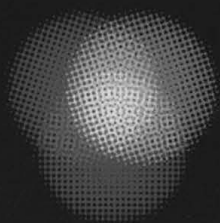


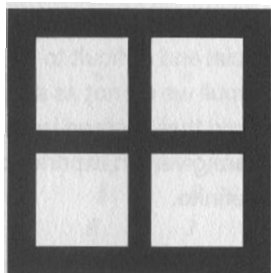
**A
New
Program
for
Graphic
Design**



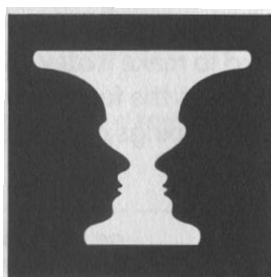
David Reinfurt

So, it starts like this:

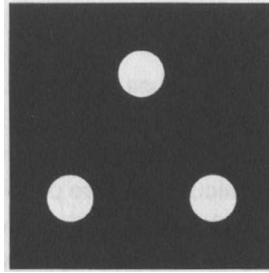
I stand at the window and see a house, trees, sky. Theoretically I might say there were 327 brightnesses and nuances of color. Do I have 327? No, I have sky, house, and trees. It's impossible to achieve 327 as such. And yet even though such droll calculation were possible and implied—say for the House, 120, the trees, 90, the sky, 117—I should at least have this arrangement and division of the total not say 127 and 100 or 150 and 177. The concrete division which I see is not determined by some arbitrary mode of organization lying solely within my own pleasure. Instead I see the arrangement and division which is given there before me [υ].



And what a remarkable process it is when some other mode of apprehension does succeed. I gaze for a long time from my window, adopt after some effort the most unreal attitude possible, and I discover that part of the window sash and part of a bare branch together compose an "N." Or look at a picture.



Two faces cheek-to-cheek [↑]. I see one with its, if you will, 57 brightnesses and the other 49 brightnesses. I did not see an arrangement of 66 plus 40 nor 6 plus 100. There have been theories which would require I see 106. In reality I see two faces. Or I hear a melody, 17 tones with its accompaniment, 32 tones. I hear the melody and accompaniment not simply 49 and certainly not 20 plus 20 plus 9. And the same is true even in cases where there is no stimulus continuum. I hear the melody.



Or one sees a series of discontinuous dots [↑] upon a homogenous ground, not as the sum of dots, but as figures. Even though there may have been a greater latitude of possible arrangements the dots usually combine in some spontaneous, natural articulation and any other arrangement even if it can be achieved is artificial and difficult to maintain. When we are presented with a number of stimuli we do not as a rule experience a number of individual things—this one and that. Instead larger holes separated from and related to one another are given an experience. Their arrangement and division are concrete and definite.

This is an excerpt from what's known as the "Dot Essay" from 1923, written by Czech psychologist Max Wertheimer, and more accurately known as "Investigations in Gestalt Principles," or "Laws of Organization in Perceptual Forms." It's a strange text that shifts between letters and dots. The dots assemble and reassemble into constellations that read more like sentences—initiating, picking up, or expanding on an idea. Although the text is didactic and intended to be instructive, it has a restive quality. Since it is performing the subject matter that it's also attempting to explain, it's hard to make it stay still. And through its shifting nature, the text articulates the fundamental Gestalt qualities, which describe how distinct groupings of the same dots can be seen to be related to one another.

GESTALT QUALITIES: There are eight principles in "Laws of Organization in Perceptual Forms" that describe how discrete elements produce coherent groups: 1. Proximity – differences in relative distance; 2. Similarity – based on visual form; 3. Combination of Proximity and Similarity – distance and form simultaneously form units; 4. Common Fate – expected behavior based

on perceived lines of force; 5. Prägnanz – salience, coherence, and resolved shapes form units; 6. Einstellung or Set – repeated, rhythmic exposure produces groups; 7. Good Continuation or Closure – completion of elements into coherent, stable groups; 8. Past Experience – prior exposure conditions the recognition of current groupings.

I. A row of dots is presented upon a homogeneous ground. The alternate intervals are 3 mm. and 12 mm.

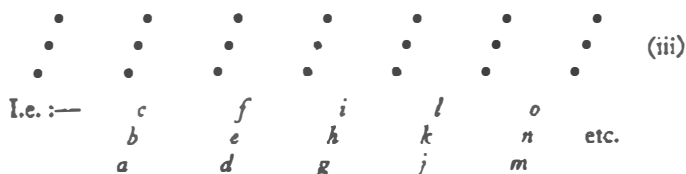


Normally this row will be seen as *ab/cd*, not as *a/bc/de*. As a matter of fact it is for most people impossible to see the whole series simultaneously in the latter grouping.

We are interested here in what is actually *seen*. The following will make this clear. One sees a row of groups obliquely tilted from lower left to upper right (*ab/cd/ef*). The arrangement *a/bc/de* is extremely difficult to achieve. Even when it can be seen, such an arrangement is far less certain than the other and is quite likely to be upset by eye-movements or variations of attention.



This is even more clear in (iii).

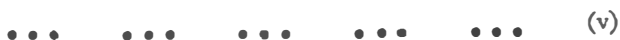


Quite obviously the arrangement *ab/cd/efghi* is greatly superior to *cegf/hj/ikm*.

Another, still clearer example of spontaneous arrangement is that given in (iv). The natural grouping is, of course, *ab/cd/efghi*, etc.

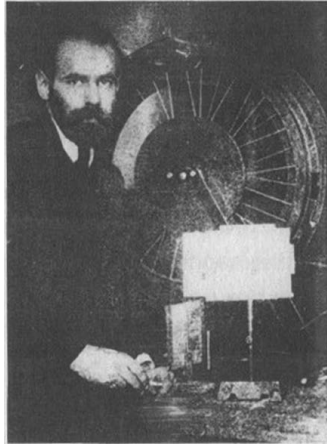


Resembling (i) but still more compelling is the row of three-dot groupings given in (v). One sees *abc/def*, and not some other (theoretically possible) arrangement.



While on vacation in 1910, Wertheimer was traveling on a train toward Frankfurt when he saw an arrangement of flashing lights at a railroad crossing circling around a rectangular frame, much like the lights on a theater marquee. Instead of a series of individual light bulbs illuminating in sequence, what Wertheimer "saw" was one light moving around the frame. He was struck by the phenomenon and thought to himself,

"Why does that light appear to be moving? I know this is just a bunch of individual bulbs lighting up in order, but why do I perceive only one dot, one light, moving around in this pattern?"



Wertheimer [7], who was interested in such things as how we intuit movement from a series of discrete perceptions, was immediately captivated by the question. He abandoned his vacation, got off the train in Frankfurt, found a hotel room, and went straight to a toy store to buy a zoetrope [8].



A zoetrope is a device which holds a sequence of individual pictures spaced around the interior of a rotating cylinder. There is a viewing slot on the outside so that only one of these frames is visible at any moment. When the cylinder is spun, the drawing appears to move. Wertheimer altered his zoetrope by replacing the images with a set of austere drawings, each with two vertical lines in the frame. He wanted the lines to appear as though they were moving in tandem when the zoetrope was in motion, and he wanted to know the precise moment

when this illusion breaks down. Exactly how far apart can you draw the lines between any two consecutive frames before the movement stops? How few steps could you get away with so that it still feels like the two lines are moving together?

This simple setup was the genesis of many of his later Gestalt experiments. Wertheimer steadily probed the limits of perception, asking what is the difference to the viewer between “real” movement and “apparent” movement; between an object in the world as it physically moves and the perception of an object moving produced through sequential exposure to a set of discrete frames. Is “apparent” movement just an illusion or is it real? If so, how could the reality of apparent movement be proved?

Wertheimer realized that what matters is the whole experience, including the in-between moments, and that movement is produced by the dynamic interrelations between any of its individual, constituent parts. As he moved the lines closer or further apart on the zoetrope, Wertheimer saw that there is a critical moment at which many people begin to see the lines moving. This inflection point varied slightly with each person, but it was within a consistent range. Then he got a bit more professional about it. Wertheimer stopped into the Psychological Institute in Frankfurt, introduced himself as a colleague, and asked for space to work on some ideas while he was on vacation. (It turns out Wertheimer remained at the Psychological Institute quite a lot longer than he expected. Two other psychologists working there at the time, Wolfgang Köhler and Kurt Koffka, also became deeply involved in the work and the three continued to work together closely for the next five years.)

Experiments were upgraded to a tachistoscope, a more precise zoetrope, which allowed the accurate projection of individual images to the subject with very fine-tuned timing. The trio repeated and refined their experiments, examining the limits of when movement appears or not. What they discovered—the big breakthrough—was that *apparent movement is indistinguishable from real movement.* It is (perceptually) equivalent.

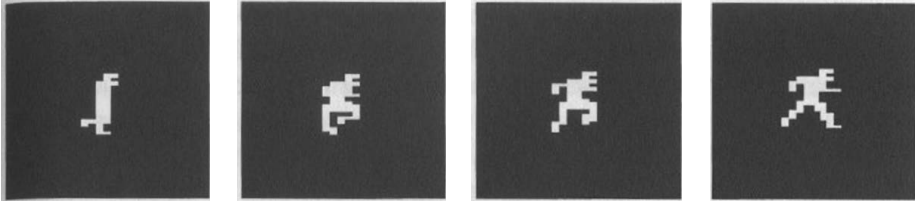
Their radical assertion was proved using a well-known phenomenon called the “waterfall effect” (or motion aftereffect) previously described by Aristotle around 350 B.C. When you stare at the water cascading from a waterfall for an extended period of time then shift your gaze to a static rock on the shore, that rock appears to be moving upward. The same thing can be seen when the wheels of a car or bicycle have been spinning at a certain rate for a length of time. After looking away, the wheel can

appear to spin in the opposite direction. This is real movement in the real world, but the eye and the brain report otherwise. Wertheimer, Koffka, and Köhler repeated these experiments using a spinning spiral graphic rotating at a constant speed in a clockwise direction (like water spiraling down a drain) [٧]. This spinning was presented for a set time then paused. When paused, the spiral appeared to move in the opposite direction. Instead of spiraling inward, the static spiral appeared to expand. The effect was more powerful depending on the length of exposure.



This same experiment was repeated with the aid of the tachistoscope. In place of a physically spinning spiral, subjects were exposed to a sequence of static graphic frames of the same spiral "spinning." The psychologists took care to ensure that the graphic and its presentation to the experiment's subjects was as parallel as possible and that subjects were unaware of whether they were seeing real or apparent movement. They were then asked to describe the motion aftereffect that resulted from each. Was it stronger after watching the first (spinning) graphic or after being exposed to a series of still frames one after the other? Did the aftereffect last longer in one instance?

Subjects overwhelmingly reported that either they could detect no difference, or even that the effect was stronger after being exposed to the apparent motion produced by discrete frames. Further, subjects failed to identify which was real movement and which was apparent. According to their senses, the two types were indistinguishable. Wertheimer and his colleagues concluded that apparent movement is a perceptual fact. It's not an illusion or a trick. Apparent movement is identical in your mind, brain, and eye to real movement. They published a short paper of their findings, which received both considerable attention and skepticism at the time.



So, this guy [↑] is running, right? He doesn't have many pixels to do his running, however. He's also composed of only a few discrete frames and each looks remarkably abstract. It's almost unbelievable—in any one frame, it looks more like he's doing a little dance than running. Where is his head? Why does his eight-pixel body turn like that? Anyway, when these remarkably abstract moments are put together, and in this particular order, the brain automatically invents the glue in-between and conveys the distinct, unmistakable sensation of a small figure running.

You've probably heard the phrase "The whole is greater than the sum of its parts." And that would seem to describe what's going on with the running man above. However, according to this tight-knit group of German psychologists that statement is not quite true. They suggest that we perceive the world in organized wholes, not in parts at all. These wholes are our primary sense reports—they are not contingent on, nor comprised of elementary sensations. So, then, the whole isn't greater than the sum of its parts at all, it's simply different from the sum of its parts. With the running man, we perceive him as one figure moving, built up as much from the spaces and timing between the frames as the frames themselves. It's not a sum, even one that adds up to too much, but rather a *new, distinct, dynamic, and inseparable whole.*

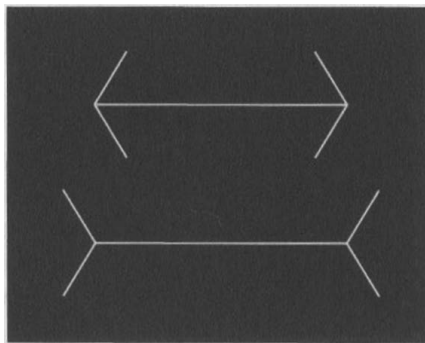
WHOLE ≠ PART + PART + PART + PART

Then the whole is a new thing [↑], completely separate from any sum of its parts. In fact, Wertheimer and crew suggested that the new whole doesn't even have parts—it cannot be reduced or atomized into a series of bits. This whole, the running man, is *a thing in itself,* and, importantly, the whole comes before. You perceive the world first as wholes. This idea was a radical break from the dominant scientific rationalism that worked to explain a given reality by analyzing the pieces that construct it: principles were discovered and stacked brick by brick, bean by bean,

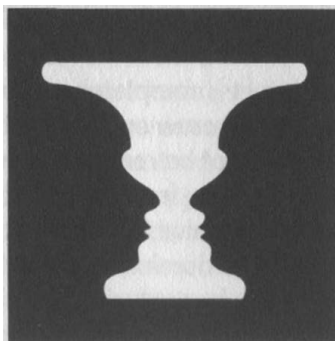
to produce a coherent account. Instead, for Wertheimer and friends, the parts are rendered secondary. What matters are wholes, their specific organization—a set of relations, a particular configuration, a form, a shape, a gestalt.

Gestalt doesn't translate readily into English, but it has become a fundamental principle in graphic design. In Switzerland, the *activity of designing* is known as *gestalten*, which can mean "form-giving" or "whole-making," and this is different from the German word for designing, *entwerfen*. Gestalt psychology has been hotly contested within the field in the meantime, but it has been embraced within the instruction and body of graphic design, aided by individuals—conduits—who channeled this thinking directly from the source into art and design. Several of these appear later in the course.

Optical illusions trade in Gestalt psychology and offer a way to understand how it applies to graphic form. Here are two lines with arrows at either end [↔], one set pointing in and the other out. Which line is longer?



Or, this [↵].



It's a visual illusion of a vase, which also shows two faces, and was first described by Danish psychologist Edgar Rubin in 1915 while unpacking how our brain distinguishes figure and ground in the visual field. In this arrangement, the positive form of the vase carries within its negative space the silhouettes of two human faces in profile. As you read the graphic it appears first as a vase, but when attention is shifted to the negative spaces another reading comes forward. The figure-ground relation becomes fuzzy and the form flips back and forth at the mercy of our own perceptual capacities. This is neither as tricky nor trivial as it might seem.

What's achieved in both cases is done through careful organization of graphic form, and close consideration of the internal relationships. In the first illusion, the Gestalt principle of Common Fate leads a viewer to perceptually stretch the bottom line based on the direction of its arrow heads. The second uses the perceptual default of seeing recognizable shapes to register first a vase and then two faces. Either can be exaggerated or reduced depending on exactly how it is rendered [v].



Balance, shape, line, and positive and negative spaces are all motivated to realize the essentially equal balance between possible readings. Similar techniques and attention to graphic form are used to encode visual messages of all varieties, from corporate logos to public signage. This logo [w], for example, embeds a forward facing arrow produced by the negative space between the "E" and the "x."



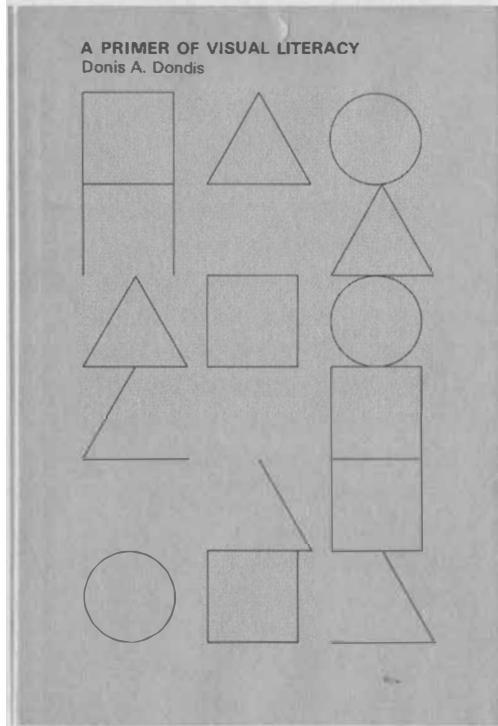
It uses a similar approach to figure and ground as the vase-face, and the result makes it easily recognizable. Or take the octagonal form of a stop sign which together with its all-caps sans serif typography, red ground,

and white border, creates a sign whose visual form—its wholeness or gestalt: is more important than its literal message.

This is a course in graphic design, but it also carries a secondary subject—Gestalt psychology. We will cover how that other body of knowledge connects to the discipline of graphic design, how it's been used in the language, and how its ideas have been incorporated directly, first in Western Europe, then in the United States, and how it spread across the world, meeting similar ideas developed separately in other places. A few characters will be introduced along the way, including Max Bill, Rudolf Arnheim, George Corrin, Donis Dondis, Susan Kare, and György Kepes. These form a partial, and anecdotally assembled, constellation of examples, each of whose work helped further the insights of a vacationing psychologist fascinated by a railroad crossing sign.

Currently in Process

This is *A Primer of Visual Literacy* [↓].



This graphic design textbook was written by Donis A. Dondis, published by MIT Press in 1973, and is currently in its 23rd printing. It was designed by Muriel Cooper. Cooper and Dondis were classmates at Massachusetts College of Art in the 1950s and remained friends. When the book was written, Dondis was teaching graphic design at Boston University in the School of Public Communication and Cooper was design director at MIT Press. (She would soon start teaching in the Department of Architecture.) The book evolved from a running conversation between the two around teaching graphic design in the context of massive changes to the media landscape. The book proposed that in an age of mass electronic visual communication (such as television), reading and writing images was as fundamental as reading and writing words. Dondis ends the first chapter describing what's at stake:

What you see is a major part of what you know, and visual literacy can help us to see what we see and to know what we know.

The book presents itself as a kind of extended slide lecture, or a series of lectures marked off as chapters; running texts interjected with demonstration images, in-line illustrations that work like projected illustrations. The book's pacing is deliberate and the tone is solidly didactic and incremental. Reading it feels like sitting in a classroom, in a good way.

The proximity of author and designer and their shared investment in the contents led to a subtly strange layout. The book's typography is slightly off and feels automated, with a uniformly light Univers type, consistently awkward letterspacing, and affectations such as underlines in place of italics. Turns out that the typography was a consequence of its production. At the time Muriel Cooper had set up a research unit in the basement of the MIT Press offices and was exploring the application of electric and electronic typewriters to produce camera-ready typography. This book was set on an (only) slightly more advanced system, the IBM Electronic Composer which allowed for variable-spaced typesetting in a wider range of types. The great advantage was that layouts could be created completely in-house and this resulted in a more iterative design and editing process. The disadvantage was the quality of the typesetting. This is also part of what gives the book a visual spark [↓].

elements: line, color, shape, direction, texture, scale, dimension, motion. Which elements dominate which visual statements is determined by the nature of what is being designed or, in the case of nature, what exists. But when we define painting elementally as tonal, filled with

When I've used this book in teaching (which is often), I ask students: Why does the cover look like it does? It looks to me like writing, or some kind of coded message. What does it say?

I've received a few almost-plausible suggestions over the years to explain the six rows of graphic shapes, which look to me like basic letterforms. After at least seven years of asking this question, the answer dawned on me. What the cover is "saying" cannot be articulated in English or any other written language. The six rows run through permutations of three primary visual forms borrowed from the Bauhaus. Square, circle, and triangle outlines repeat on each row with lines of each shape omitted. This is not a written message, it is a visual message. The fact that it took me so long to read this cover should make me consider spending more time absorbing the book's lessons.

The book uses Gestalt psychology as a foundation. Cooper had been a fellow at the Center for Advanced Visual Studies when György Kepes

was the director. Walter Gropius, former head of the Bauhaus, was leading the graduate design school at Harvard at the time and Gestalt psychology factored directly into the architecture and design curriculum. Rudolf Arnheim was nearby at Harvard. Artist Josef Albers, a Gestaltist who also emigrated from the Bauhaus, was head of the Yale University School of Art. Gestalt psychology and its application to design was not a distant concept and Dondis and Cooper embraced it directly. Page 21 (from Chapter 2, "Composition: The Syntactical Guidelines for Visual Literacy") starts like this:

Gestalt psychology has contributed valuable research and experimentation in the area of perception, collecting data and searching the significance of visual patterns, as well as finding how the human organism sees and organizes visual input and articulates visual output. Together, the physical and the psychological are relative and not absolute. Every visual pattern has a dynamic quality that cannot be defined intellectually, emotionally, or mechanically by size or direction or shape or distance. These stimuli are only static measurements, but the psychophysical forces they set off, like those of any stimuli, modify space and arrange or derange balance. Together they create the perception of a design or an environment or a thing.

And then comes the best part, and also, refreshingly, the strangest way to say it:

All things visual are not just something that happens out there. They are visual events, total occurrences, actions that incorporate the reaction into the whole.

The chapter continues to develop the idea of a visual syntax, built up by the viewer and constructed from the dynamic relationships between the graphic forms. Graphic signs always indicate a relation to another graphic sign, and these dynamic relations constitute whole messages, the building blocks of what Dondis would call a "visual language." The context of one symbol makes it easier to read the other, and meaning exists not in either alone, but rather in the gap between the two.

I've often found students are hungry for rules to graphic design. And although I don't believe such rules exist, I do like that *A Primer* at least makes a few attempts. On occasion, a generous, solicitous offering of something concrete is just what's called for in place of the harder answer that these universal rules simply don't exist. For example, a discussion

on balance shows what's being described and offers more than one illustration per point. This is pretty different from a text where illustrations are used as ballast to support an argument. *A Primer of Visual Literacy* wants to teach, not convince, its reader.

For example, the Gestalt principle of *Prägnanz* (definitiveness, resolution, simplicity) is presented. It's a furry concept but handled with clarity and copious illustration. Some relationships—graphic relationships—are more salient, more assured, more resolved than others. And so at the bottom of the page [↘] are two rows of figures. The top row are clearly recognized as the regular geometric figures of the square, triangle, and circle.



FIGURE 2.38

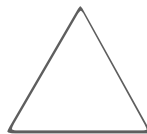


FIGURE 2.39

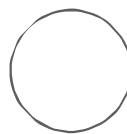


FIGURE 2.40



FIGURE 2.41

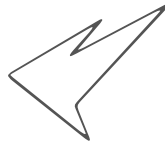


FIGURE 2.42



FIGURE 2.43

The second row has three considerably more ambiguous (and less easily named) figures. The top represents "good" *Prägnanz*, or simple, coherent, specific forms. The bottom is the opposite. By offering both example and counter-example, the simple point is generously explained.

A Primer of Visual Literacy is premised on the existence of a second language outside of spoken or written communication. This language is visual and simultaneous rather than literal and sequential. It is both read and written; it has a vocabulary, a grammar, a syntax, even meaning. On page 44, the trio of primary forms [↓] from the cover reappear.

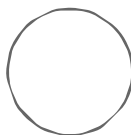


FIGURE 3.13



This time the square, triangle, and circle are pushed into service to convey the meanings of specific shapes. Dondis is straight and authoritative, if not entirely convincing:

The square has associated to it dullness, honesty, and workmanlike meaning; the triangle, action, conflict, tension; the circle, endlessness, warmth, protection.

* * *

This is a scan of my wristwatch from 2009 [↓].



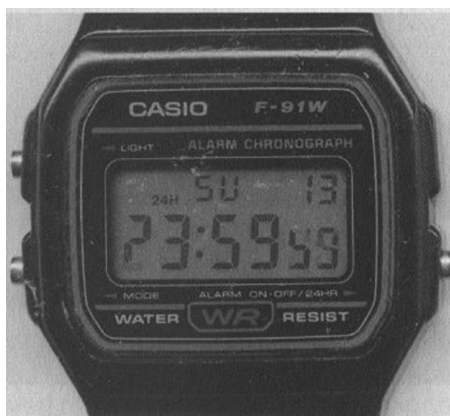
It was the result of an invitation extended to Dexter Sinister to participate in an exhibition in New York. Instead of being represented in the show itself, we suggested producing a publicity image—a piece of graphic design—for the show. And we would treat this self-assignment with the same degree of attention as any other artwork.

The exhibition was about the changing physical landscape of New York City and was oriented around a map showing where avant-garde figures at the leading edge of the arts lived in the city during the 20th century. The show was essentially about time, or that's where we took it, and this is why we decided to scan a watch. We produced the image by scanning my watch at 1200 dots per inch. At this high resolution, the scanning

head is moving slower than the second hand on the watch, and as a result, in the image the second hand appears to bend [↓] as it moves.



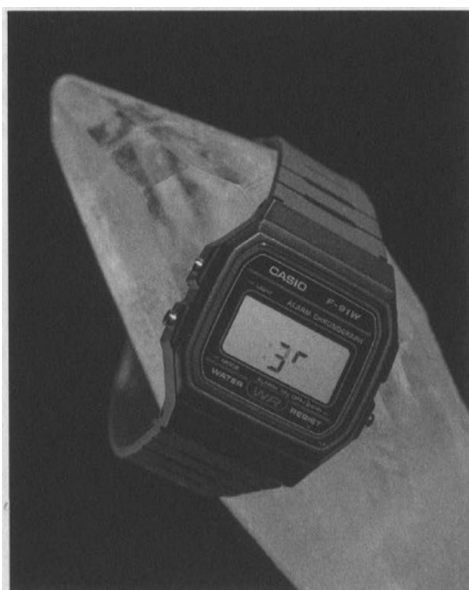
Here's another watch face. This one manifested from an invitation to redesign the display of the Casio F91, a very common digital wristwatch. It was an art project organized by Halmos in New York, where multiples were produced for sale at a reasonable price. When Dexter Sinister got this commission, I immediately thought we should do a digital translation of the analog watch scan—what would that look like?



I typed "Dexter Sinister digital watch scan" into Google and shockingly, the internet conjured this [↑] image. Years later I met Federico Antonini, the Italian graphic designer and artist who produced it. He took his own digital wristwatch, put it on the scanner, and also scanned it at a very high dpi. In his image you see the red, green, and blue of the liquid crystal display. So, we could not do this since it had already been done. We decided

to work in reverse. Instead of slowing down the scanner or image-making apparatus, we would slow down the display of time across the face of the watch.

Digital watches typically use a quartz crystal that, when electricity is introduced, resonates at a certain frequency and drives the watch. Quartz is used because it has a very stable resonant frequency and this keeps it running at the correct rate. The display moves across the face left to right, drawing each number segment by segment over time. (It takes time to tell the time.) The existing Casio F91 watches already drew each segment at different moments, but it all happens too fast to visually register. A new circuit board—the watch’s brain—was designed and installed which would slow down the left-to-right drawing, producing a slowed-down display as a kind of inverted watch scan. The new watch relies on the Gestalt principle of being able to hold a sequence of images in your head even if it’s distended in time.

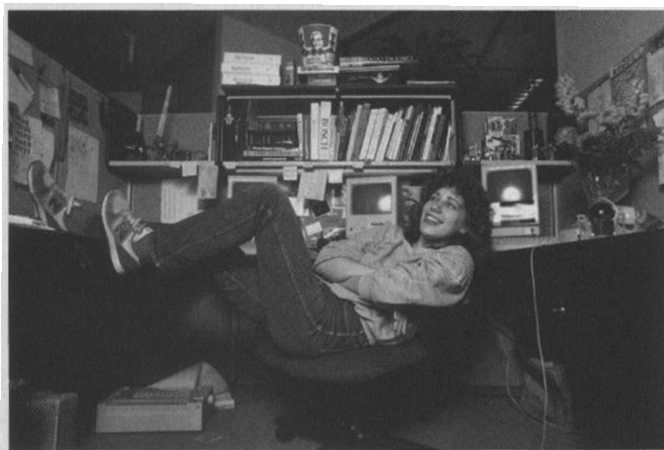


Here's the finished product [↑]. Because the digital display is slowed down and it draws left to right, at any one moment the watch shows only part of the current time. The display speed is adjustable, however, and you're instructed to set the display as slow as possible so that you can still read the time. This should mark the limits of your perception, and it should be at the tipping point where the time is no longer legible.

These two projects are related, superficially by both being watch face design projects, but more emphatically they both have to do with the holding of a temporal sequence in your head over time as one gestalt—like a melody, or a sequence of discrete frames in a film.

* * *

Watch faces and temporal displays are something graphic designers are often tasked with. In 1984, the Apple Macintosh was introduced. It was a personal, portable computer driven by a one-button mouse and the first consumer-facing graphic user interface. There was no existing visual precedent for communicating the novel user interactions of the powerful new machine, and so everything had to be invented from scratch.



Susan Kare [↑] is a designer based in San Francisco. She was the designer of the original visual language for the Macintosh interface. Kare was invited by Apple engineer Bill Atkinson and it seems she arrived to the project with very few preconceptions.

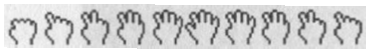
One interaction problem which needed to be solved with graphic design was called “perceived responsiveness”—something that lets you know the computer is thinking. The first Macintosh was small and slow. You turned it on, booted it up from a floppy disk, and waited for a while, and you needed to know that you needed to wait.

Whenever the computer processor was busy, the user needed to be reassured that the computer was indeed working. This “wait cursor” was mission-critical for the user experience. The animated icon that Kare

designed was a wristwatch [↻] whose hands moved slowly round in fifteen-minute increments to indicate that something was happening.



There were several other wait cursors in that original system software which were used in different scenarios [↵]. These included a hand with counting fingers, a slowly spinning planet Earth, a rotating Yin Yang symbol as some kind of Zen everything's-always-in-progress cursor, an hourglass, and the MPW cursor, which looked unnervingly like the symbol for a nuclear hazard.



2128 Counting Fingers



2130 Zen Cursor



2129 Earth Cursor



2131 MPW Cursor

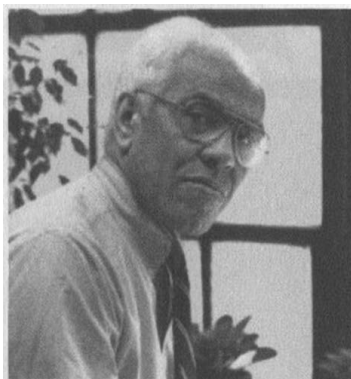
When Steve Jobs left Apple to set up NeXT Computer, Inc., Kare joined him to become the lead designer of the new software. The NeXT was a considerably more powerful computer with a more complicated interface. The simple watch cursor was discontinued and replaced with a rotating, spinning, gradated color wheel. This disk graphic was ungenerously christened the "spinning beach ball of death" [↻] by users who worried that their system had frozen whenever the ominous yet colorful graphic appeared.



Now, spinning beachballs have almost nothing to do with waiting, but this is the power of both context and repetition. It is now a recognizable graphic idea, a visual shorthand for waiting, invented out of thin air, and also only one of many possible answers.

ABC, TV, NeXT

This is George Corrin [↓]. He practiced for 60 years as a set designer, a product designer, a graphic designer, and an exhibition designer. But he also almost didn't do any of those things.



Applying to Carnegie Institute of Technology in 1942, Corrin was brushed off with a curt note from the dean saying, "Negro students have not found the work of our department satisfactory to their needs," and suggested that he apply instead to Fisk University, a historically African American school in Nashville, Tennessee. Corrin replied with a cascade of recommendation letters and the school reversed its decision, admitting him as its first African American student. He graduated Phi Beta Kappa from what would become Carnegie Mellon University and went on to study set design at Yale University School of Drama, receiving an MFA in 1951. After a brief tour of military duty in the South Pacific, Corrin landed a design job at ABC Television in New York. He was fascinated by the technical and social possibilities of television and how design could participate. He soon had the chance to manifest his interest.

In 1960, the presidential debates were to be televised, for the first time, with ABC, CBS, and NBC collaborating on four broadcasts. ABC hosted the third debate, but due to a scheduling conflict, it would be staged remotely with Senator John F. Kennedy in an ABC studio in New York and Vice President Richard M. Nixon on a set in Los Angeles. This was a live broadcast where—using the electronic medium of television and cross-country data links—the two candidates would appear to be in the same room. The set design was central to pulling off this illusion. Corrin was tasked with creating two identical sets which would also look convincing as a split-screen image.

The design used a warm palette of gold fabric, wood-grained panels, and yellow paint. The fabric was ordered for both sets from the same mill, and likewise the panels from the same supplier. The paint was mixed in New York and then hand-carried on an airplane to Los Angeles to ensure an equivalent on-screen look. The lighting equipment in Los Angeles was replaced to precisely match New York and ABC coordinated with AT&T long-lines to reduce the coast-to-coast transmission lag.



The result was seamless [↑] [↓]; a mass electronic event watched by an astonishing 60 percent of US households with television sets—nearly 70 million people.



Corrin continued to work with ABC for 13 years on sets, on-screen graphics, and various design projects. In 1962, the network invited an American graphic designer with an already large reputation to create a new logo [↘].

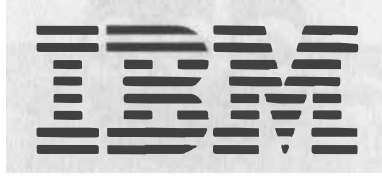


The designer was Paul Rand [↘] and here is a portrait from at least a few years before.

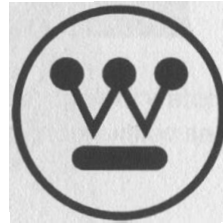


Peretz Rosenbaum was born in Brooklyn in 1914. Painting signs for his father's grocery store led to studying design at Pratt Institute at night while attending public high school during the day for a more "practical" education. At Pratt, Rosenbaum assembled a portfolio of clean, modern design work and decided to modernize his name as well. Being Jewish, like being African American, at the time made working in design difficult. For all of its social rhetoric and its mostly liberal practitioners, the profession has a dreadful track record on diversity. Cloaking his Jewish identity, Rosenbaum took on the concise advertising-ready moniker made up from two sets of four letters: "Paul Rand."

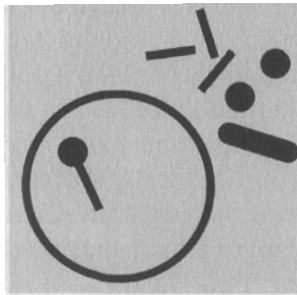
Paul Rand is perhaps best known for his corporate identities, and the logomarks he designed thoroughly exploit Gestalt principles. For example, his ABC logo motivates the figure and ground relationship and the repetition of circular forms in the shapes of the letters and their negative spaces form a mark that sears itself into your eyes and brain. That one is still in use.



Also very well-known is his IBM logo [↑]. Rand worked with IBM for years on a variety of projects. He initially adjusted the existing logomark in 1956, modified it in 1960, and added its characteristic graphic stripes in 1972. Not every project was a success; he was commissioned by Ford Motor Company [↵] to redesign their mark, but it was never adopted. Others have lasted, like the logo for Westinghouse [↘].



The Westinghouse mark is built from a set of legible component parts, in specific relations to produce a coherent mark. So much so that it still says "Westinghouse" when it's split apart [↓].



This one's also a Paul Rand logo [↓].

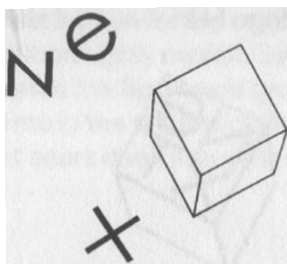


By 1985, Paul Rand was living and working outside of New Haven, Connecticut. He was teaching at Yale University School of Art and was in great demand as a designer of corporate logos; these projects have large budgets and high stakes, and Rand knew it. When handling proposed new commissions, Rand would invite the potential commissioner to meet at the International House of Pancakes near his studio, have breakfast, and discuss their problem on neutral ground. Rand would then decide whether or not to accept the job. His baseline fee was \$100,000.

The same year Steve Jobs founded NeXT Computer, Inc. after being fired from the company he founded, Apple Computer, by its board of directors. Jobs had a new idea that personal computers would go only so far, and he was interested in entering other markets with more powerful hardware. He wanted to make workstation computers, then priced out of reach of all but the largest organizations at \$20–50,000. The NeXT machine cost only \$6,500 for a base model and was marketed to universities, which would make the powerful computers and software applications accessible to students and faculty.

Jobs long admired Paul Rand's work and he invited Rand to work on this project. Rand agreed enthusiastically in this case—I don't even think a date at IHOP was required. He liked Jobs and the new machines were modern, black, austere; one was simply a cube. Jobs brought a team with him from Apple, including graphic designer Susan Kare. As before, Kare was responsible for the interface graphics in the new computer's operating system software.

When proposing a new logo, Rand typically produced a small printed booklet which collected his design research, exploration, and finally, a single recommendation. These were really proto-slide decks, and provide a clear look into the graphic design research and process, as well as a hopefully irrefutable argument to his clients for the proposed logo. The booklet provides a peek behind the curtain.



Rand's visit to NeXT Computer to present his logo proposal [⌘] was, miraculously, captured on video. In the part I'd like to share the full staff is assembled to see what Rand's come up with. Here Rand is assisted by Kare as he pulls the booklets out of a box [⇩].



Narrator: This morning at its offices in Silicon Valley, California, the company is about to get a first look at its new trademark, the signature it hopes to make familiar around the world. The designer Paul Rand created the logos for IBM, Westinghouse, UPS, and many others. Rand doesn't normally work for infant companies even if they could afford him. But NeXT isn't an ordinary startup.

Paul Rand: The idea—please don't open, don't look at the back first. This is the front. And don't get scared, this is not the design. I did this to sort of floor Steve when he saw it, you know and say, "Good Jesus, a hundred thousand bucks down the drain." ...

Steve Jobs: More important than building a product, we are in the process of architecting a company that will hopefully be much, much more incredible, the total will be much more incredible than the sum of its parts.

Now, even if he is invoking the rhetoric of Gestalt, I really don't want to let Steve Jobs have the last word, so I'm going to tack on a short addendum. I want to talk about Stewart Brand, another Bay Area character—a committed generalist who used his facility in design, writing, and publishing to make some unexpected connections. What follows is a significantly condensed biography and it takes the form of one (quite) long run-on sentence. This is an idea I've borrowed from Brand's own web page, which starts,

Let's see how many links I can cram in one fairly relevant sentence.

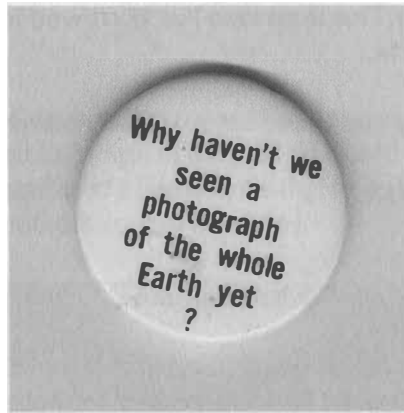
So, anyway, here we go.

Global Branding

High on his rooftop in North Beach, San Francisco, 1966, after ingesting a mild dose of LSD, Stewart Brand imagined the subtle curvature of the earth as he gazed out at the surrounding high-rises, noticing that they were not really parallel, the high-rises, and that the further you might view them from, the more extreme the curve, until finally, viewed from space, the Earth would resolve to a perfectly spherical marble, not dissimilar from the finite planet that Buckminster Fuller had been insisting we must all understand if we were ever to get civilization on this planet right, something Stewart Brand had been considering since his initial undergraduate coursework in biology at Stanford followed by his studies in design and photography at San Francisco Art Institute in 1962, which led him to spending three years on various Native American reservations in the American West culminating in a multimedia event in 1964 while simultaneously engaged by a growing interest in the space program at a time when the left was deeply suspicious of the defense industry initiative, so he tuned in, turned on, and dropped out, organizing The Trips Festival at The Longshoremen's Hall in San Francisco in 1966 before joining Ken Kesey's Band of Merry Pranksters traveling on a bus they named "Further" across the country which he professed to find mind opening and indirectly led to a profound conceptual leap, imagining a picture of the Earth from space and understanding its political aesthetic implications which inspired him to begin immediately the next morning making buttons that read,

Why haven't we seen a photograph of the whole earth yet?

and distributing these paranoiacally stated provocations widely, sending unsolicited packages to scientists, secretaries of state, astronauts, and thinkers like Marshall McLuhan and Buckminster Fuller (whose humbling response to "Why we haven't seen a photograph of the whole Earth?" was, "Well, you can only see about half the Earth at any given time"),

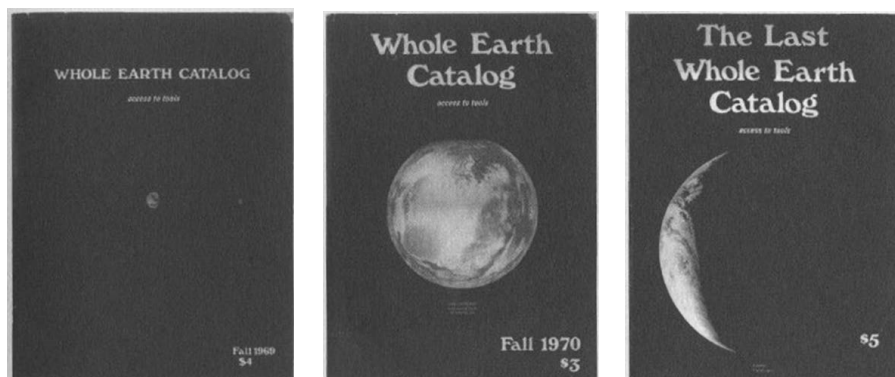


nonetheless, undeterred, these buttons [↑] and the wider campaign were picked up by newspapers, magazines, and the popular imagination, allegedly leading NASA to release full-color photographs of Earth [↵] from the Apollo missions of 1969



and by which time Brand had named and started work on the *Whole Earth Catalog*, whose second issue in the summer of 1969 featured

the aforementioned photograph and whose subsequent covers also rigorously retained a photograph of the Earth from space, creating a remarkable series of covers [↵] [↓] [↘] formed by a repeated image and a specific cultural framework,



and that Apollo 9 astronaut Rusty Schweickart, as head of the applications department of NASA, through persistent efforts, could not convince the scientific community at large that you couldn't see anything useful from space an idea directly at odds with the stated function and selection criteria of the *Whole Earth Catalog*, printed on the inside front cover, along with the reverse of the globe. It says,

The *Whole Earth Catalog* functions as an evaluation and access device. With it, the user should know better what is worth getting and where and how to do the getting. An item is listed in the catalog if it is deemed useful as a tool, relevant to independent education, high quality or low cost, easily available by mail. Catalog listings are continually revised according to the experience and suggestions of catalog users and staff.

and meanwhile continuing his agenda to provide access to tools, the subtitled mission [↓] of the *Whole Earth Catalog*,

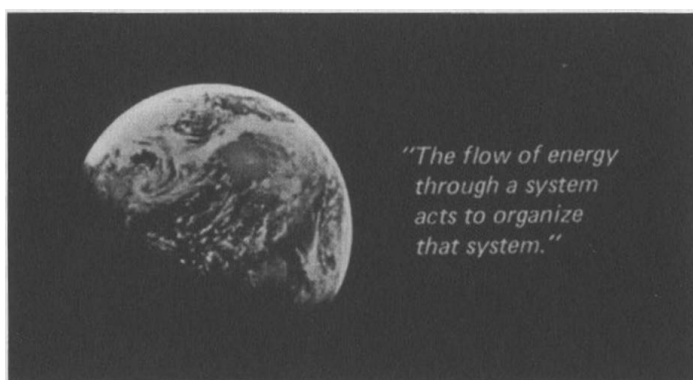
At the time, in fact, finances were not particularly on my mind. How To Make Money was not the design problem. (I'd heard and bought Ken Kesey's advice that you don't make money by making money: you have that in mind early on, but then you forget it and concentrate entirely on good product; the money comes to pass.) The problem was How to Generate a Low-Maintenance High-Yield Self-Sustaining Critical Information Service.

Stewart Brand helped Doug Engelbart, computer scientist, design and organize what was later to be dubbed the "mother of all demos," or

augmented human intellect, at the fall Joint Computer Conference in San Francisco at the Moscone Center, which introduced such occasionally useful and intimately familiar personal computing paradigms as the mouse [↘], linked text, windows, copying, pasting, and all the while

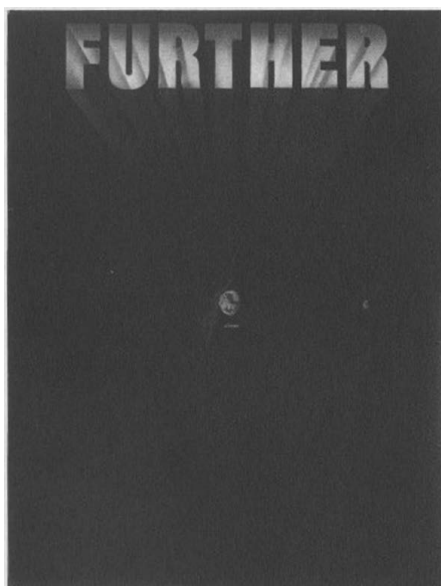


continuing to edit, publish, and direct the *Whole Earth Catalog* through several revisions, until 1972 with the publication of the *Last Whole Earth Catalog*, which was never intended to persist (only to get the word out there and adequately review the existing tools and resources for interested parties to use) [↘]

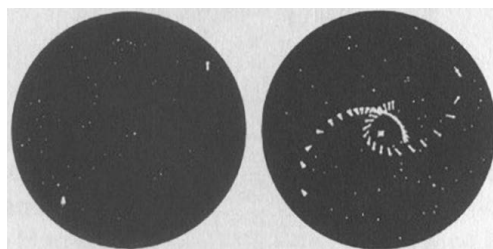


with Scott Beach he organized the Demise Party to mark the end of the *Whole Earth Catalog* and engaged 1500 guests with \$20,000 in cash that were the proceeds from four years of making and producing the catalog and providing access to tools for a mini-generation, so that by dawn the entire cash proceeds had been released to various parties, organizations, and individuals to do good with, a notion that Mr. Brand set out to explore himself following the precedent established by the Beatles on May 15th, 1968, when they formed Apple Corps to distribute funds to myriad artistic ventures and self-described as a kind of "Western

communism" by founding the Point Foundation in 1972, and successfully giving away over \$1,000,000 to assorted worthy individuals [↵] over the course of the next three years



while working on a 1972 article for *Rolling Stone* magazine, photographed by Annie Leibovitz, titled "Fanatic Life and Symbolic Death Among the Computer Bums," which detailed a then-fringe computer research and game playing being undertaken at Xerox PARC, the Stanford Artificial Intelligence Laboratory, and MIT, in which a Space War [↵] tournament was staged

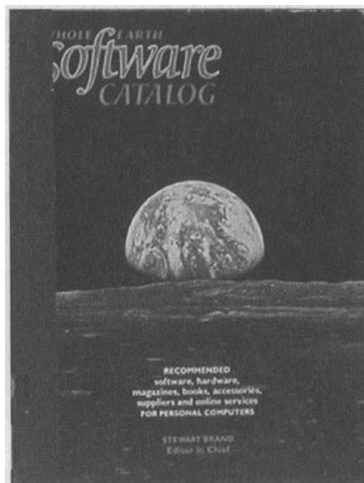


with numerous bearded computer visionaries enjoying the visceral delights of free beer and computer games while exploring something else entirely—the useful exercise of thinking the world as a dynamically regulated and organic whole system, a topic that Brand investigated in his book published by Random House (established in 1925, when

Bennett Cerf and Donald Klopfer decided to publish "a few books on the side at random," including the first US edition of James Joyce's *Ulysses*) and which introduced fellow biologist Gregory Bateson into the ongoing discourse around self-organizing systems, feedback loops, and computer science through his book called *Two Cybernetic Frontiers*, which led, of course, to editing *Space Colonies* from 1976 and serving as an adviser to California Governor Edmund Brown from 1976 to 1979 while acquiescing finally to publish the *Next Whole Earth Catalog* in 1981, the peak edition, with a sizable advanced contract, powerful distribution, and encouraged Stewart to engage the problems, consequences, and opportunities at hand in the world of business which he did on the faculty of the Western Behavioral Institute of La Jolla, California, with a course he ran called Uncommon Courtesy School of Compassionate Skills, which gave courses in subjects like "Business as Service" and "Street Saint Skills," and whose instructions Brand continued to practice in subsequent publications insisting,

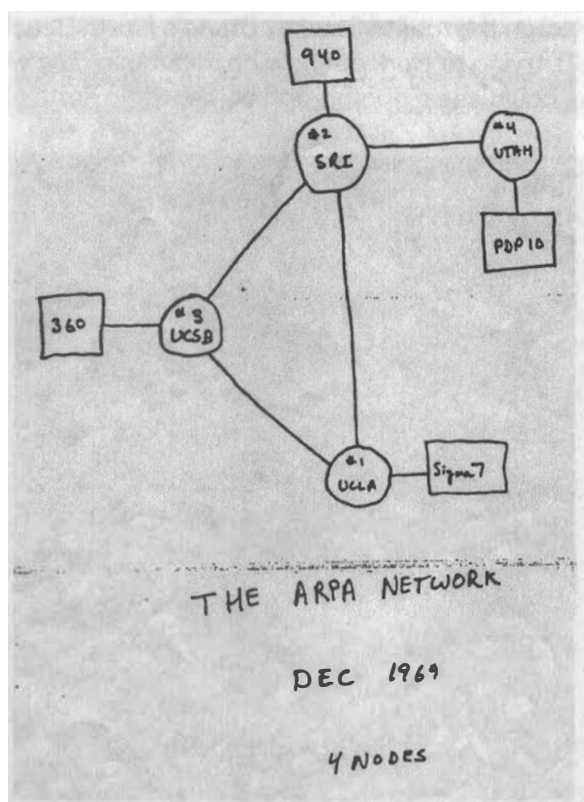
It's our custom to print and try to explain our finances in each of our publications. Business we found does best when performed as a service. Service does best when it's approached as business.

and building on the Whole Earth legacy to its, some would say, inevitable evolution as a *The Whole Earth Software Catalog* [↯],



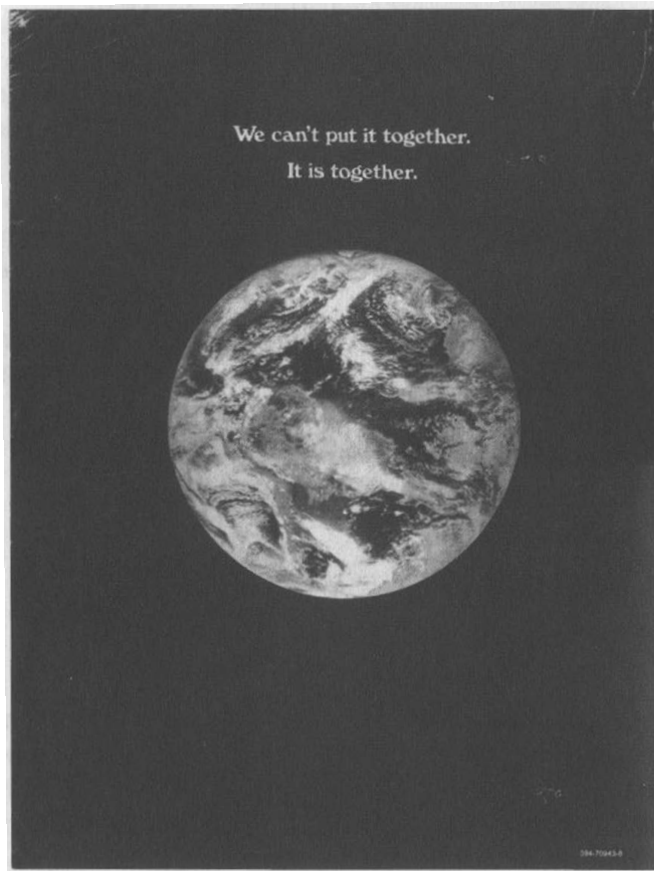
a review of the personal computer software which, becoming widely available and providing access to tools for a broad range of non-specialists who might soon find themselves tapping at their keyboards,

electronically chatting to each other in the pioneering online telecommunications bulletin board system that Stewart Brand founded called "The Well" (or Whole Earth 'Electronic Link), often cited as a foundational precedent for what became the World Wide Web, a global electronic network originated in 1968 by the Advanced Research Projects Agency of the United States Department of Defense to link scientists in San Diego, Los Angeles, and Champaign-Urbana, Illinois, [↓]



which is showing no signs of slowing down, connecting uncountable locations, real and imaginary, across the Earth today, and as the de facto topic of a conference that Brand co-organized, co-founded with Kevin Kelly, called "The Hackers Conference" televised since its creation in 1986 and organizing a loose knit group of software tinkerers, hardware mechanics, and social engineers for exchange and disagreement; the former Merry Prankster followed up as a visiting scientist at the Media Lab at MIT in 1986 (later writing a book about his experience there) and became a consultant with Royal Dutch Shell London, where he pioneered techniques of longterm scenario planning (which he developed

to a somewhat more concrete form in another project called "The Clock of the Long Now," a project with musician Brian Eno and supercomputer engineer Danny Hillis to design a very, very, very slow clock meant to last for 10,000 years and the point of which was to encourage good behavior, global responsibility, and social tendencies for the world's corporations, an idea that Brand extended by founding the Global Business Network to explore whole futures and extended scenarios for world economies based on the behaviors of its corporations and ending up back where this sentence started on the roof of Stewart Brand's North Beach apartment, tripping on LSD, trying to work out how he might think the world differently, if only we could see a photograph of the whole earth [↓].



We can't put it together. It is together.