism that speaks to the publication's subject matter.

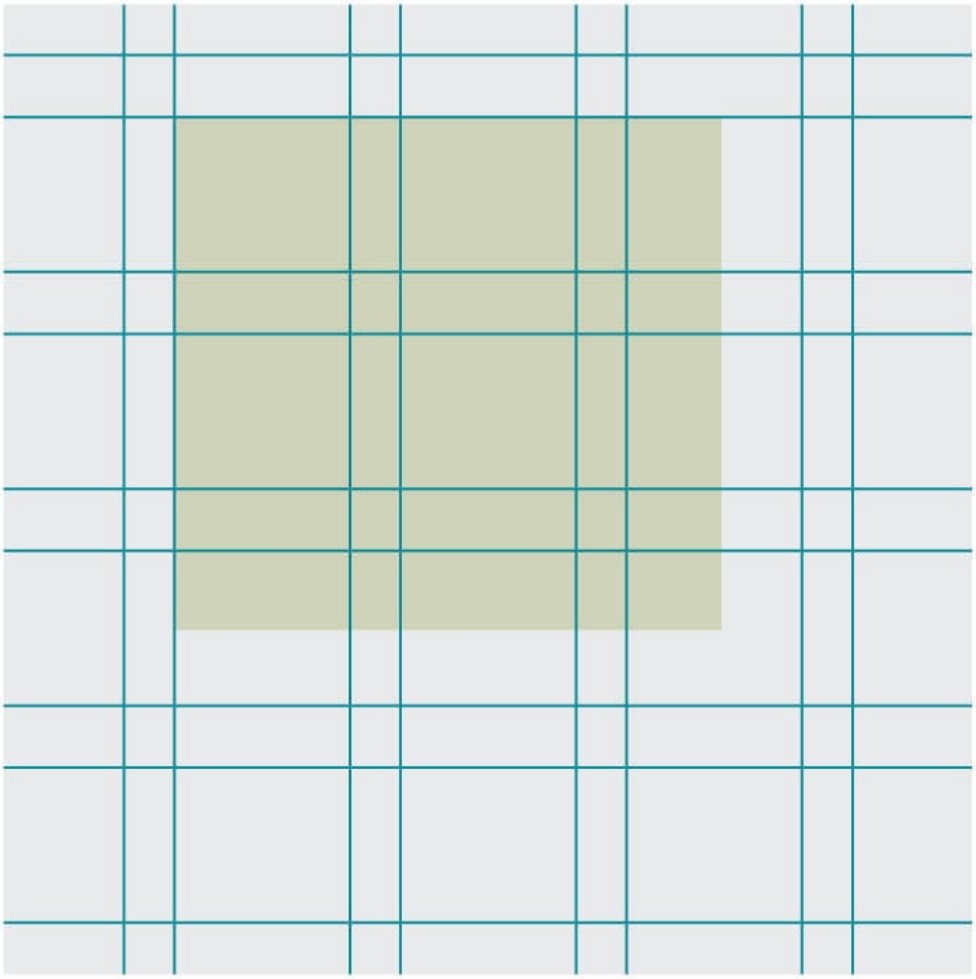
TIMOTHY SAMARA/USA

Options

The geometric simplicity of rectilinear images (or graphical planes) offers the easiest way to first understand how a grid manages visual material within its structure.

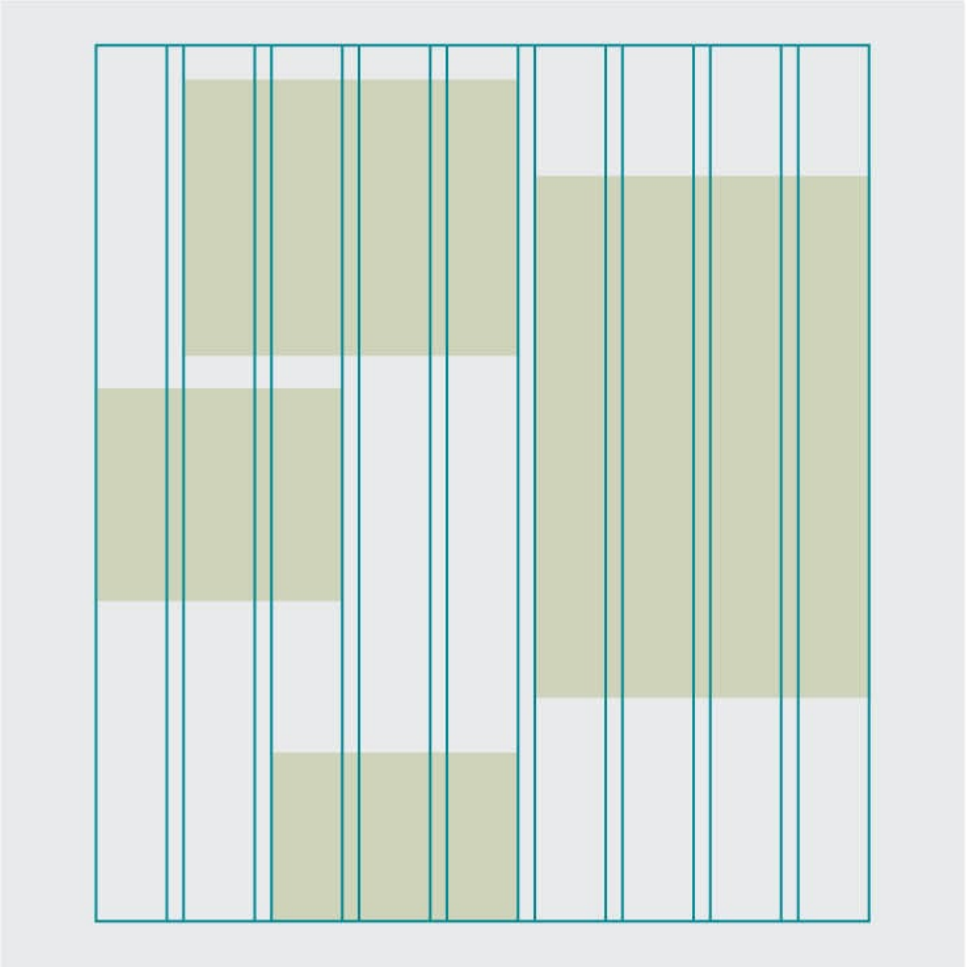
_ All the instances shown above are possible—and more. The basic rule to follow is this: The edges of images align with the edges of columns, left-to-right, and they align with the edges of rows, top to bottom. It's OK for images to overlap each other, and to bleed off the page (even across the page gutter)—so long as they adhere to the column and row alignments whenever they fall within the body of the structure.



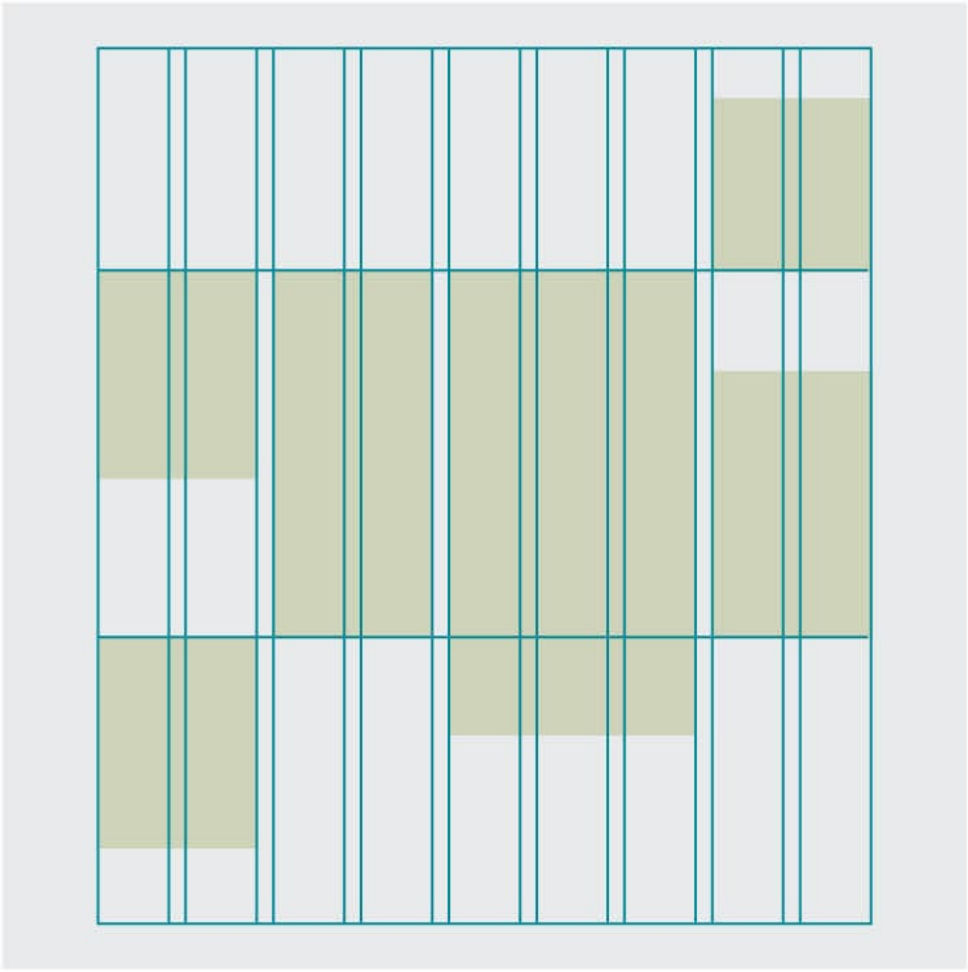


A common error is to allow an image’s edges to fall somewhere in the middle of a column or row. Sometimes it looks better that way. Fine, then—add more columns or rows so that proportional alignment option becomes available as part of the structure.

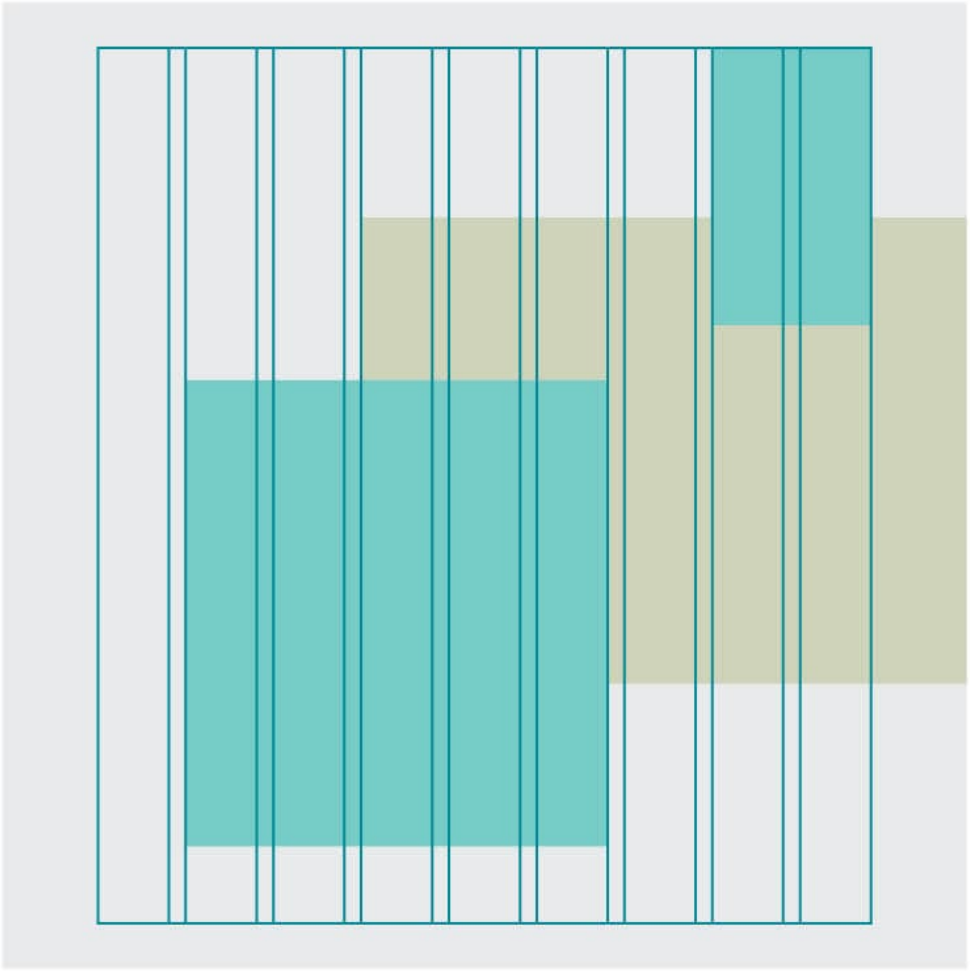
Alignment Logic



In a column grid without flowlines to constrain them, images may be of any depth and slide up and down the columns without aligning horizontally at any point.

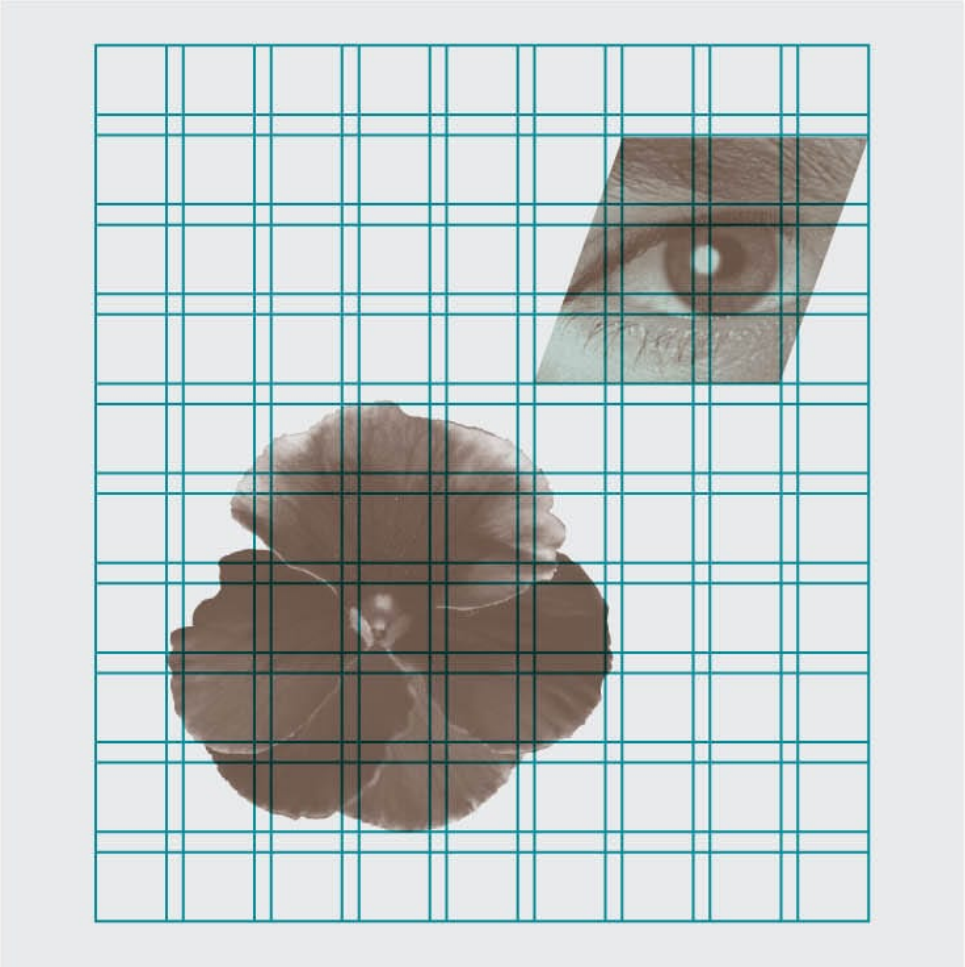


As soon as flowlines are introduced, one must assume there’s a need to create horizontal alignments—in which case, images can hang from them, dropping to whatever depth; sit on them; or be proportioned by the distance between them (if there are more than one).

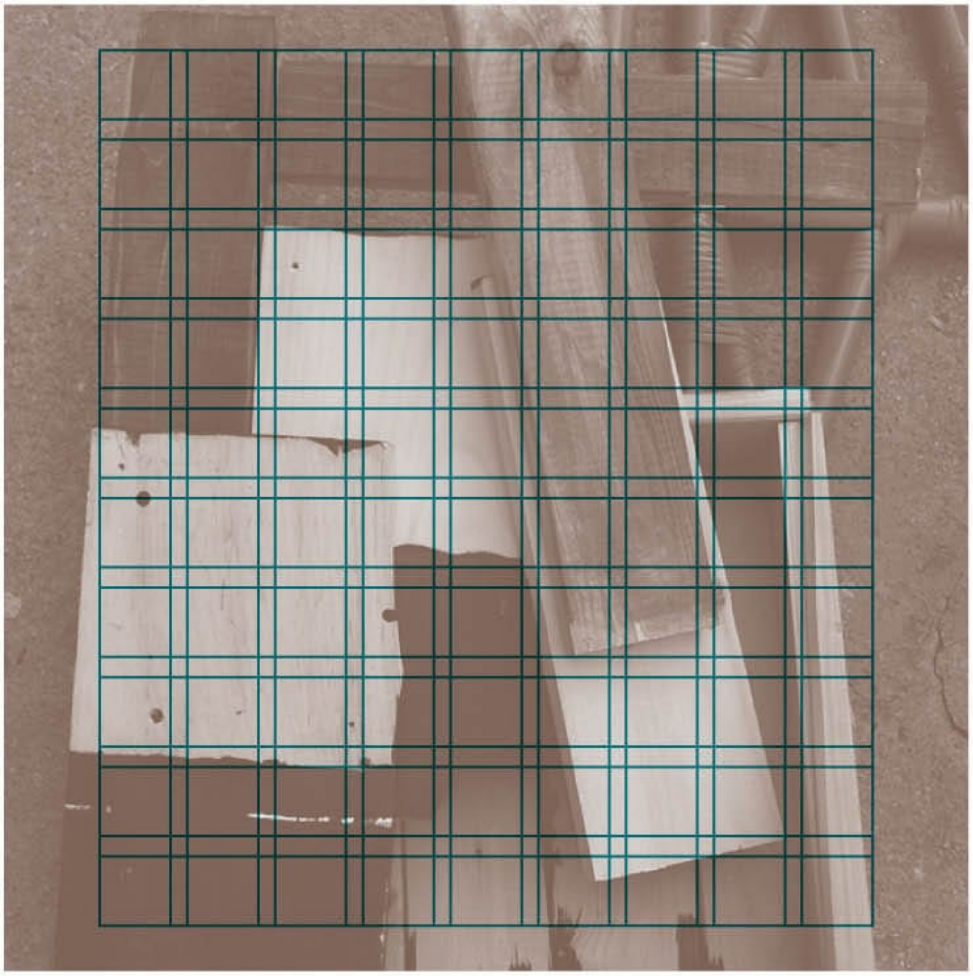


Always keep in mind that images can cross from one column (or row) to another—and that means they can overlap each other at different sizes, in different proportions, and so on.

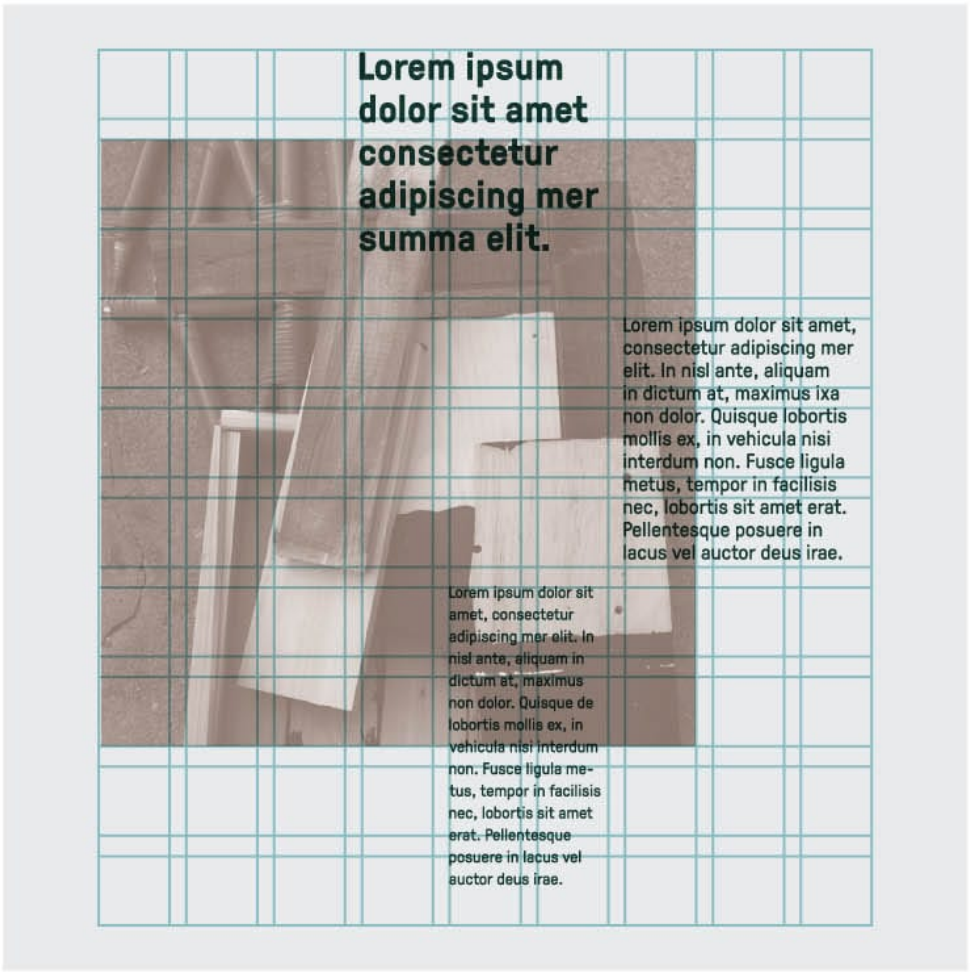
Silhouettes and Full Bleeds



Silhouetted images and those cropped into irregular shapes are perfectly fine, but the designer must ensure that they “feel” as though they’re aligned with guides or that they’re proportionally related to grid widths and depths—which means “eyeballing” them until they look right.



Images that fill an entire page or spread from edge to edge can be made to relate to the underlying grid through careful sizing and cropping—so that key visual features align with a column or row guide, or refer to widths or depths evident in adjacent elements.



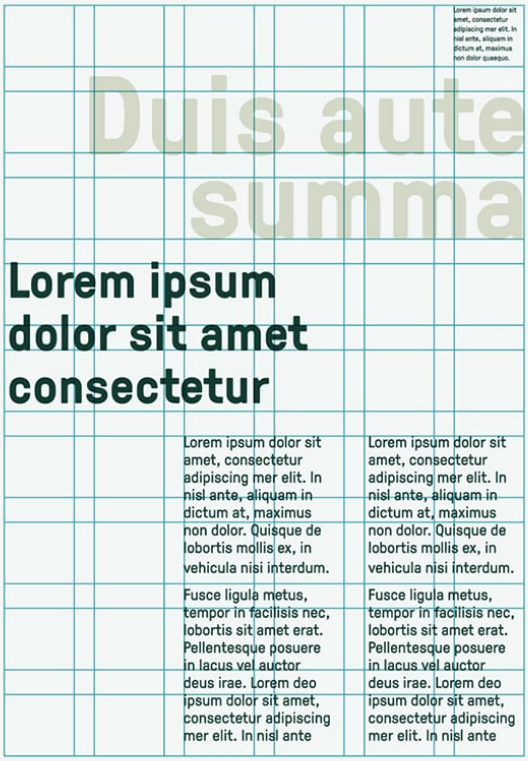
Text, of course, can be set on top of an image (so long as there’s enough contrast between their relative values for the text to be legible). In such cases, the text’s visual qualities must play off those of the image while it’s still following the structure underneath.

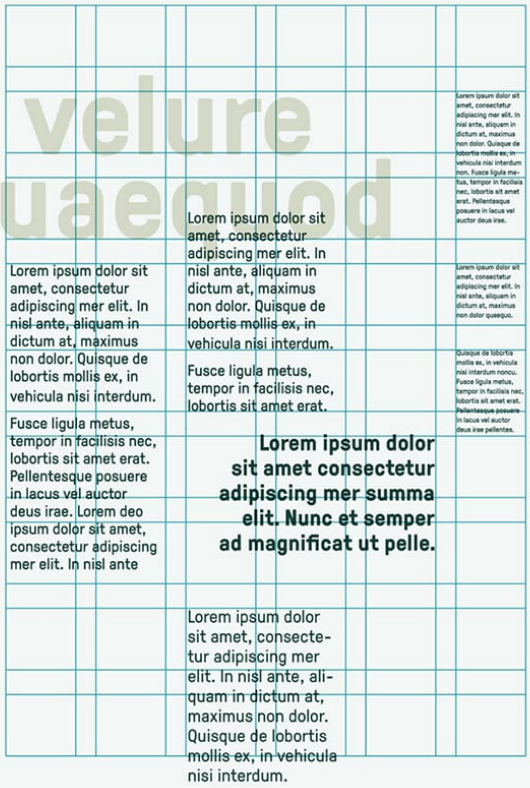
TEXT BEHAVIOR

Options

Similar to the way images should correspond to a grid's alignment guides, so too should text—regardless whether it is a headline, a deck, running text, a callout, or caption. Text set flush-left should have its aligned edge positioned along the left edge of a column; the right-hand edge of its bounding box should butt up against the right-hand edge of a column. Column gutters and row gutters exist to keep text separate when being articulated side by side (unless, of course, the text is purposely being made to cross from a column originating within a negative space over a column into an area occupied by an image). A single paragraph or column of text always begins from the top edge guideline of a row—or "hangs" from it—but it may similarly cross through a lower row, or even end in the middle of a row. Text is organic: When it runs out, it runs out.

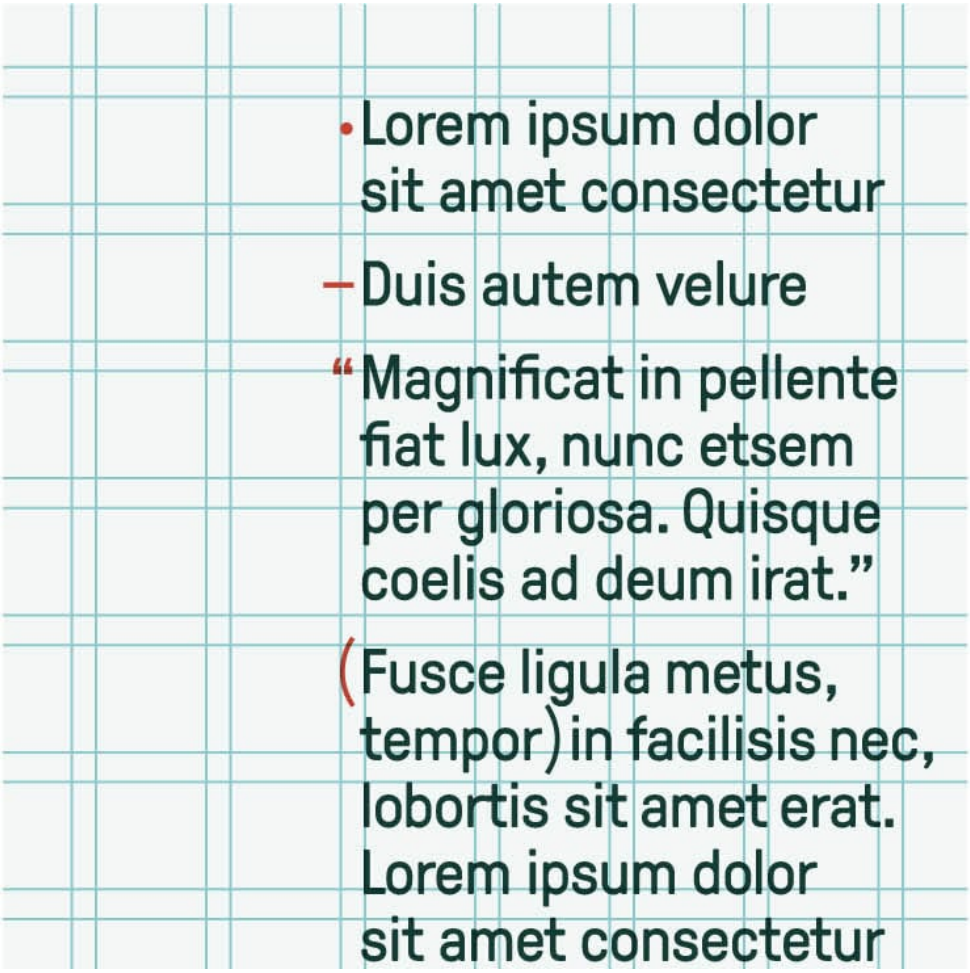
_ Despite how limiting those rules sound, the possibilities for how type may be shaped on a grid—wide or narrow, rising and falling—are endless. Because a well-considered grid with an adequate number of columns provides so many possible permutations in an arrangement, a designer has precise control over how he or she proportions and positions each kind of information. Running text can be easily differentiated from captions, or from callouts, simply by virtue of assigning each a particular column-based width. The grid's organizing logic not only promotes visual flexibility and contrast, but clarity of informational hierarchy as a result.


Lorem ipsum dolor sit amet, consectetur adipiscing mer elit. In nisl ante, aliquam in dictum at, maximus non dolor quaequo.
Duis autem velure summa quaequod
Lorem ipsum dolor sit amet consectetur
Lorem ipsum dolor sit amet, consectetur adipiscing mer elit. In nisl ante, aliquam in dictum at, maximus non dolor. Quisque de lobortis mollis ex, in vehicula nisi interdum.
Fusce ligula metus, tempor in facilisis nec, lobortis sit amet erat. Pellentesque posuere in lacus vel auctor deus irae. Lorem deo ipsum dolor sit amet, consectetur adipiscing mer elit. In nisl ante
Lorem ipsum dolor sit amet, consectetur adipiscing mer elit. In nisl ante, aliquam in dictum at, maximus non dolor. Quisque de lobortis mollis ex, in vehicula nisi interdum.
Fusce ligula metus, tempor in facilisis nec, lobortis sit amet erat. Pellentesque posuere in lacus vel auctor deus irae. Lorem deo ipsum dolor sit amet, consectetur adipiscing mer elit. In nisl ante

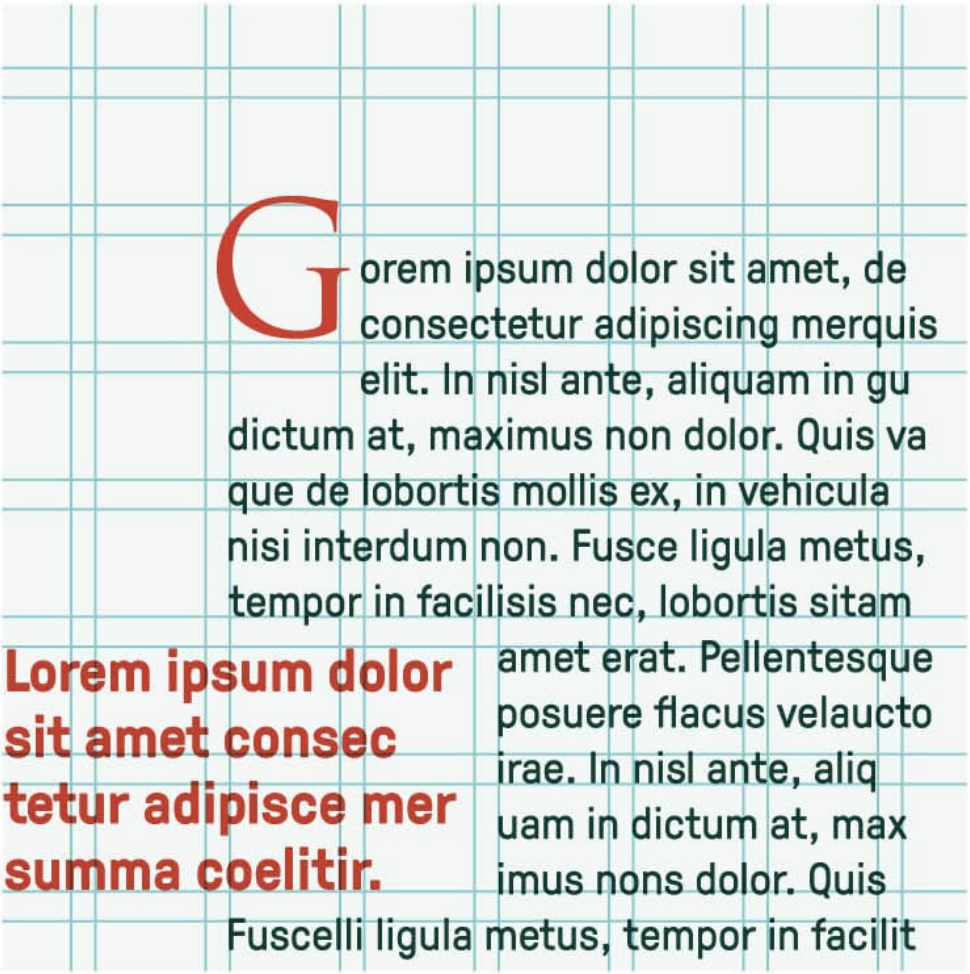

Lorem ipsum dolor sit amet, consectetur adipiscing mer elit. In nisl ante, aliquam in dictum at, maximus non dolor. Quisque de lobortis mollis ex, in vehicula nisi interdum non. Fusce ligula metus, tempor in facilisis nec, lobortis sit amet erat. Pellentesque posuere in lacus vel auctor deus irae.
Lorem ipsum dolor sit amet, consectetur adipiscing mer elit. In nisl ante, aliquam in dictum at, maximus non dolor quaequo.
Quisque de lobortis mollis ex, in vehicula nisi interdum noncu. Fusce ligula metus, tempor in facilisis nec, lobortis sit amet erat. Pellentesque posuere in lacus vel auctor deus irae pellentes.
Lorem ipsum dolor sit amet, consectetur adipiscing mer elit. In nisl ante, aliquam in dictum at, maximus non dolor. Quisque de lobortis mollis ex, in vehicula nisi interdum.
Fusce ligula metus, tempor in facilisis nec, lobortis sit amet erat.
Lorem ipsum dolor sit amet consectetur adipiscing mer summa elit. Nunc et semper ad magnificat ut pelle.
Lorem ipsum dolor sit amet, consectetur adipiscing mer elit. In nisl ante, aliquam in dictum at, maximus non dolor. Quisque de lobortis mollis ex, in vehicula nisi interdum.

Special Cases and Logic Oddities

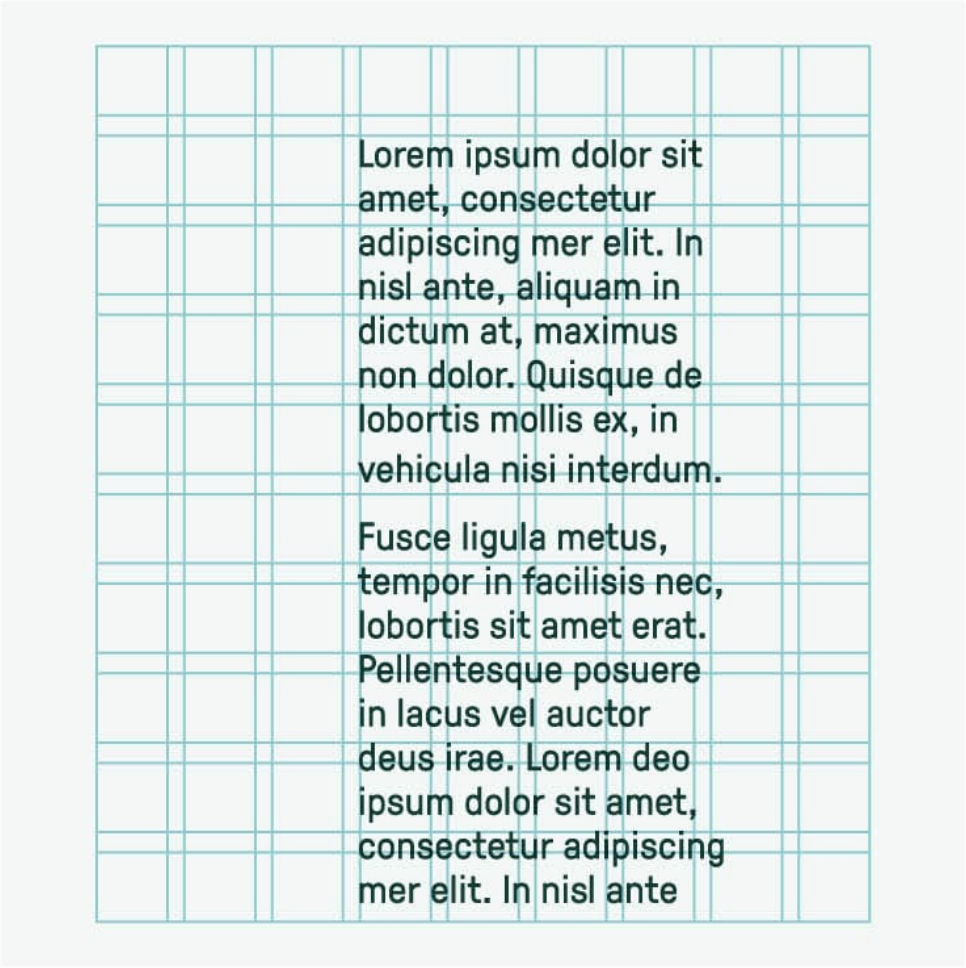
Ragged text creates a soft, irregular edge that won’t quite fill out columns. The irregularity of the rag’s shape becomes more pronounced at larger text sizes—for instance, in a headline or title. It’s OK: A well-placed element will help optically “mark” or “complete” the right edge of the column.



Bullets are best set to “hang” to the left of a column alignment, as are quotation marks when they occur at the beginning of a line of text. Not doing so disrupts the clarity of the aligned edge—in short, it looks sloppy.

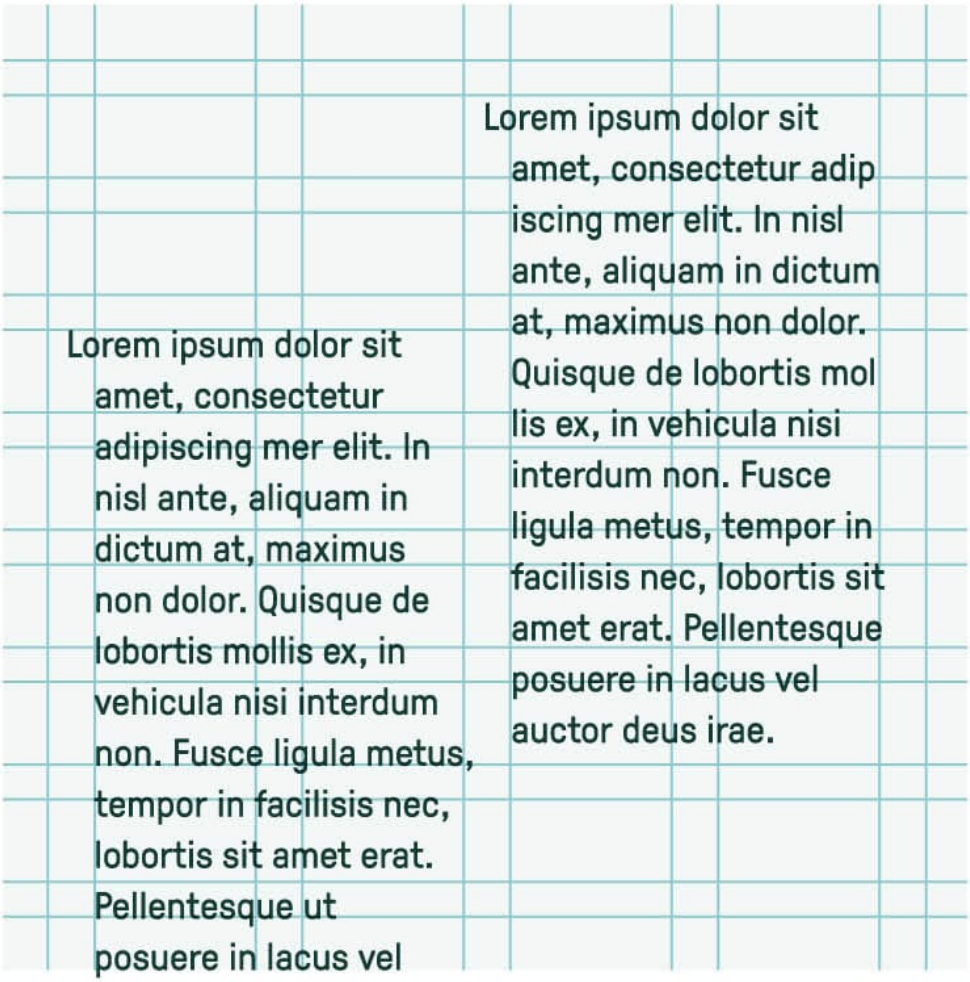


Textual inclusions—such as initial caps and callouts that invade the regular text structure—should correspond to grid increments . . . or very clearly not conform to them.



If a column of text is crossing over several rows, and there are paragraph breaks within it, they need not fall at a row guideline. Causing them to do so is a possibility, but it results in awkward separations within the column and an overly self-conscious quality to the layout’s typography.

Setting text centered-axis often results in the text appearing unrelated to column alignments. The closer the overall width of such a text element to a recognizable column width, the better; aligning its central axis to a clearly demarcated column edge guide can only help it appear well integrated.



Hanging indents (sometimes referred to as “outdents”) are a distinctive typographic gesture that require wider column gutters, or careful positioning in a column far away from the one that precedes it.

Flowlines

As mentioned previously, it's not necessary to introduce flowlines into a column grid—but they certainly help contribute horizontal movement and structure that contrasts the up-and-down movement of the columns.

_ Beyond the visual respite against verticality, flowlines also create opportunities to educate the viewer as to how the information within the visual field works: Flowlines may help a viewer identify where to begin reading; they might anchor the titles or callouts to particular depths on the page, to help identify them as such, or to create a strong hierarchic pause begin title and text; they may delineate relationships between seemingly unrelated elements, such as an image and text that refers to it; and they may also define simple spatial zones without resorting to using a modular grid, which may be overly complicated for a relatively simple informational hierarchy or more continuous text.

_ Furthermore, flowlines help build consistency in compositonal movement and rhythm from page to page (whether printed or screen-based), and from spread to spread among page sequences. In using them, a designer has the potential to enhance a sense of continuity among very disparate parts of a publication, or the opposite: Different flowlines used in each part or section will signal those sections' differences and aid readers in identifying them, or distingushing them from each other at a glance.

Dan L. Mirer 2005 NYFA Fellow
Crafts

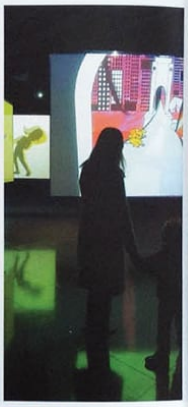
Beer Bottle 2004
Blown glass
9" x 5" x 3"

Nava Lubelski 2005 NYFA Fellow
Crafts

Red Sea 2004
Thread and acrylic on canvas
28" x 22"

Jennifer Lee 2006 NYFA Fellow
Architecture/Environmental Studies

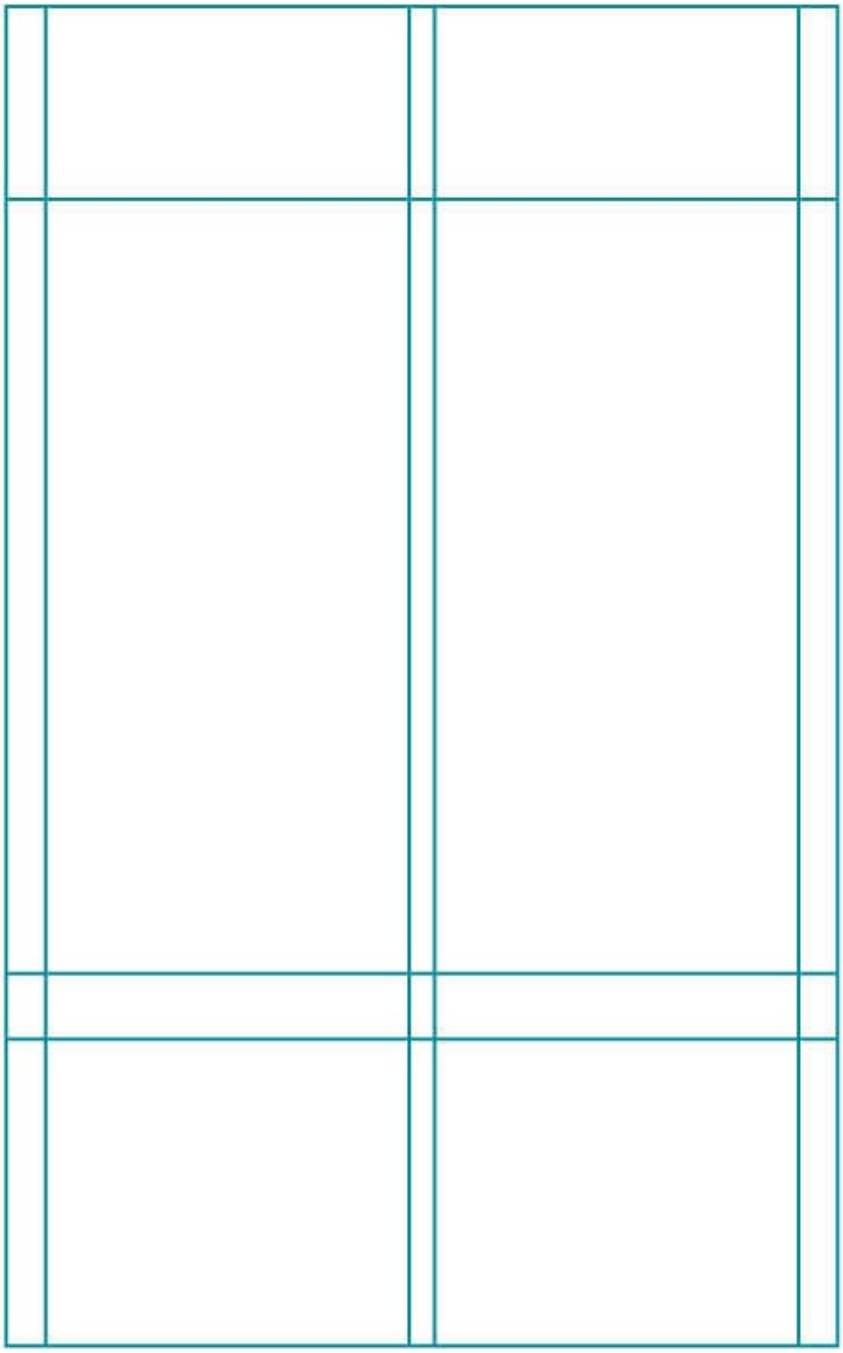
Beatfuse! 2006
Obra Architects:
Pablo Castro & Jennifer Lee



Marina Zurkow 2005 NYFA Fellow
Computer Arts

Nicking the Never 2004
Animation on seven, 6'4" screens
Exhibition at FACT
Liverpool, UK
Photo: Brian Slater

Since the inception of its flagship program, Artists' Fellowships (in 1985), NYFA has awarded over $23 million in unrestricted grants to 3,564 top-notch New York artists, in 16 different disciplines. Currently, the amount each artist receives is $7,000.



The stark two-column vertical emphasis in this brochure is visually countered by two flowlines that define positions for two kinds of captions relating to the images above them.

LEVEL DESIGN GROUP/USA

Up in the Air

Lisa Ellman and the future of domestic drones

BY BRUCE FALCONER
PHOTOGRAPHY BY ELI MEIR KAPLAN

Last November, in an empty gymnasium in Brookline, Massachusetts, Lisa Ellman, MPP/JD'05, was rehearsing for her upcoming TEDx talk on the domestic use of unmanned aerial vehicles (UAVs), more commonly known as drones. Nearby was a small quadcopter, which at Ellman's command was to take flight and attempt to crash into her in a dramatic demonstration of its state-of-the-art collision avoidance software – one of a number of safety features under development that, Ellman says, will soon enable drones to fly among us every day, performing any number of vital tasks. But when Ellman summoned the drone, things didn't go quite as planned. "It came straight at me and was not slowing down!" she recalled later. "I dropped to the ground and screamed, and the operator was like, 'Oh, we forgot to turn on the collision avoidance software!'" Ellman laughs about it now, but the incident serves as a comic illustration of a deadly serious debate: Are drones safe enough to operate domestically? And even if the answer is yes, should they?

For the past several years, Ellman, 37, has been helping to write the rules of the road for drones. The walls and shelves of her K Street office at the Washington, D.C., law firm of McKenna Long & Aldridge are adorned with mementos from the nearly six years she spent working in the Obama administration, where, in 2013, she was tasked with helping the federal government integrate drones into national airspace. Since leaving government last year, she has continued to play an influential role as co-chair of McKenna's Unmanned Aircraft Systems (UAS) Practice Group. The firm represents clients who want to deploy drones domestically, as well as others who are concerned about protecting their privacy from all-seeing eyes hovering above.

Reconciling these opposing impulses – enthusiasm for new technology versus fears about what it might bring – is at the center of Ellman's work. The answer, she says, is to persuade policymakers and innovators to collaborate, protecting the public good while encouraging technological advance, a concept she calls "polivation." It's a simple idea, perhaps, but a difficult one to implement. As a rule, policy is slow, innovation fast, and meeting the imperatives of both requires patience and finesse. "Innovators get really frustrated with the slow pace of policymaking," Ellman says, "and there's a tendency to want to just move forward and leave government behind.... The key is for innovators to find champions in government and for champions in government to find those innovators and then work together to really move things forward."

Ellman's instinct for policy took hold at an early age. Her father an architect, her mother a schoolteacher, she and her two brothers grew up in the leafy suburbs of Detroit. Her earliest policy document, drafted at age eight, was a Magna Carta for the Ellman household, which levied monetary penalties for, among other things, "hitting, pinching" (20 cents), "name calling" (10 cents) and "wild behavior" (10 cents). But her real political awakening came in high school, when her dad, running for the local school board, appointed her his campaign manager. "I kind of caught the political bug," she remembers, and was soon attending debates and knocking on neighbors' doors.

In 2001, a year after graduating from the University of Michigan, Ellman came to the University of Chicago to study law but soon decided to seek a dual degree from Harris. "I liked law school," she says, "but it felt like we were looking at all these cases and the laws just didn't make any sense. And I thought, why can't we just change the law? So I enrolled in the policy school." (She'll return in June to receive the Rising Star Award at the second annual Chicago Harris Alumni Awards Ceremony and Reception.) Ellman's constitutional law professor was a young state senator named Barack Obama, whose class met at 8:30 a.m., too early for most students. Around the same time, she ran unopposed for president of the Law School Democrats, for which Obama served as the faculty adviser. In 2007, Obama asked his former student and mentee to leave her

Written in a smart but readable style, *Why Nations Fail* drew inspiration from a wide range of disciplines, including economics, political science, history, sociology, anthropology and psychology. "Every academic discipline has this idea about what's interesting and what's not, and I never got that," says Robinson. "Sometimes the most inspiring things are written by people who are just not thinking about the same questions as you are – so it's completely fresh."

The book begins with a compelling example of economic inequality: the city of Nogales – one half of which is in Arizona, the other half in the Mexican state of Sonora. Nogales was arbitrarily divided after the Mexican-American War, and on either side of the fence the fortunes of the population couldn't be more different. People on the U.S. side have relatively high median income, graduation rates, health outcomes and life expectancy; figures for those on the Mexican side are much lower across the board.

Robinson and Acemoglu use the example of Nogales to challenge long-held beliefs about the origins of poverty. "I think it is sort of ridiculous to say there is some geographical or ecological reason why the United States ended up rich and Mexico didn't," says Robinson. After all, here are two groups of people living in the same location, even descended from the same culture, with very different economic fortunes. So what gives?

Why Nations Fail provides a one-word answer: institutions. It's not the sexiest explanation, to be sure. But in the authors' hands, the theory achieves a rich vastness of scope. From Nogales, they spool backward hundreds of years to the Spanish conquest of Latin America and the English colonization of Jamestown to show how the two societies grew up in dramatically different ways.

South of the border, the Spanish set up systems of plantations that institutionalized the exploitation of the native classes for the enrichment of a small group of elite colonial governors. In the English colonies, by contrast, a lack of gold and large populations of native workers led to a more democratic framework in which the colonists were forced to work the land – as typified by Captain John Smith's famous dictum, "Those who don't work, don't eat."

Robinson and Acemoglu coin names for these two types of institutions – "extractive" and "inclusive" – and show that a country's position on this continuum affects its ability to generate wealth and prosperity. "It's the sheer outcome of the historical process of institution building, which had all sorts of idiosyncratic features, that led to these differences," says Robinson.

The authors focus on these small features to show how they had outsized influence over time. In the nineteenth century, for example, the United States became the richest country in the world – in part, says Robinson, because of its inclusive patent system. "It's all about incentives," he says. "Anyone could pay the same fee to get a patent on an idea, and the state would protect it." At the same time, other institutional features – such as property rights, opportunities to invest and a consistent rule of law – created a level playing field. "Emphasis on inclusion drives economic growth, innovation and technological change," he adds.

By contrast, "extractive" institutions only benefit a small percentage of citizens, as is frequently the case in countries ruled by an elite that – through concentrated ownership or corruption – funnels most of the wealth into the hands of the few. In Robinson and Acemoglu's account, it's possible for extractive institutions to promote growth for a limited period of time, provided there is a strong enough central state (think of the Soviet Union under Stalin or modern-day China). But the lack of political underpinnings for broad economic participation always eventually leads to collapse.

In support of their theory, the authors marshal an impressive array of examples that span both geography and history, which Acemoglu freely attributes to Robinson's polymathic brain. "He knows the history of pretty much every country better than I do," says Acemoglu. "And it also helps that he is an incredibly decent and likable person, who has so many good friends around the world. If I say we should find out about the nineteenth-century history of Egypt, he will say, 'Let me call my friend Omar and ask what the good sources are on that.'"

Much of their thesis swirls around the dramatic changes in institutions that occurred in Europe as a consequence of the Glorious Revolution of 1688 – the (relatively) bloodless coup that transferred power from the extractive Stuart dynasty to the more inclusive regime of William and Mary, setting the stage for the industrial revolution a century later. But their version of history isn't one in which England, the United States or any other country is preordained for power. Rather, it turns on small moments they call "critical junctures" during which the scale could have tilted either way.

LIKE NIGHT AND DAY

Lights in South Korea and darkness in the North

This satellite image, depicting the intensity of light on the Korean Peninsula, illustrates the enormous economic differences between the countries separated by the 38th Parallel. In North Korea, where electricity is scarce, nighttime is nearly pitch-black. In South Korea, particularly around Seoul, social life carries on well after dark. As James Robinson and Daron Acemoglu point out in *Why Nations Fail*, a similar gap can be seen in other important measures, including living standards, life expectancy and economic growth. "These striking differences are not ancient," the authors note, nor can they be explained by cultural differences, geography or knowledge gaps. Rather, they are the result of very different economic and political institutions that were developed after the countries divided following World War II. The contrast illustrates a central point of the book: "Countries differ in their economic success because of their different institutions, the rules influencing how the economy works, and the incentives that motivate people."

"If you live in Africa, you know African society different from Western society: families are different, politics is different, the way people to each other is different. But all of those thin are irrelevant to economists." James Robinso

"Institutions in any society can go off the rails," Robinson says. "It could have happened in the U.S. at the end of the Civil War, or in the 1880s. Or in the 1930s – what would have happened if Roosevelt had been able to pack the Supreme Court and turned them into a bunch of lackeys? That would have taken away a big pillar of constraints on the abuse of political power." In general, however, Robinson is bullish on the United States, despite evidence in recent years of increasing inequality and politics driven by campaign contributions by the rich.

"People criticize the book for being too positive about the U.S., but that's because if you spend all of your summers in Colombia or the Congo or Haiti, and you come back to the U.S., everything seems so functional," Robinson argues. "I understand there are a lot of special interests getting favors in the political system, but if I just look at the economy, I don't see this more extractive political system."

Other critics have called the book too simplistic. Political scientist Francis Fukuyama (who famously labeled the post-Cold War era "the end of history") described the terms "inclusive" and "extractive" as too imprecise to be measured. Jared Diamond, a good friend and colleague of Robinson's and the author of the hugely ambitious book *Guns, Germs, and Steel*, took issue with the authors' dismissal of factors he considers crucial to understanding national trajectories. Diamond allowed that institutions might help explain national differences in prosperity, but he argued that they are not the "overwhelming determinants," citing other climate and geographical factors that burden tropical countries with disease and poor agricultural yields.

Perhaps the harshest criticism came from former Microsoft chairman Bill Gates, who called the book "vague and simplistic" and a "major disappointment." Robinson and Acemoglu responded with a scathing article in *Foreign Policy* that took Gates to task for historical inaccuracies and questioned whether he'd even read the book.

It's not surprising that Gates, whose philanthropic foundation has poured billions of dollars into developmental aid in Africa, would slam the book, Robinson says. "Bill Gates has this view of the world that poverty is just waiting for clever ideas and lots of money, and that will solve all of the problems," Robinson says. It's precisely that kind of viewpoint, he believes, that has led to decades of failed efforts by rich countries to help poor ones. Because political elites actually benefit from extractive policies, they have little incentive to change them – making any aid or development initiative they might consider just another opportunity to capture more wealth. It's only when leaders voluntarily agree to make institutions more inclusive that true prosperity can emerge. "From this is not about coming up with some better p says. "You have to change the political and instit um, and that is not easy to do."

Robinson's current work is helping him gain n how those transformations take place. He and N conducting field research in the Democratic Repu (DRC), where they're looking at the impact of e tions. "What makes successful societies is somet more fundamental than education or health or m capital," says Nunn. "We are still trying to underst responds to institutions, or whether it goes the ot ple's cultural beliefs influence the institutions the

Nunn and Robinson hypothesized that good establish cultural norms that take on a life of thei internalized over successive generations. To test they played behavioral economic games with tw descendant of the Kuba Kingdom, which had str the other a loose network of decentralized villages found the decentralized tribes were less likely to c opposite of what they predicted.

"It's possible that formal rules and motivation intrinsic motivations, while the people living in es who determine everything by consensus are th internalized these values," speculates Nunn. Rob will travel back to the DRC this summer to further esis. The work could also feed into a new book proj Acemoglu have begun discussing that would expl state creation on economic effectiveness.

Robinson hopes that by coming to Chicago H a culture that champions such deep inquiry and scholarship, he will be able to strengthen the im and perhaps even institutionalize the kind of rese cused on for the past few decades.

True to form, he is also looking forward to the comes with new places, new colleagues and ne shelves. "Who knows what will happen?" he s "When you get into a new place with new people, about new ideas." ■

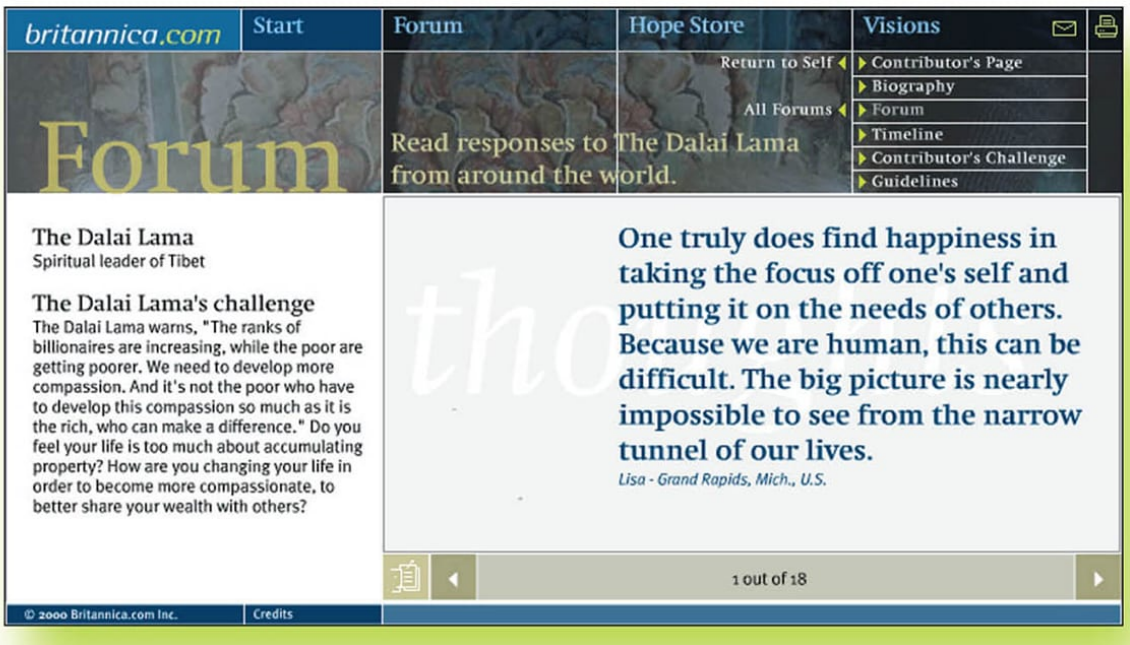
Michael Blanding is a senior fellow at the Schu Investigative Journalism at Brandeis University and Harvard Business School. He writes for numerous publ author, most recently, of The Map Thief *(Gotham Book*

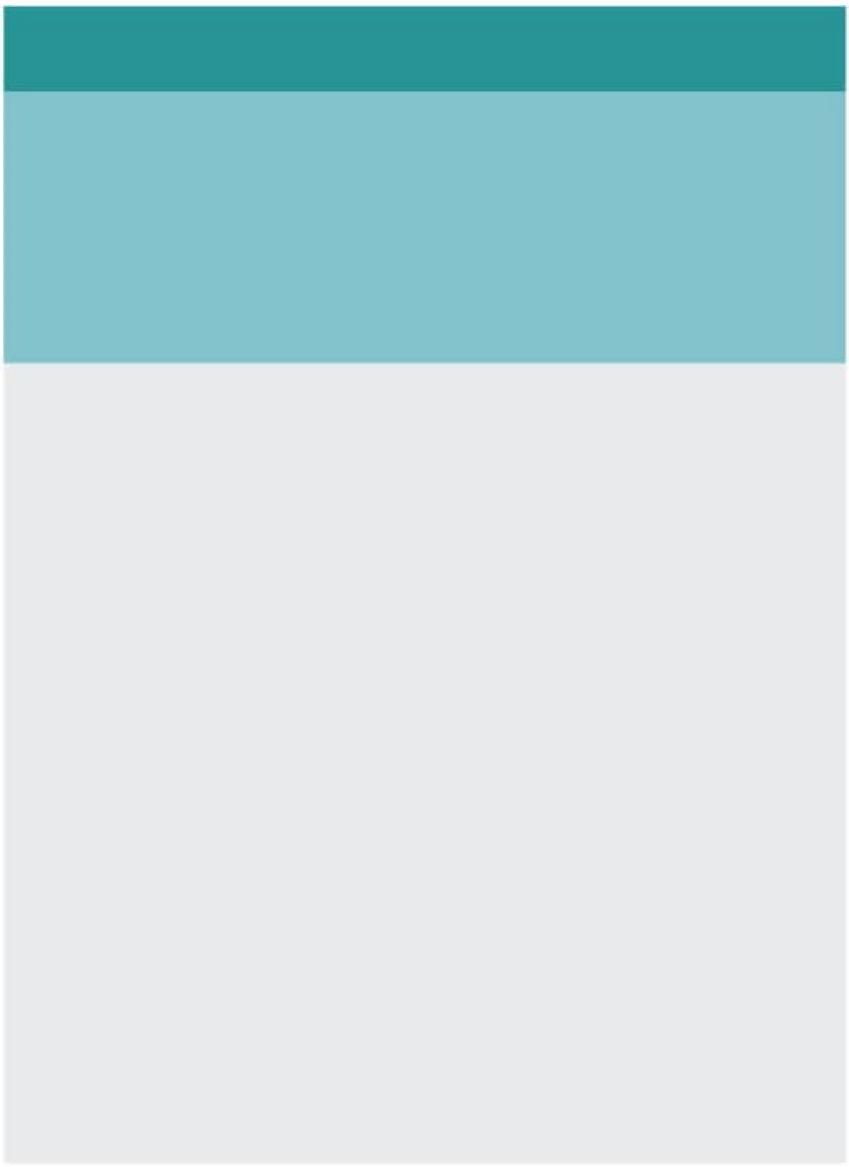
Flowlines help readers distinguish the beginning of an article—where text hangs from the page's vertical center—from the continuation of an article, in which text fills the columns to the margins. The lower flowline also partitions the page to allow for dramatic pullquotes and to align text and a sidebar.

Spatial Zones

Spatial zones are areas within a page or spread that are designated for specific functions, or assigned particular kinds of content, as a means of both invigorating layouts and helping readers navigate. In a pure column grid, horizontal zones can be defined with a flowline or two; a particular column or a group of columns can establish vertical zones. In a modular grid, groups of rows or columns accomplish the same goals. Alternatively, a designer might add an extra flowline or vertical guideline independent of the grid's basic structure—purposely interrupting its regularity to more dramatically emphasize the zone's presence. Further, modules may be grouped in mosaic-like patterns to create stepped or irregularly-shaped zones.

_ In essence, spatial zones add some of the qualities of a hierarchic grid into grids defined by regular intervals. Spatial zones are especially useful for separating continuous text from recurring sidebars or info-graphics, or for helping correlate the text of a step-based process with images that illustrate the steps that it describes.



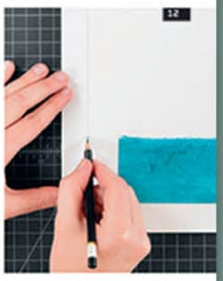


Most websites, like this one, define spatial zones that act as templates for areas of different functionality—navigation versus content, for example. Here, three horizontal bands serve that purpose; vertical sub-zones in the lower two bands create greater specificity of function.

META DESIGN SF/USA

6 / Create a simple printing jig by cutting a sheet of mat board to the same size as your printing paper. Tape the jig to your work surface. With a ruler and pencil, draw margins on the jig for centering your design, the margins should be dark enough to show through the printing paper when you place it on top of the jig.

7 / Prepare your printing area with your printing jig, ink, brayer, inking platen, palette knife, and printing papers close at hand.



8 / Prepare the first piece of colored washi paper for creating the chine-collé "water." Place the tracing paper drawing on the cutting mat. Slip the blue washi paper under the tracing paper and position it to the correct water level. Use the craft knife and ruler to cut through both sheets of paper along the outside edge of your design.

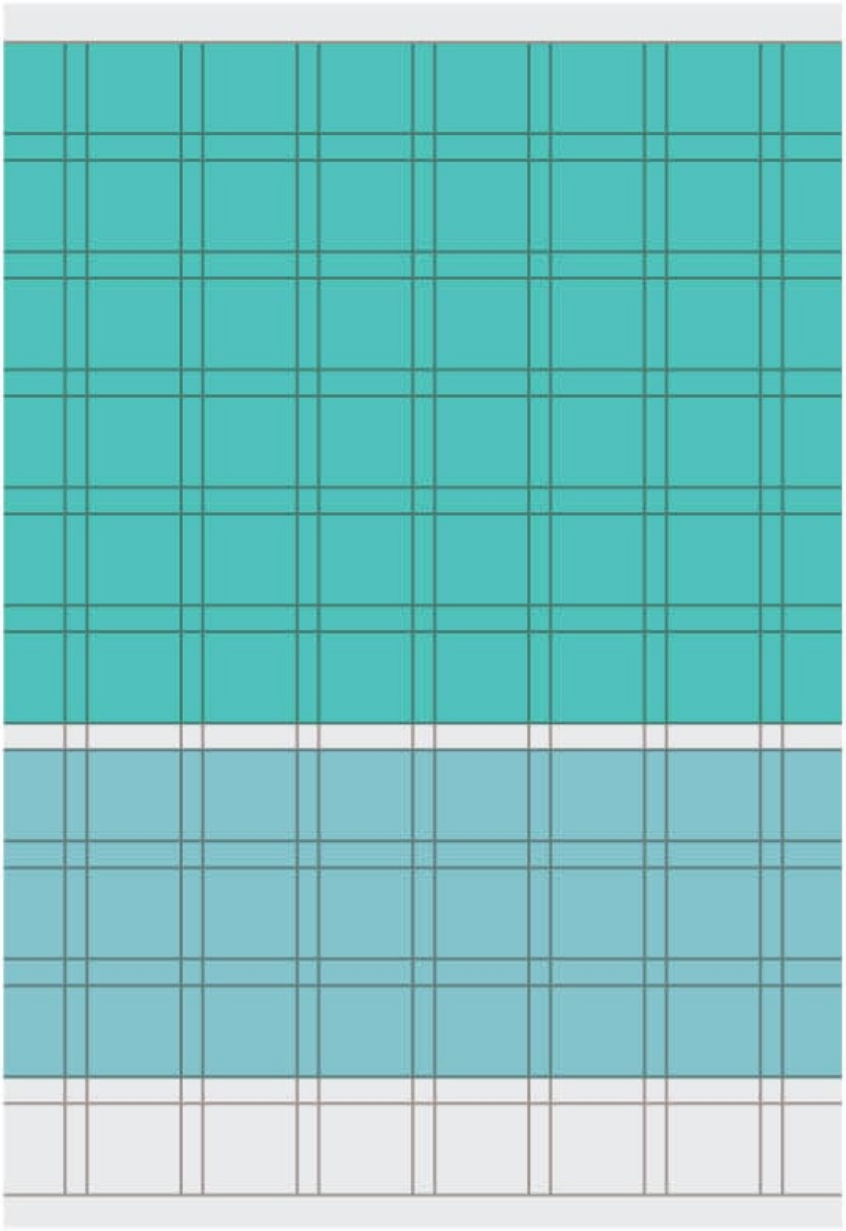
9 / Brush paste onto the back of the trimmed piece of washi paper.

10 / Lay your printing paper on top of the jig. Because Japanese-style printmaking paper is slightly transparent, it will allow you to see the margin lines you have drawn on your jig. Starting at one edge, carefully paste the blue "water" onto the printing paper. Smooth the affixed washi paper with your fingers.

11 / Use a brayer with no ink to roll out any air bubbles in the pasted paper.

12 / Use a soft lead pencil to make a guideline on the jig for the correct placement of your inked block. It's important to know where the top of the water is because the boat should sit "in" the water. Set your printing paper aside until you're ready to print your block.

13 / Follow the directions for inking on page 24. Use a palette knife to dab a small amount of ink onto the platen. With a brayer, pick up a small amount of ink. Roll a thin, even coat of ink on the block. Carefully lay a piece of newsprint on the inked block, burnish the back of the paper with your fingers or a baren, and peel back your test print. If changes are necessary, rinse and dry the block, and refine the image with additional carving.



The layout of this book that teaches printmaking processes divides the spread into two zones with a single flowline across a multicolumn grid: text describing steps to follow below, images above. Images are permitted to occasionally cross that boundary for the sake of variety.

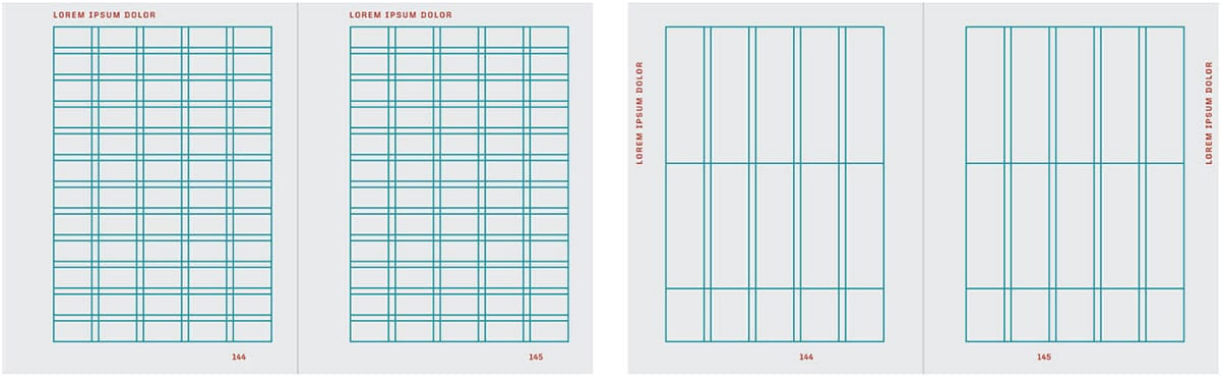
TIMOTHY SAMARA/USA

Notational Elements

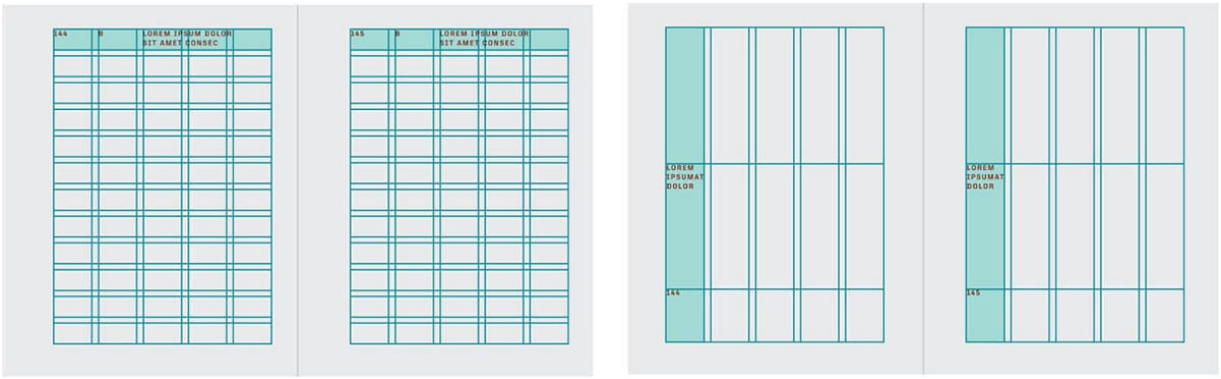
Many designers neglect such elements as folios and runners, but they're critically important to consider because they typically occupy the same location on every page or every spread. In a website, the navigation is the corresponding informational component on the page (folios and runners are, it's worth noting, the print version of navigation).

_ The consistency of these elements' presence means they can easily become distracting, so they require adequate spatial separation from text or other content. Their chosen locations will often frustrate designers by preventing them from placing images or other content where they feel it's best, because the folio or runner is there. Their positions, sizes, and styles dramatically influence the proportions of margins in which they're placed (usually forcing the margin measure to increase so as to keep text from getting uncomfortably close).

_ And, they're visual forms: Folios become dots, visually, and runners become lines—extending a certain length, being light or dark in weight, moving horizontally or vertically. To integrate seamlessly, yet dynamically, into layouts, notational elements must be positioned, first and foremost, with respect to the grid's divisions. Equally important is that they feel like they're in dialogue with the remainder of the layout's compositional qualities and stylistically related to the typography. Many designers follow the convention of setting folios in the lower corners of the spread, but there are many ways to position notational elements such that they're easy to find and interesting to look at. There are, despite what any jaded art director or editor tells you, no actual rules for how to do so.



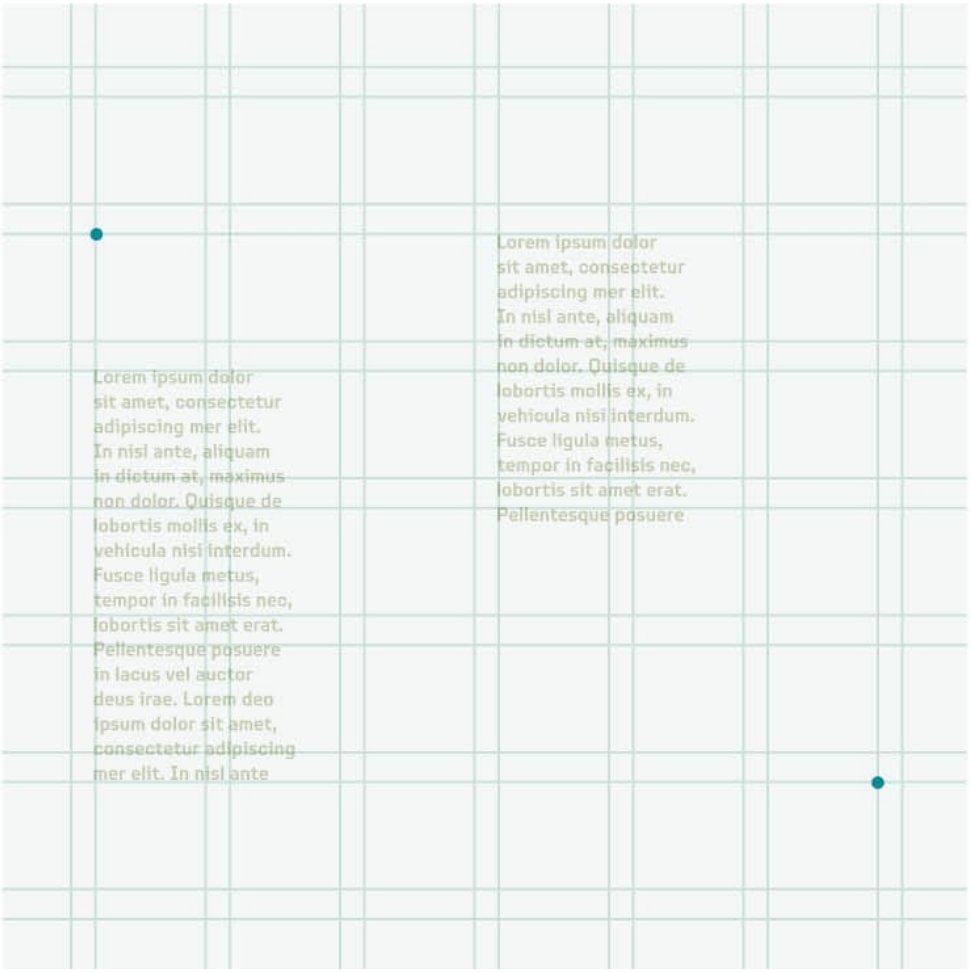
Folios and runners can exist in the margins, outside the body, column structure, or modules—as shown in these examples. If they do, they should align to a column edge or row edge, or to a flowline.



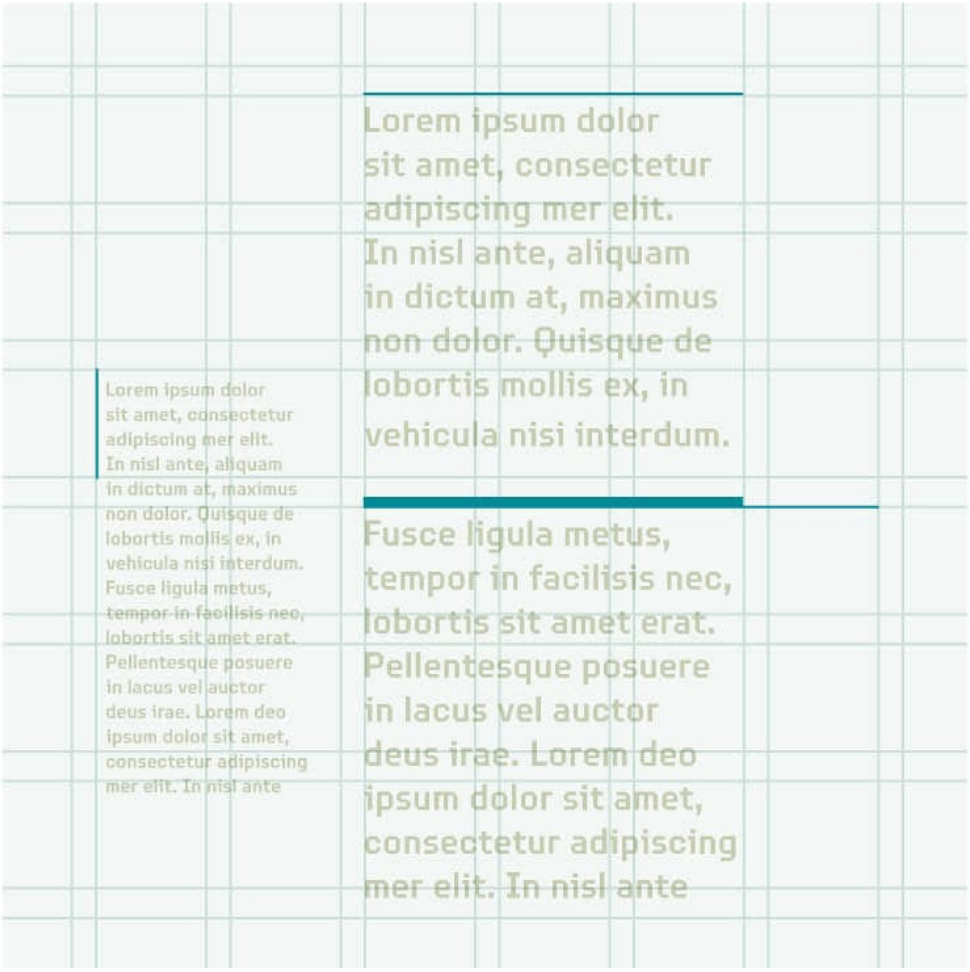
Folios and runners also may be integrated directly into the body, in effect by designating a row or column within the structure as a “zone” for such elements. This approach can also be applied to the positioning of headings in consistent locations, e.g., always hanging from the second row from the top.

Boxes, Lines, and Dots

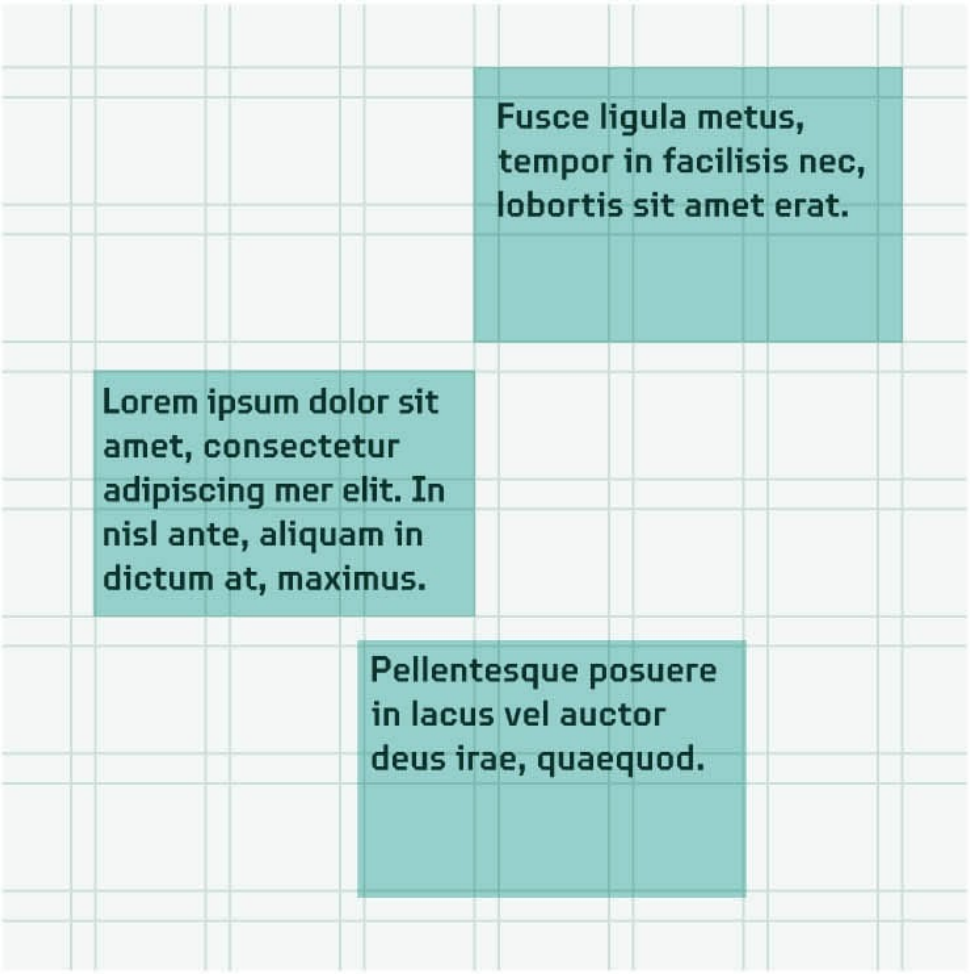
Graphical elements lend finesse, contrast with larger-scale elements, articulate structure, separate clusters of material, and visually delight the eye. They extend the details of tyopgraphic form—often buried within the bigger picture of their shapes and textures—outward into the pictorial space to create added dialogue between type and other kinds of material. Given that images and text behave in certain ways relative to column and row alignments, details like boxes, lines, and dots should too.



Dots are excellent devices for marking intersections of vertical and horizontal axes. A single dot can anchor a piece of text from across a page to another element or simply activate a negative space that seems awkwardly empty, without killing its visual openness.



Lines emphasize the axes themselves, whether those of columns or row edges. Always set lines to correspond to the grid’s alignments, rather than to a given text element’s length.



Colored boxes and linear frames that surround text must be given adequate space. One strategy is to extend them to the gutters; another is to slightly inset the text; yet a third is to do a little of both. Regardless of the chosen option, text inside and outside a box should align consistently throughout.

Lines are also useful for filling out, or more clearly defining, the width of a column that is occupied by a text with extremely inconsistent line lengths—things like lists of names, or combinations of list-like elements, notations, and running text.