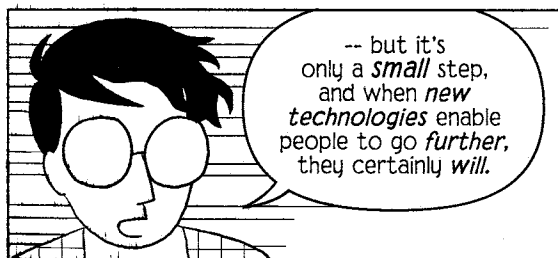
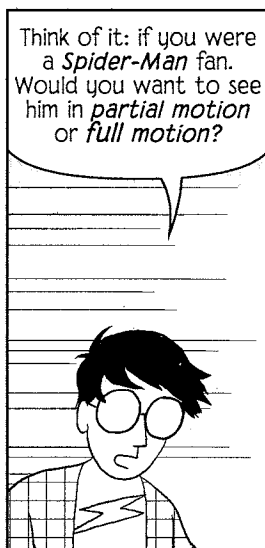
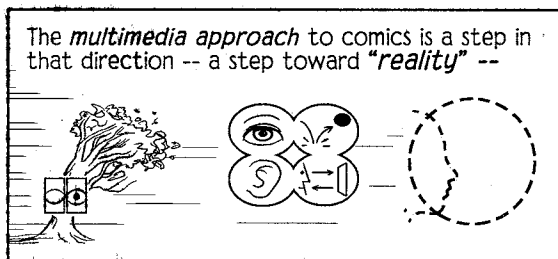
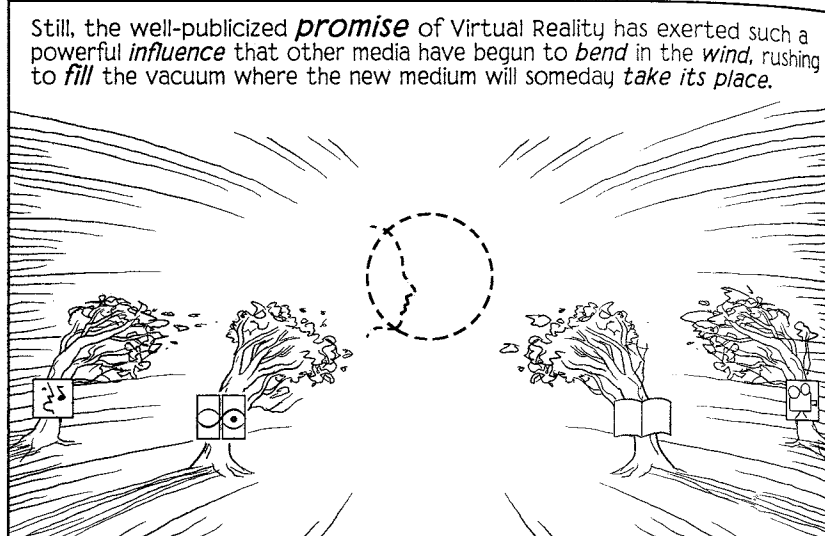
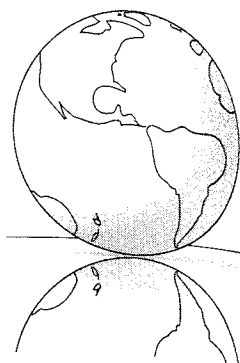
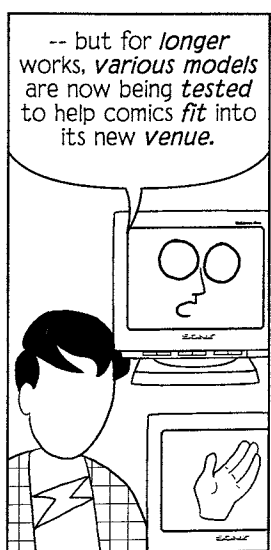
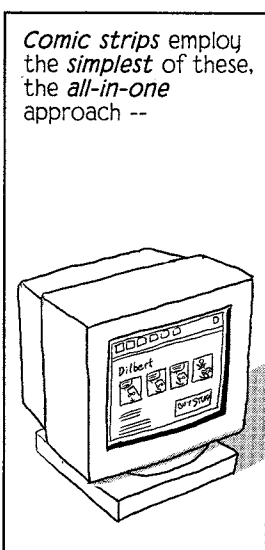
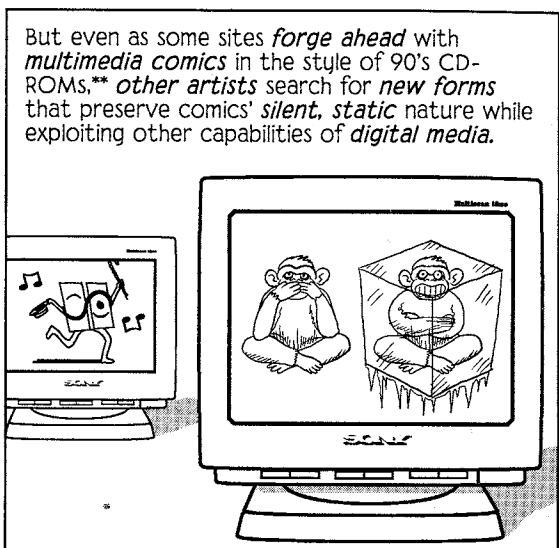
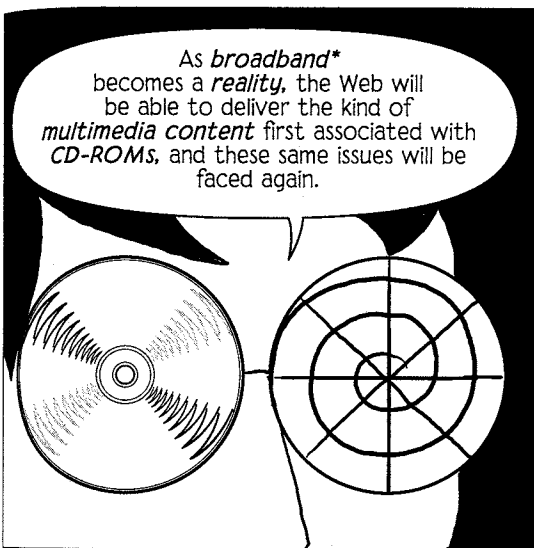
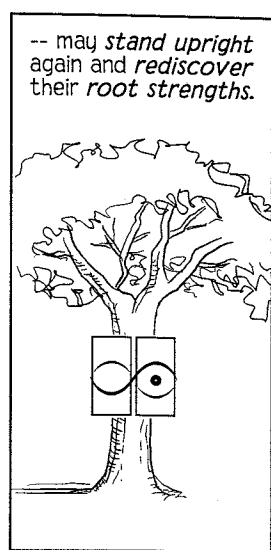
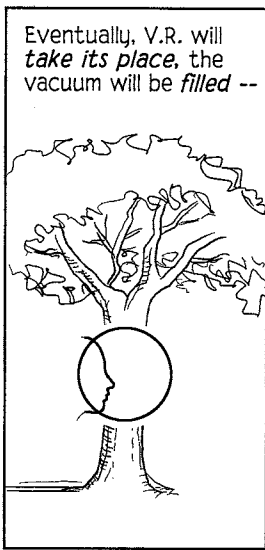


...the journey toward the *creation* of a *world so real* it can make us forget the one we *live* in.

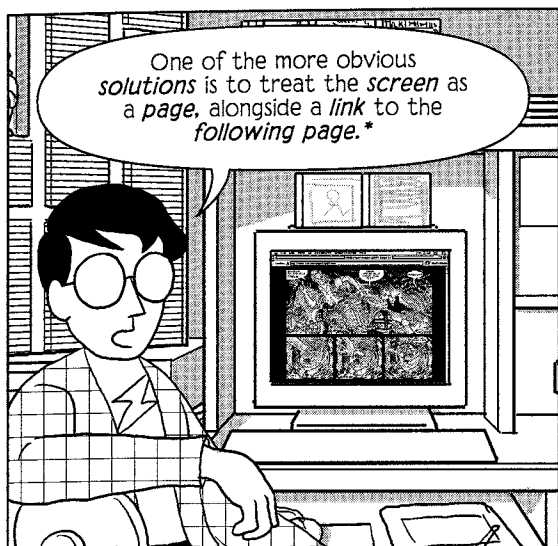


*That is, a fully immersive doppelganger of real space and sensory experience. Note, this isn't necessarily what V.R. pioneers like Jaron Lanier meant by the term, merely what it's come to mean to most people since.

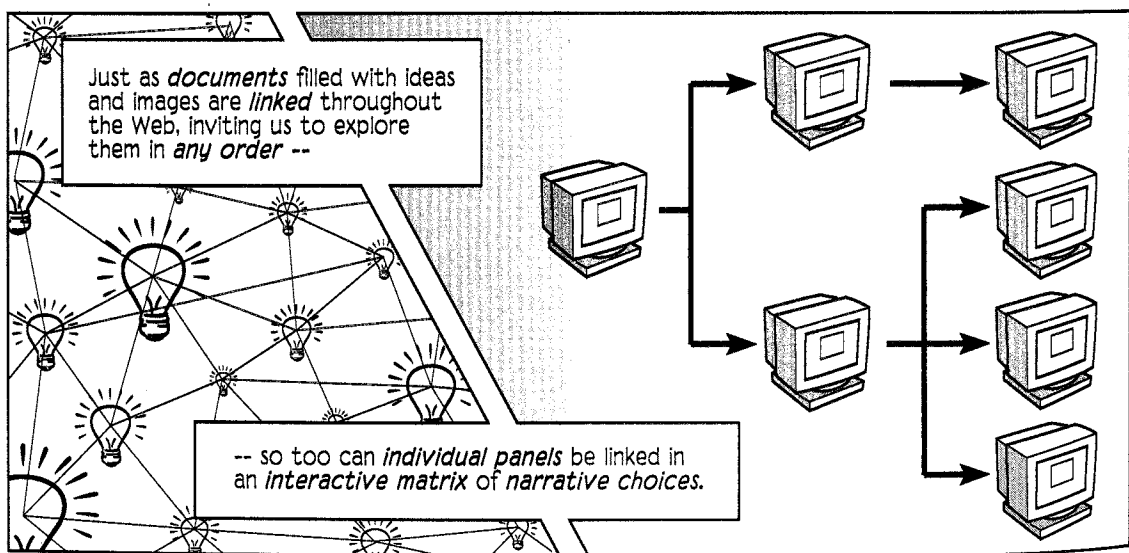
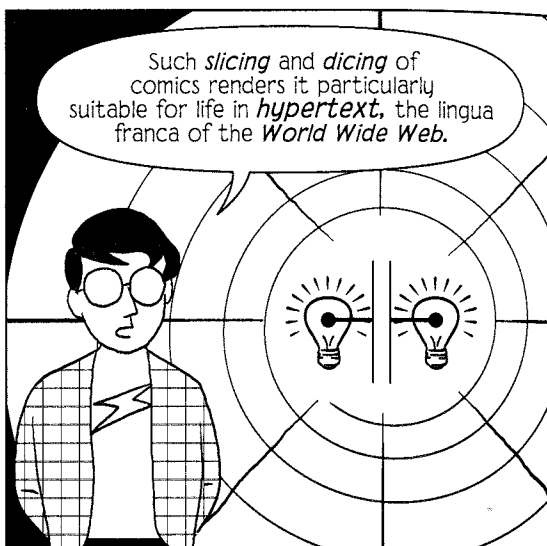
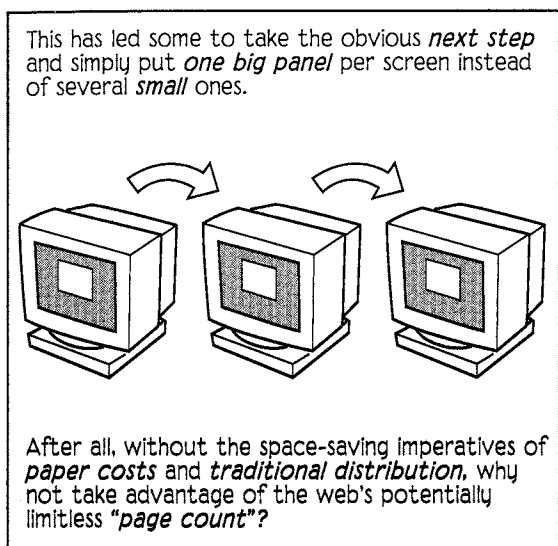
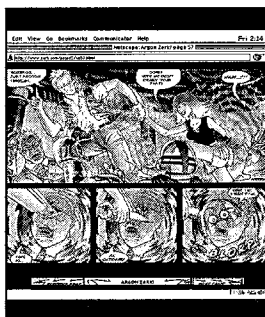
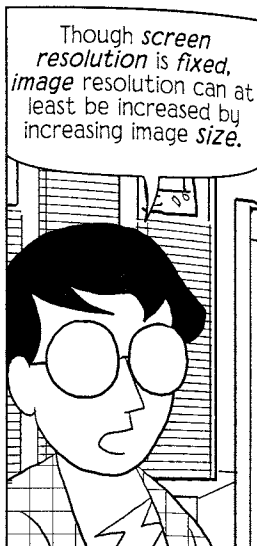


*high-bandwidth connections to the Web... the really fast stuff we're all waiting for.

**Check my site for links to some of the current Web comics in the multimedia/CD-ROM style.



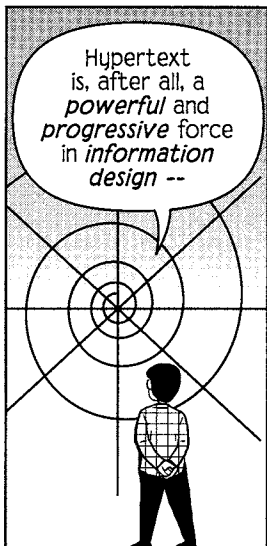
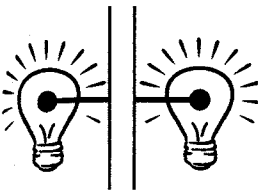
To compensate for the *low resolution* and *screen shape*, each page has roughly the same amount of visual information as a *half page of printed comics*.**



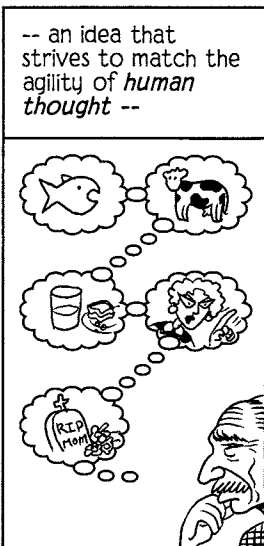
*Pictured: *Argon Zark* by Charlie Parker (Zark.com) was one of the earliest web comics to employ this model.

**Sadly, this concept seems beyond some designers who insist on standard page shapes even when there is no print version!

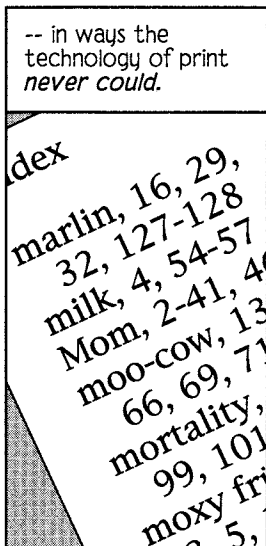
Any comic on the Web is in hypertext's *backyard*, it makes sense to *adjust* comics to fit its *new* environment.



Hypertext is, after all, a *powerful* and *progressive* force in *information* design --

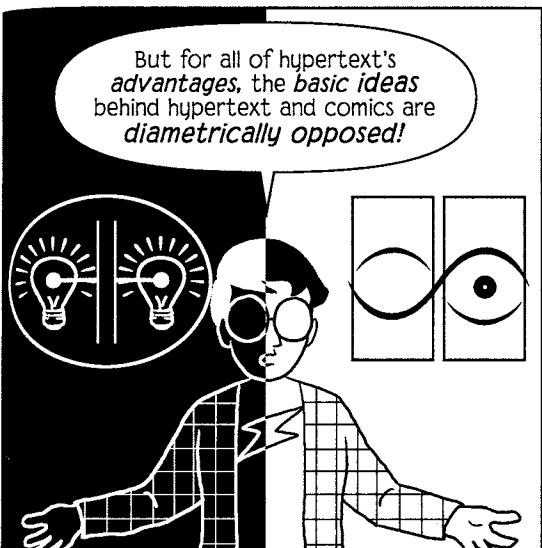


-- an idea that strives to match the agility of *human* thought --

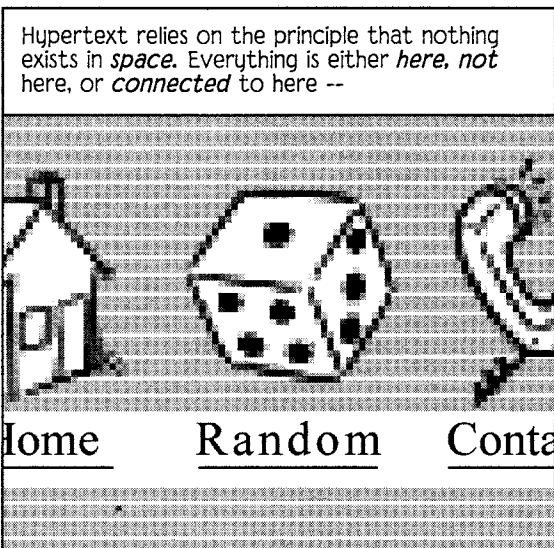


-- in ways the technology of print *never* could.

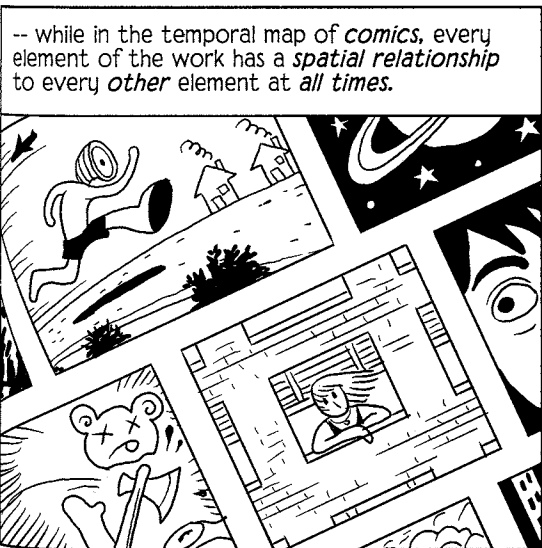
Index
marlin, 16, 29,
32, 127-128
milk, 4, 54-57
Mom, 2-41, 4
moo-cow, 13
66, 69, 71
mortality,
99, 101
moxy fr
5,



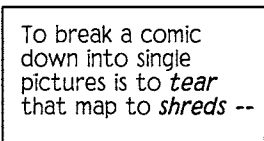
But for all of hypertext's *advantages*, the *basic* ideas behind hypertext and comics are *diametrically* opposed!



Hypertext relies on the principle that nothing exists in *space*. Everything is either *here*, *not* here, or *connected* to here --



-- while in the temporal map of *comics*, every element of the work has a *spatial* relationship to every *other* element at *all* times.

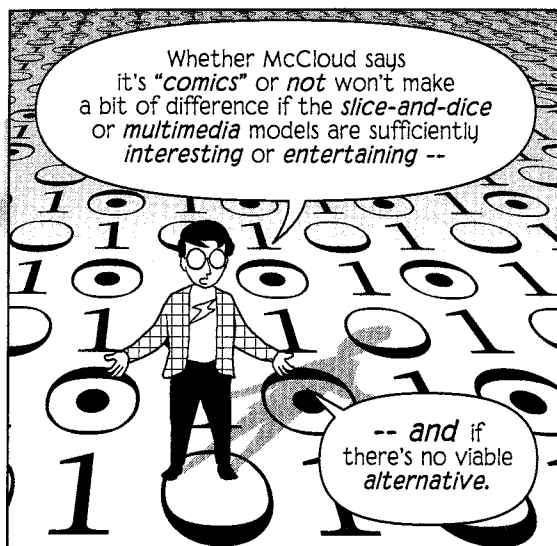
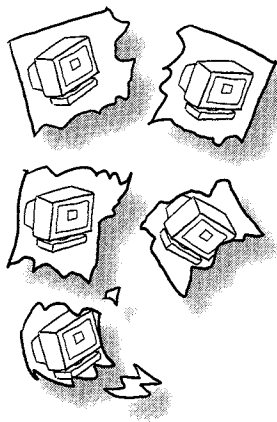


To break a comic down into single pictures is to *tear* that map to *shreds* --



-- and with it, the very *fabric* of comics' *core* identity.

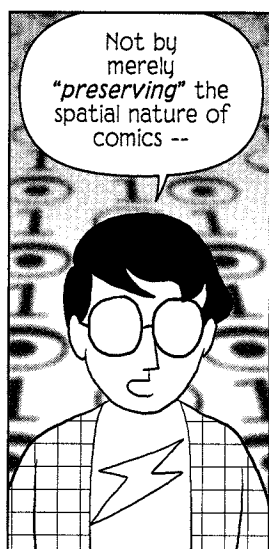
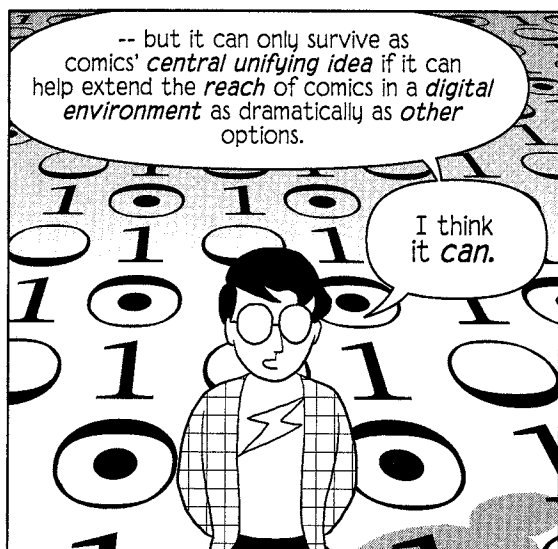
But, hey --
is that a
problem?



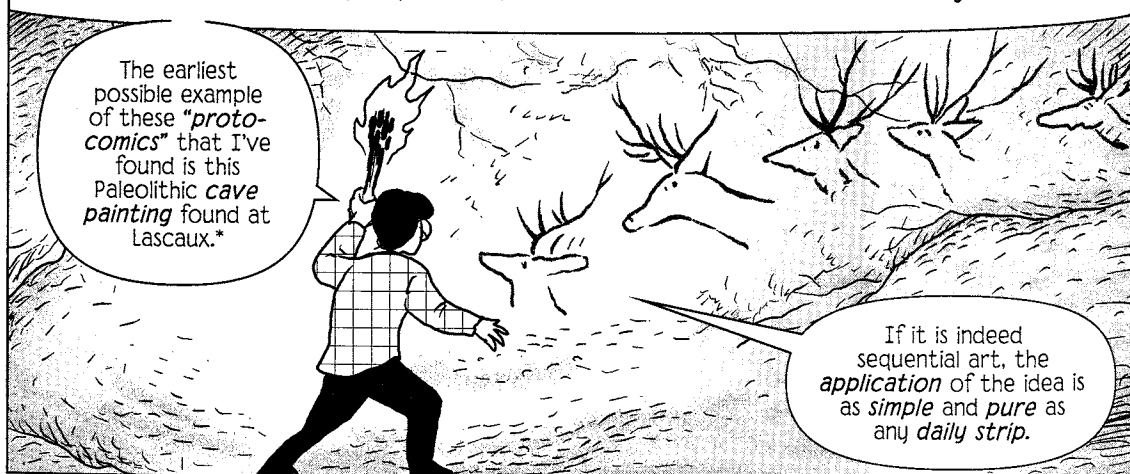
Preserving the idea of
the temporal map has
an *aesthetic* appeal
for guys like *me* --



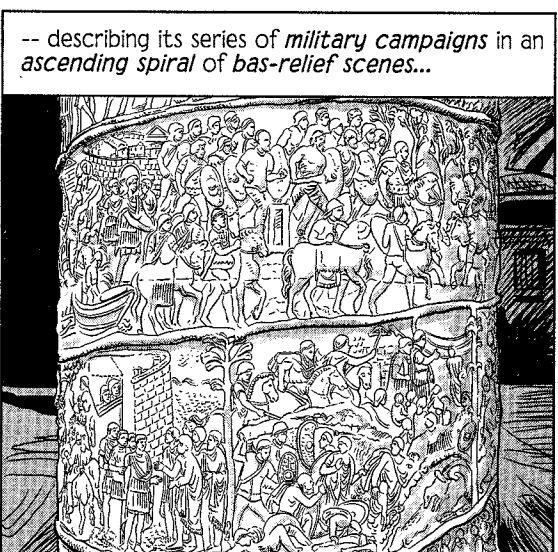
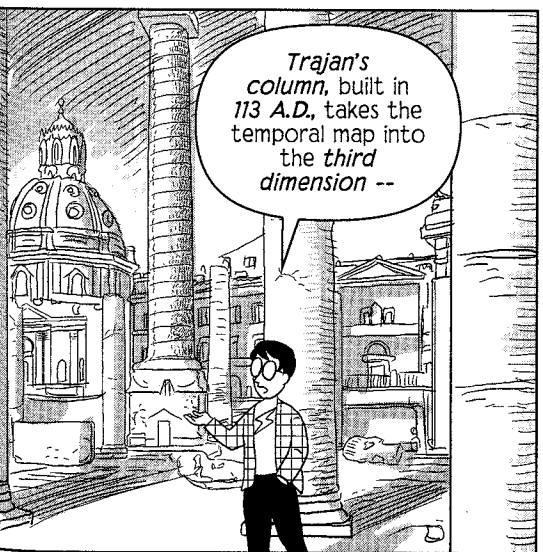
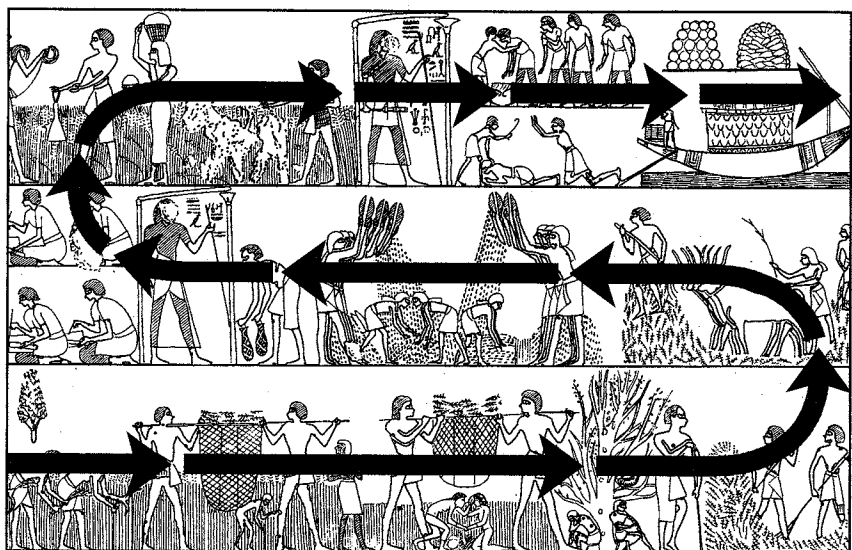
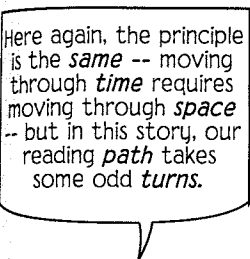
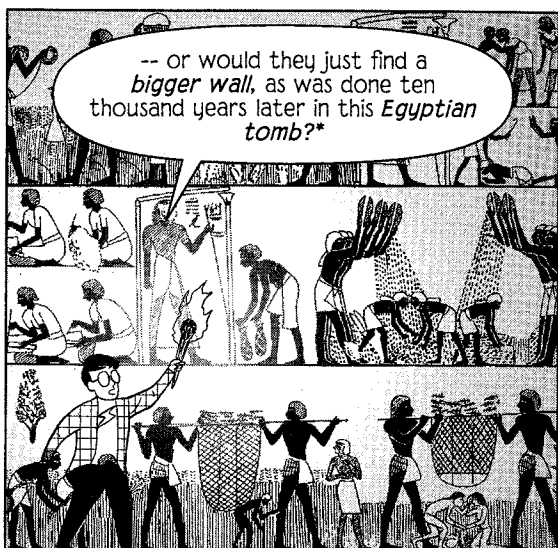
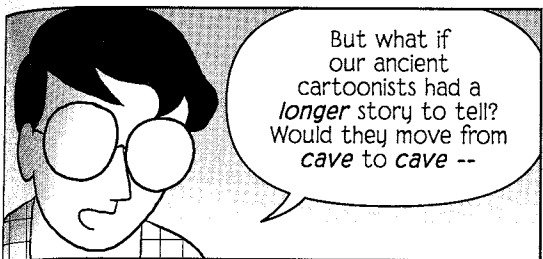
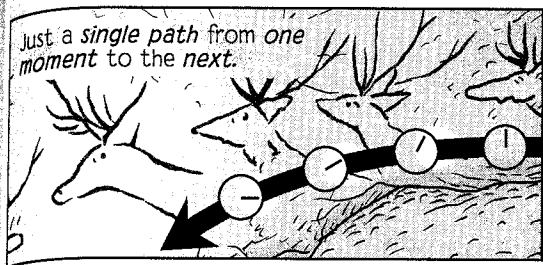
figure B.



In exploring the *design potential* of a pure *temporal map* in a *post-print world*, I believe we can find
important *clues* in the kind of *pre-print* sequential art I wrote about in *Understanding Comics*.

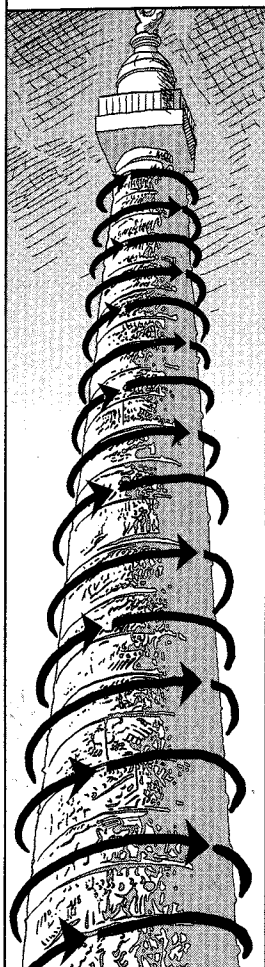


*N.Y.C.'s Museum of Natural History describes this 17,000-year-old painting as *maybe* portraying a single, individual deer "plunging into a stream, swimming across and emerging on the other side."

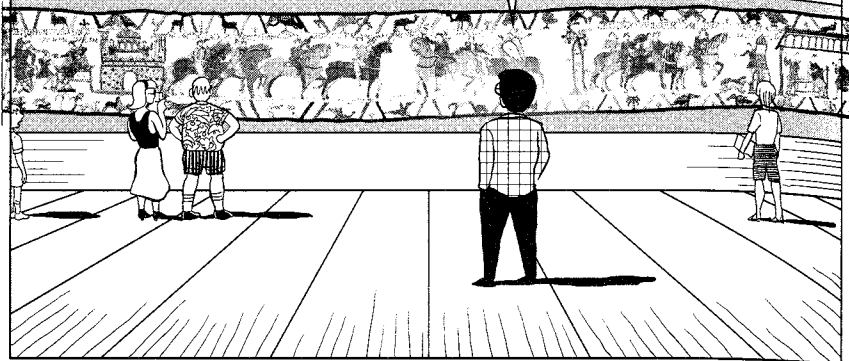


*The tomb of Menna the Scribe, circa 1,200 B.C.

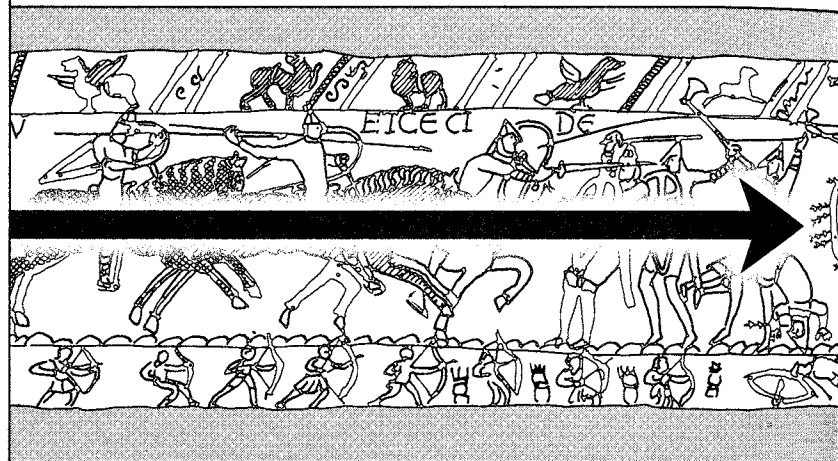
Very different from both *cave* and *tomb*, yet also following a single unbroken reading line.



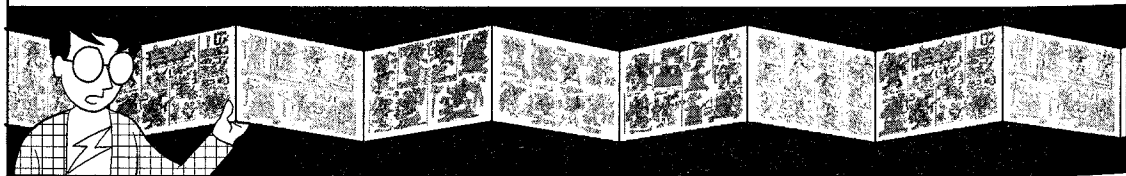
If we could *unwind* that column, we might produce something like the *Bayeux tapestry* with its *picture story* of the *Norman Conquest of 1066*.



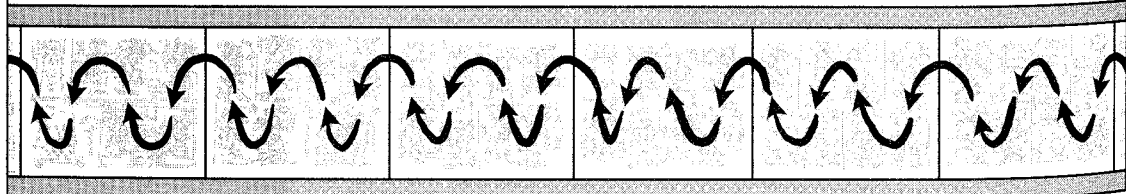
A *map of time* that for all its *complexity* is, from our standpoint, a single straight 230-foot *path* from *left* to *right*.



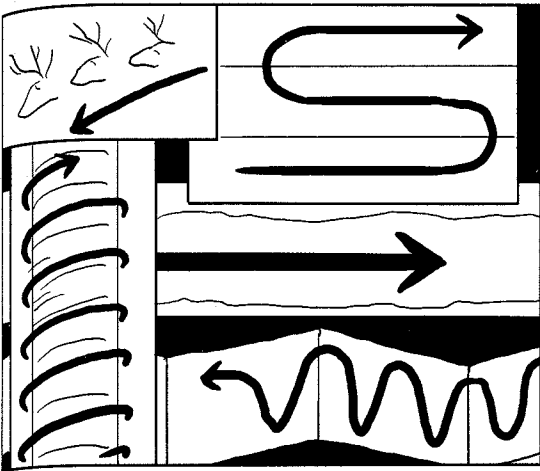
The "*Codex Nuttall*" of pre-Columbian *Mexico* would, a few centuries later, tell its own story of conquest on *accordion-folded deerskin* --



-- and when laid *flat*, lead readers from *right* to left in a winding but unbroken *zigzag* of *generations*.



paint, stone, cloth, skin... It would be hard to find five more *diverse* examples of the *temporal map*.

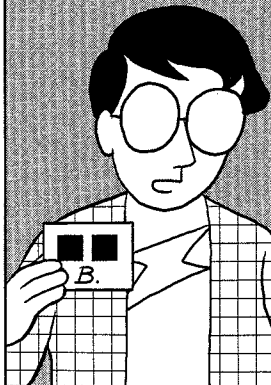


Yet all stayed true to the *nature* of the map -- and never violated its *basic tenet* that to move in *time* is to move in *space*.

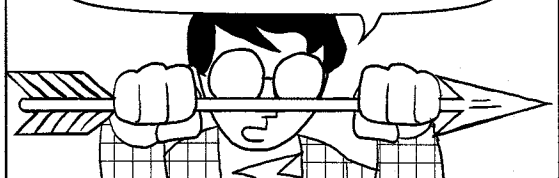
And the longer the *time* --



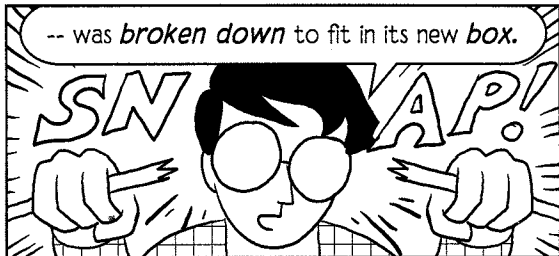
-- the longer the *line*.



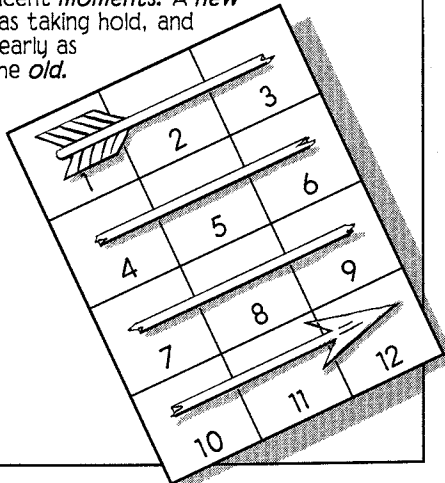
-- as the line that had *held* through eons of sequential art --



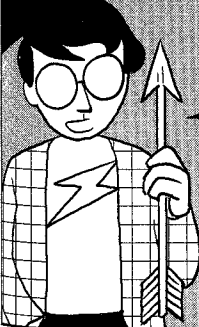
-- was *broken down* to fit in its new *box*.



For the first time, *readers* of such picture stories could no longer assume that *adjacent images* meant adjacent *moments*. A *new formula* was taking hold, and it wasn't nearly as simple as the *old*.



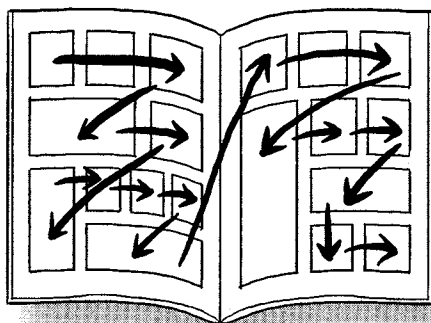
But print was *different*. For all the benefits it *gave* to comics, there was one thing it *took away* --



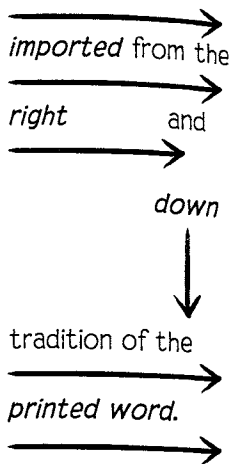
The *ancestors* of printed comics *drew, painted and carved* their time-paths from *beginning to end*, without *interruption*.



Print, though, presented a landscape of tiny *cul-de-sacs*, asking readers to leap to *new paths* every few panels based on a *complex protocol*...



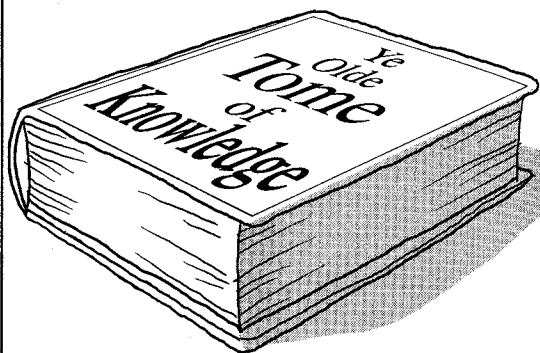
A protocol



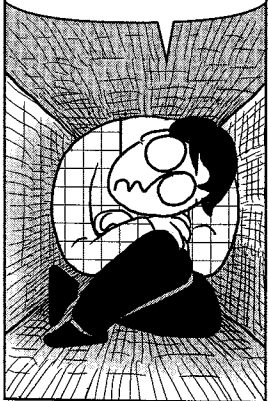
When the "*cave wall*" of the *page* came to an *end*, readers learned to simply *move on* to the *next* one.



Print subverted space, folding it upon itself, allowing stories to grow to *any length* without relying on *fraying cloth* or *crumbling stone*.



But to reap the *benefits* of print meant keeping comics' *core assets* packed into *tiny boxes*.*



Since that fateful meeting of *art* and *technology*, much of the subsequent work of *creating* comics has been figuring out how to make it all "*fit*."



Every few inches, a *new barrier* is reached, another *limitation* tackled --



-- and naturally, we all learned to *live* with it.



*Partially disassembled at that.

This small rectangular canvas we call "*the page*" has been the *only venue* for *long-form comics* throughout the *century*, and several generations of *artists* have devised thousands of *creative solutions* to the problems it presents; solutions I've *counted on* for the last *200 pages*!



Seasoned artists know, for example, that it's desirable to place *establishing shots* at the *beginning* of a spread or page to create a *sense of place* in subsequent panels.

They've also learned to tailor the *last panel* on the *right-hand page* to act as a *tease* for the *next page* (whether the story *requires* it or *not*).

And while *tall* or *wide* panels sit well at the *beginning* of a page --

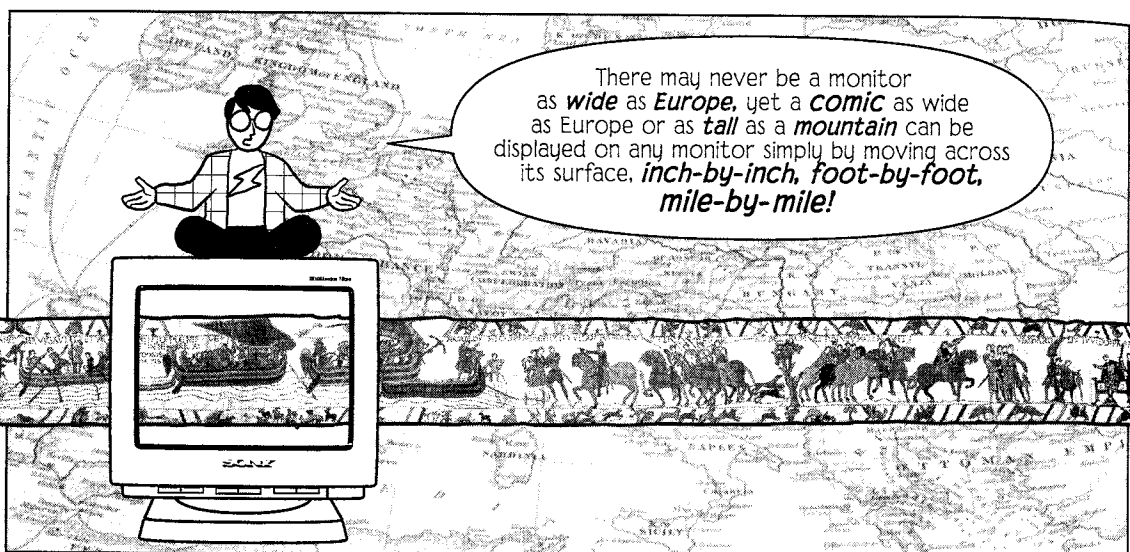
-- if chance places them *elsewhere*, the artist may have to *reorganize*, *lengthen* or *shorten* a sequence to *accommodate* them.*

Today's average *computer monitor* offers a space not much larger than a 6 x 9 inch comic turned on its *side* (and at a lower resolution) so it has the potential to *constrict* the *reading flow* just as *easily* --



-- Unless
we recognize that
the **monitor** which
so often acts as a
page --

--may also
act as a
window.



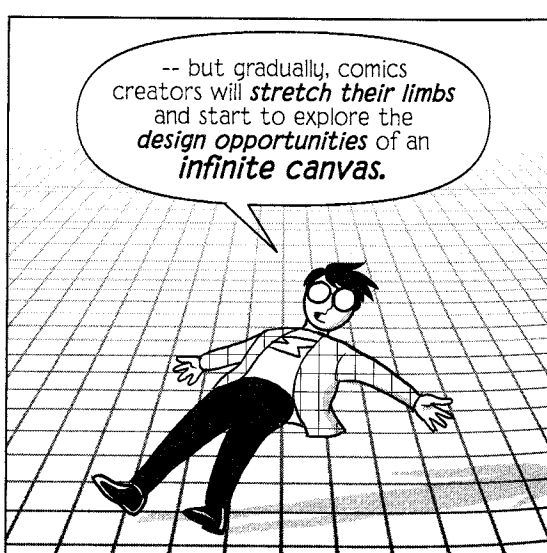
There may never be a monitor
as **wide** as **Europe**, yet a **comic** as wide
as Europe or as **tall** as a **mountain** can be
displayed on any monitor simply by moving across
its surface, **inch-by-inch, foot-by-foot,**
mile-by-mile!



The page is
an **artifact** of
print, no more
intrinsic to comics
than **staples** or
india ink.

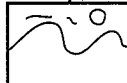
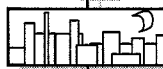
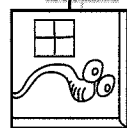
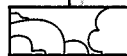
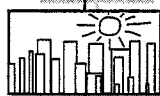
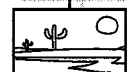
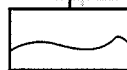
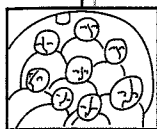
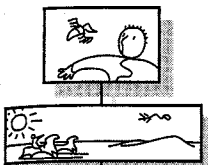


Once
released from
that box, some
will take the **shape**
of the box **with**
them --

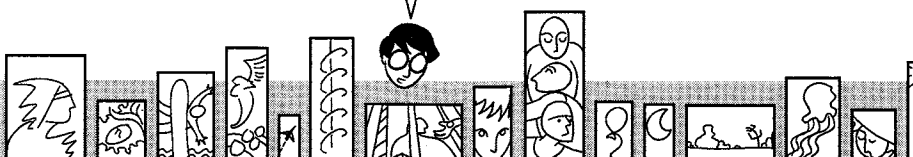


-- but gradually, comics
creators will **stretch their limbs**
and start to explore the
design opportunities of an
infinite canvas.

In a *digital environment* there's no reason a *500 panel story* can't be told *vertically* --

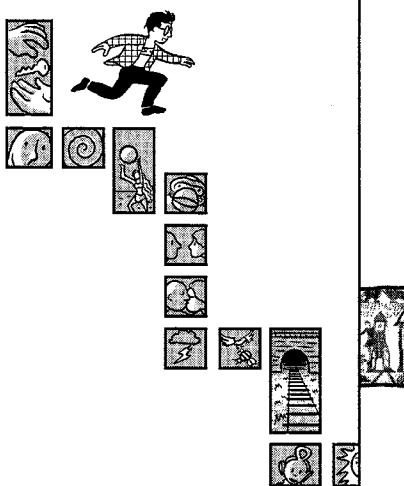
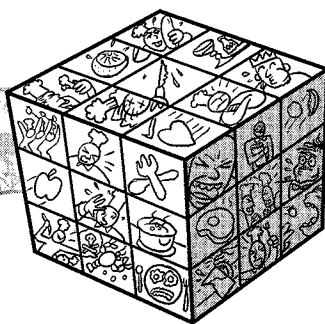


-- or *horizontally* like a *great graphic skyline*.

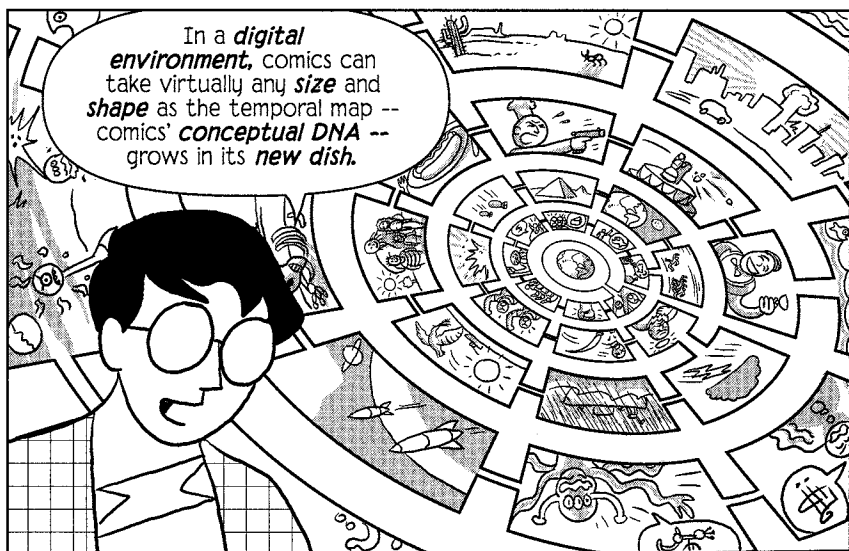


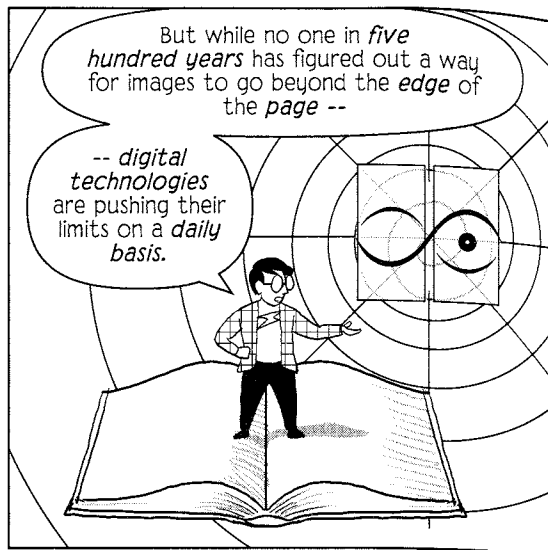
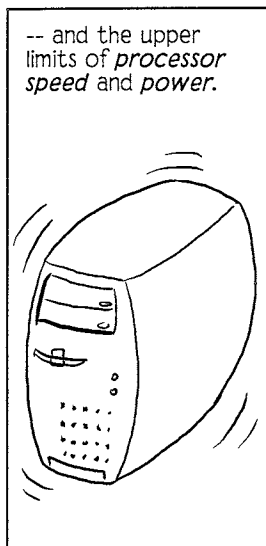
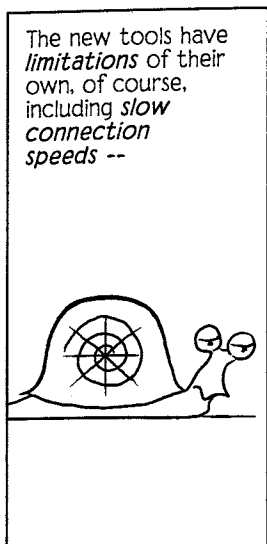
We could indulge our *left-to-right* and *up-to-down* habits from *beginning to end* in a *giant descending staircase* --

-- or pack it all into a *slowly revolving cube*.

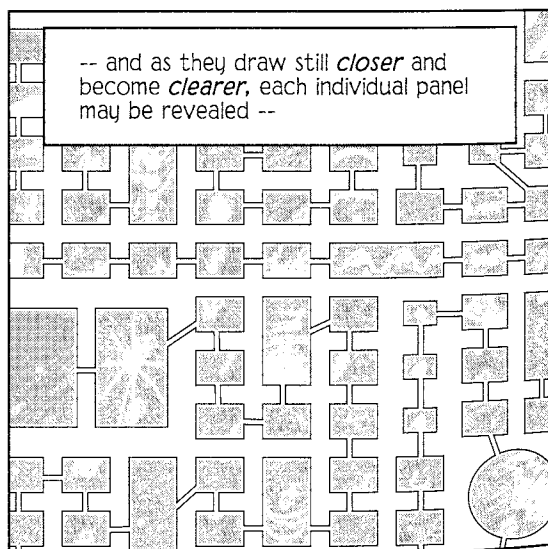
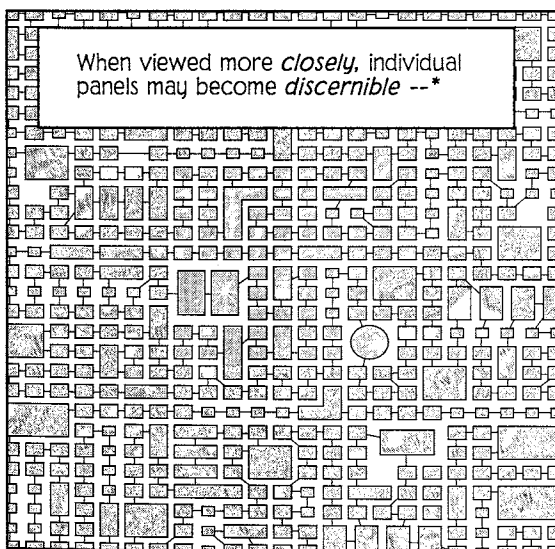
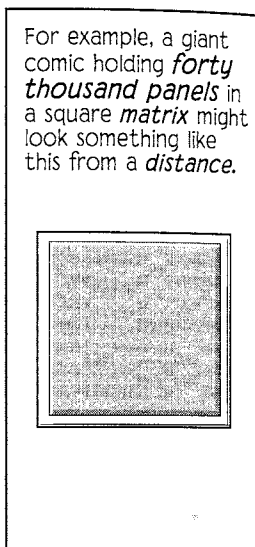
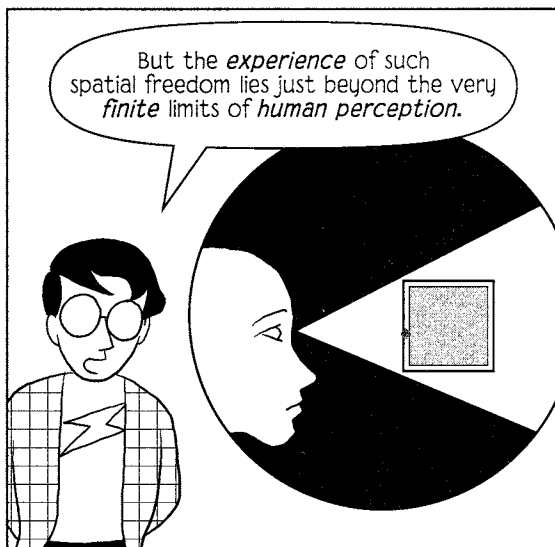
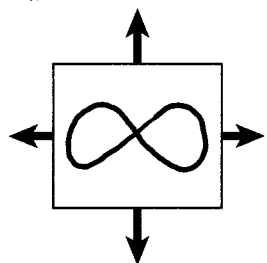


In a *digital environment*, comics can take virtually any *size* and *shape* as the temporal map -- comics' *conceptual DNA* -- grows in its *new dish*.



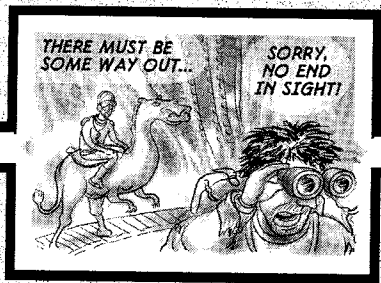


There will always be *some* limits on *speed*, *power* and *storage*. A literally "*infinite*" canvas may never exist.



*And yes, believe it or not, such a mad contraption could be quite readable. If each panel were connected to the next one, you would always know where to read next (not that I'm seriously suggesting that anyone try this).

-- as a full-size, high resolution color illustration.

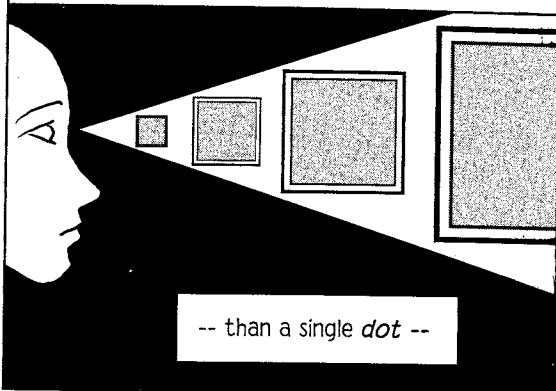


You may wonder how *any* computer, now or in the *near future*, could possibly hold this entire comic in memory *all at once*.

Answer:
It probably *can't*.

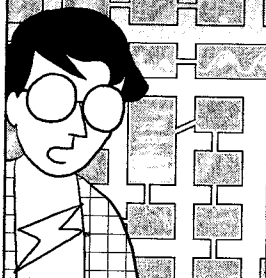
Nor should it *have to!*

The *human eye* can only *detect* so much *information* at a time, and has a limited *field of vision*. At the distance necessary to view the *whole* of such a comic, each individual panel need be no more --



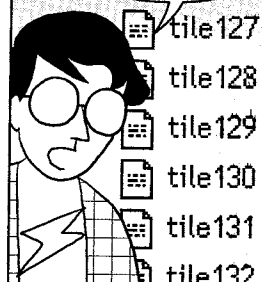
-- than a single *dot* --

-- and by the time *individual panels* come into view, our field of vision will only take in a small part of the whole.

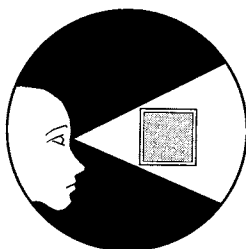


Thus, our monster comic may exist as *many* documents in *storage* --

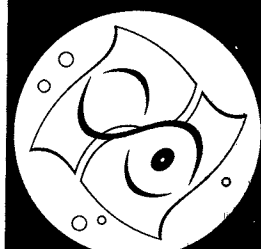
-- yet only *one* in the *mind's eye*.

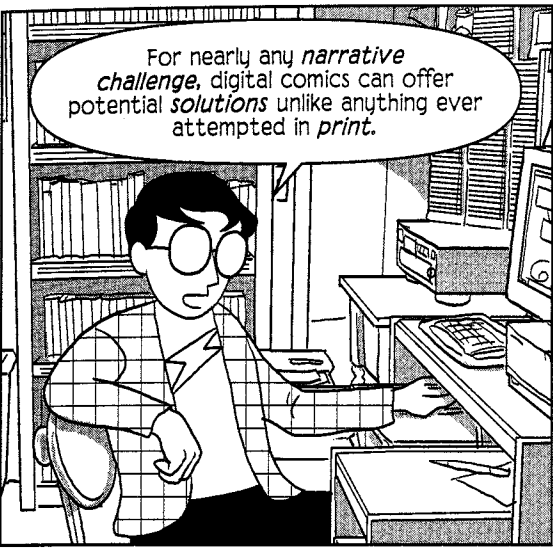


We haven't *reached* that threshold of human perception *yet*, of course* --



-- but that's no reason not to give our *imaginations* a good *head start!*



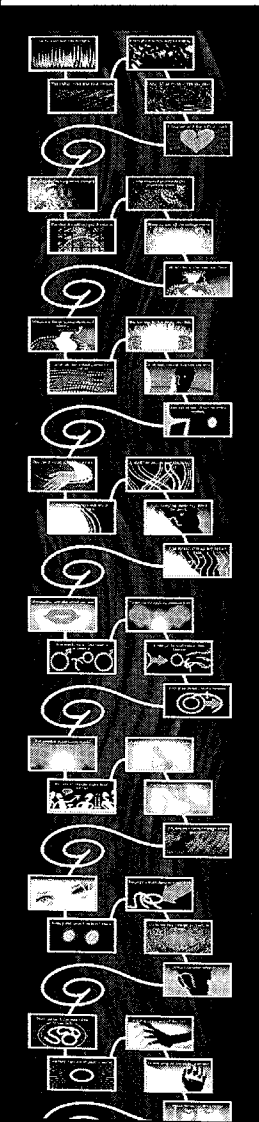


When adapting Browning's poem "*Porphyria's Lover*" for my site, I was able to reflect the **A-B, A-B-B rhyming structure** and **rhythm** of each **stanza** through a **zigzag panel arrangement**, using panel **connections** rather than position to determine **reading order***--

The rain was falling fast,
The sudden wind was soon awake
It tore the elm-tops down we could see,
And did its worst to vex the lake!
Robert Browning
I listened with heart furtive as she

*Confusing at first (especially if you try to read it while loading) but remarkably simple once you get the idea.

-- then connecting all **twelve stanzas** in a single descending **chain** set on a darkening **background**.



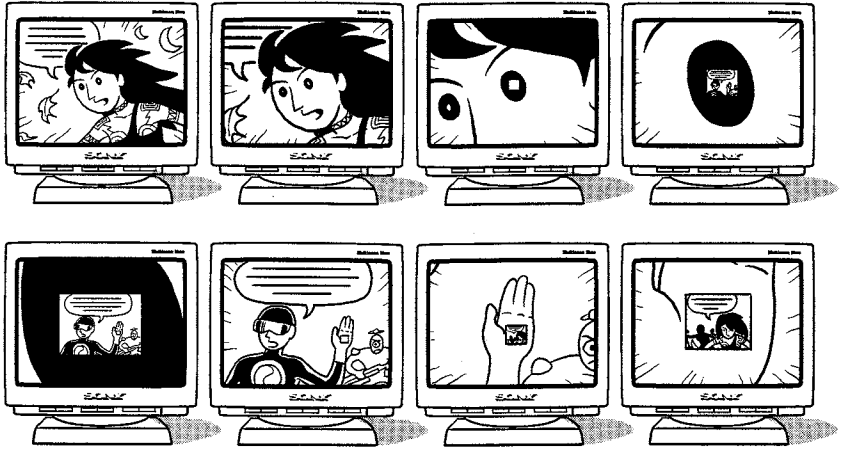
In a proposal for an Understanding Comics **CD-ROM**,** I took the **staircase** approach and was able to enclose each chapter in its own **rectangular tile** --

**...written, alas, shortly before that industry took a nosedive!

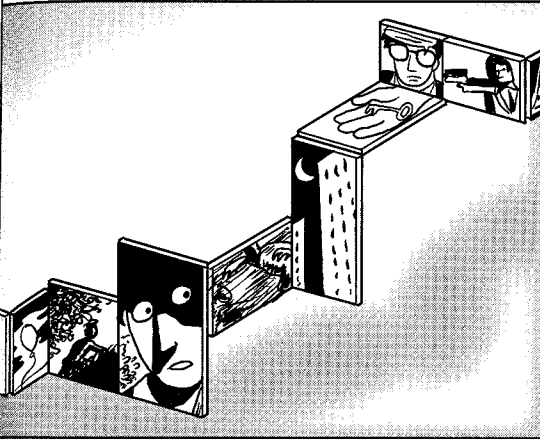
-- attach **other tiles** with supporting **information** --

-- and gave a **thousand-plus panels** a single shape.

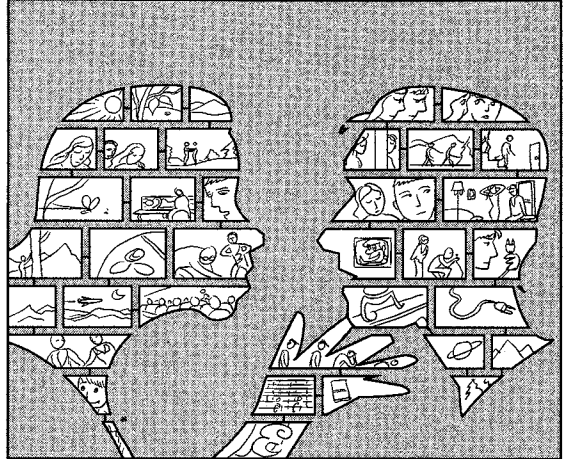
Navigating through a series of panels embedded in each *previous* panel may create a sense of *diving deeper* into a story.



A series of panels turned at *right angles* may keep the reader *off-guard*, never knowing what to expect around the next *corner*.



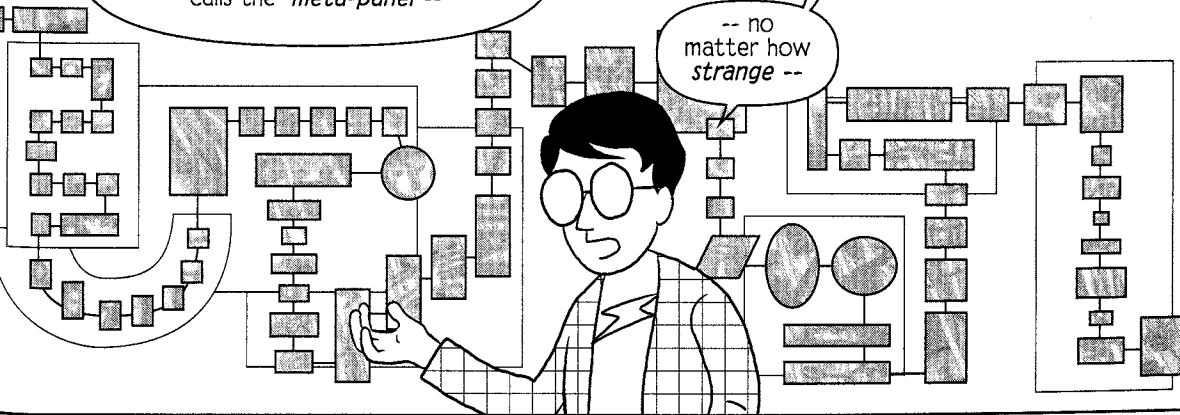
Giving a *pictorial shape* to *whole stories* may provide a *unifying identity*.



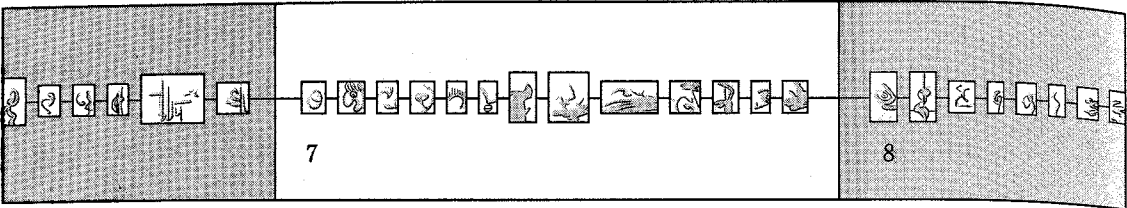
Most important, the ability of creators to *subdivide* their work as before is *undiminished*, but now the "*page*" -- what Will Eisner calls the "*meta-panel*"--

-- can take whatever *size* and *shape* a given scene warrants --

-- no matter how *strange* --

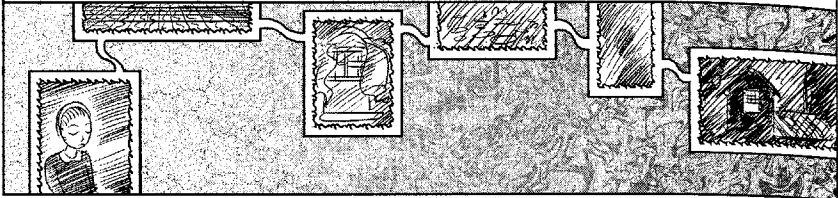


-- or how *simple* those sizes and shapes may be.

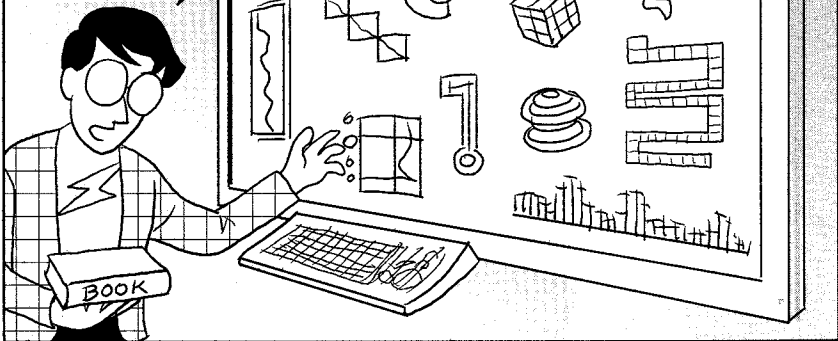


A sense of "*where you are*" at any given time could be provided through *color changes* in the panels already read.*

Background patterns and colors could reflect *changing moods*.



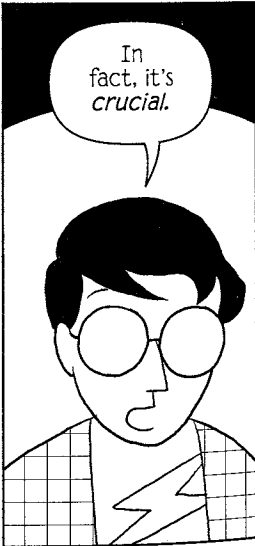
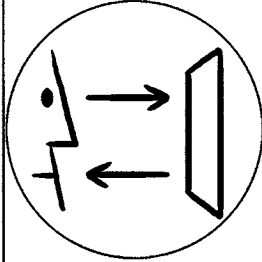
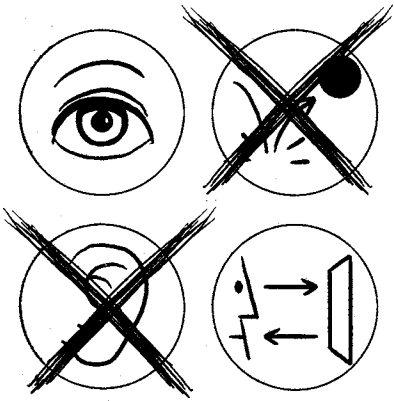
Even the *recall* of stories could be helped by their varying *overall appearance* -- a far more *revealing* cue than *words* on a cardboard *spine*.



To keep true to the simplicity of the *temporal map*, it may be necessary to *eliminate* the kind of *autonomous sound* and *motion* found in traditional *multimedia* --

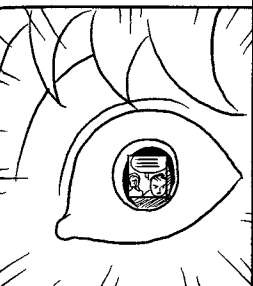
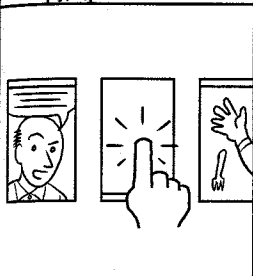
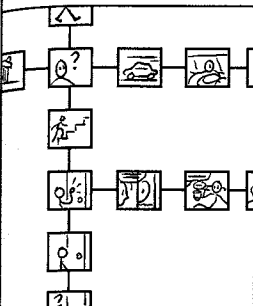
-- but the option of *interactivity* is by no means *off-limits*.

In fact, it's *crucial*.



*The same sense provided by the old traditional paper bookmark, yet lost in many hypertext-only comics.

Whether by *choosing a path*, revealing a *hidden window* or *zooming in* on a *detail*, there are countless ways to *interact* with sequential art in a *digital environment*.



Comics is a *still life*; *mute*, *unmoving* and *passive* in and of itself --

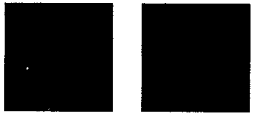
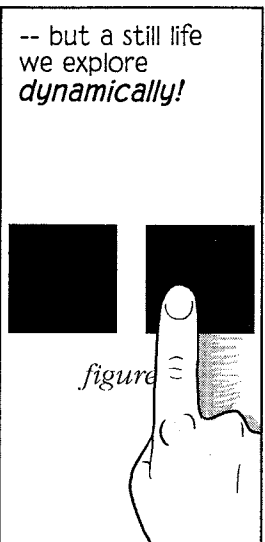
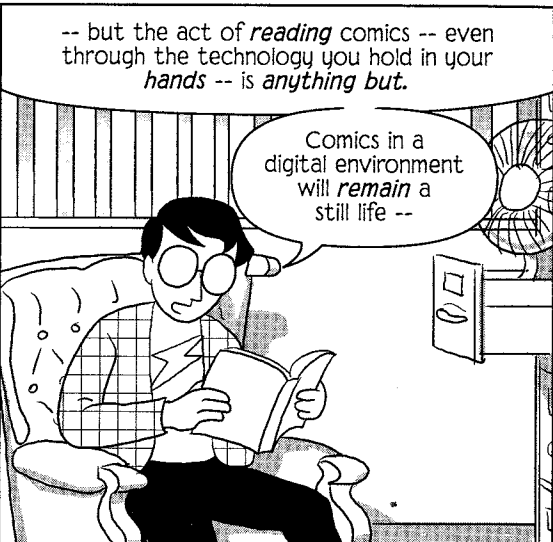
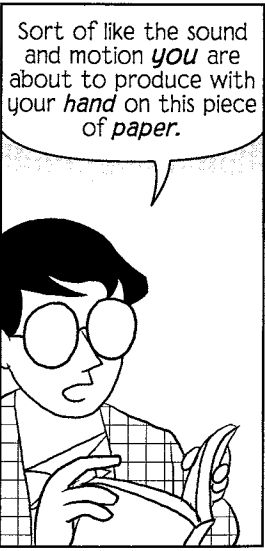
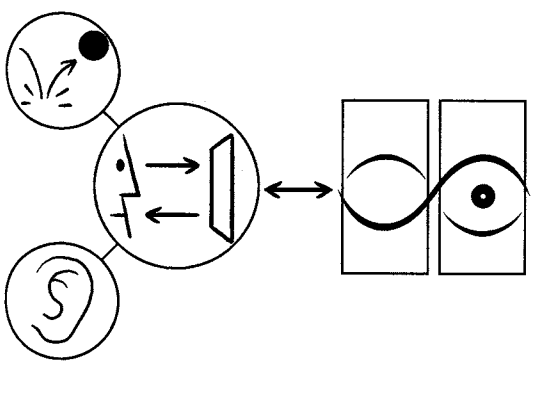


figure B.

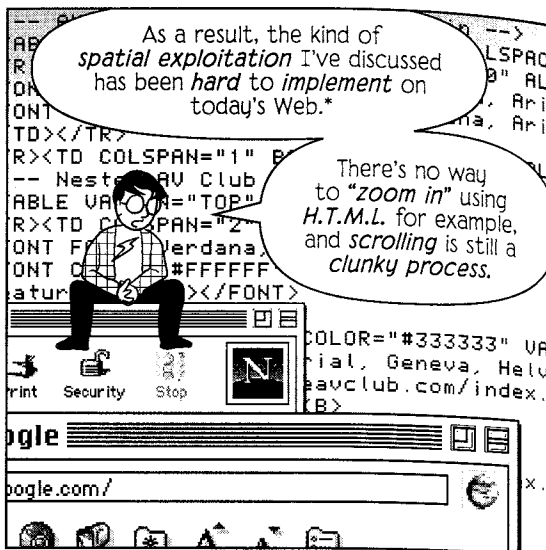
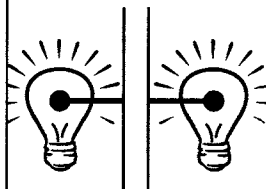
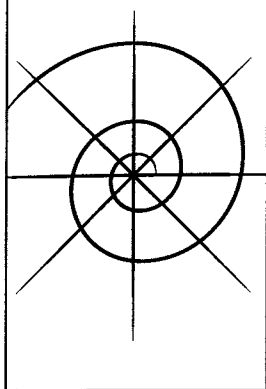


One nice *side effect* of interactivity is that sound and motion can actually *sneak in* through the back door as a *byproduct* of reader interaction.

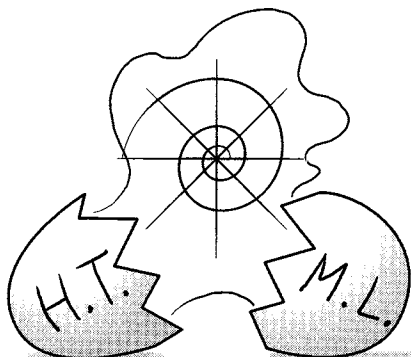


For the most part, here at the *turn of the century*, digital comics mean *Web comics* --

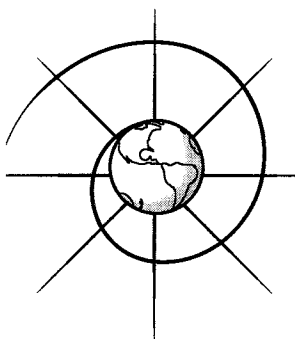
-- and Web comics, for the most part, mean *hypertext-based* comics.



Fortunately, the Web itself is *evolving* beyond the *limited definition* of its *origins* toward the *simpler*, more *enduring* idea --

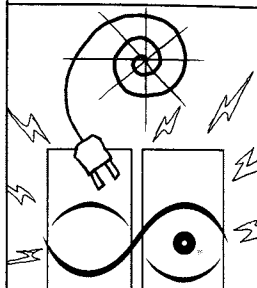


-- of absolute *access* --

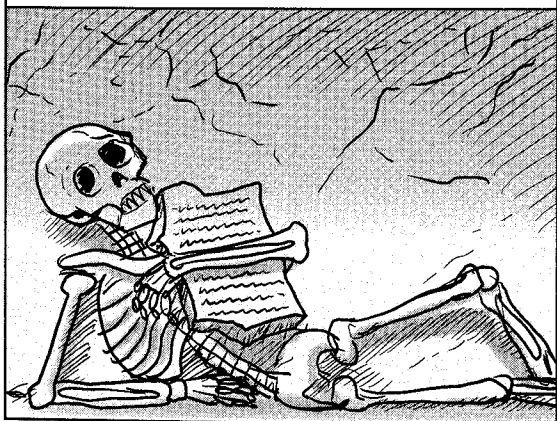


--to absolutely *everything* --

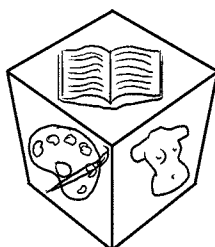
-- and as such, *plugins* and Web-based *programming environments* that can take better advantage of *spatial models* have found the Web increasingly *accommodating*.**



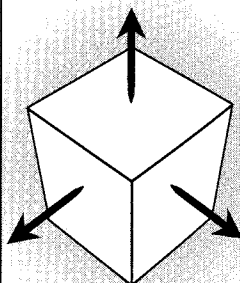
More *generally*, though, the idea that art and information can take on *shape* and *form* may not be as *dead* as the ascendance of hypertext through the Web might lead us to believe.



The lion's share of *art* and *information media* belonged to that spatial world for *thousands* of *generations* --



-- and soon, comics artists won't be the *only* ones contemplating the potential of an *infinite canvas*.



**I've run up against this problem in my own online comics from day one.

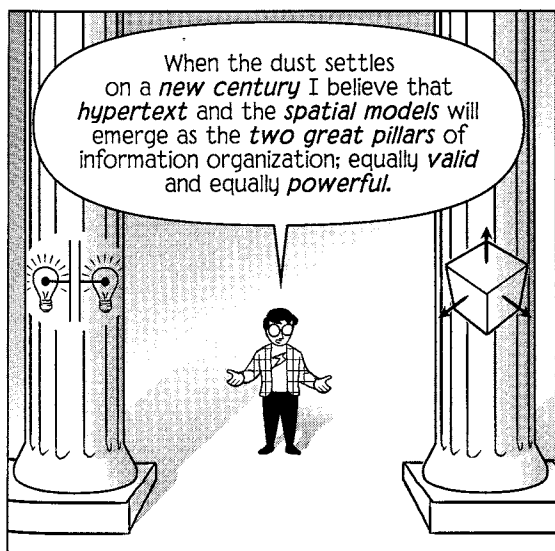
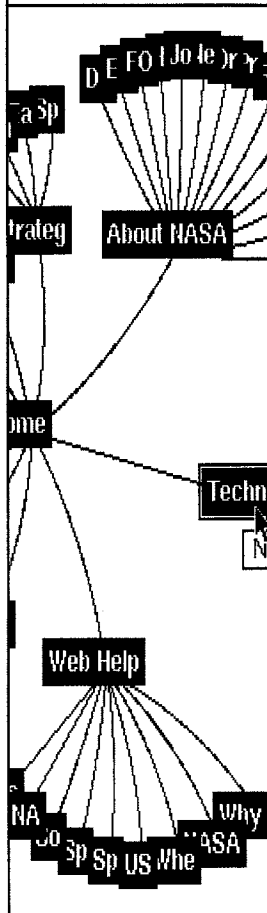
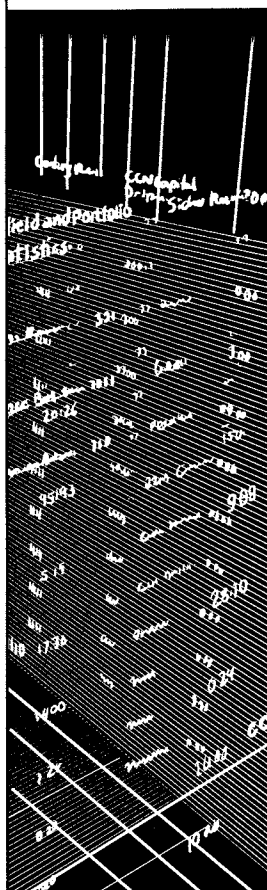
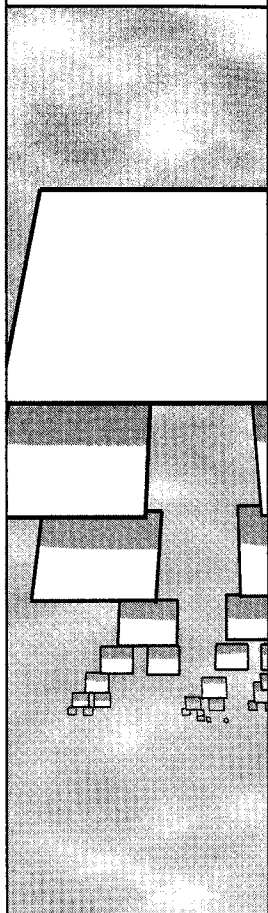
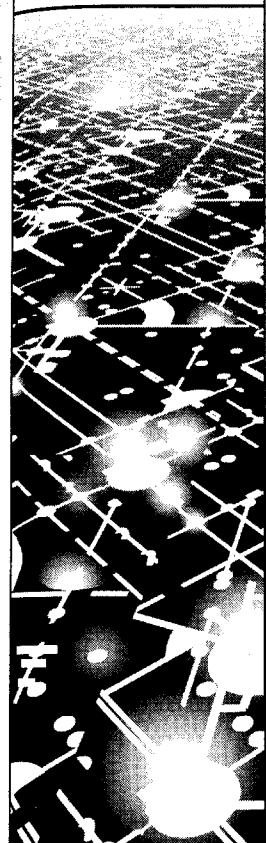
**Macromedia's Flash plug-in and Sun's Java O.S. both have some potential in this regard.

When novelist *William Gibson* first envisioned the glittering city of information he called "*Cyberspace*" in 1984's *Neuromancer*, he inspired a generation of information designers to think *spatially*.*

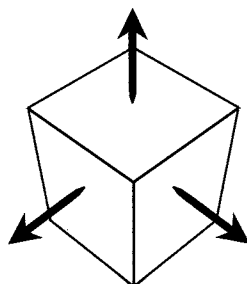
Computer scientist *David Gelernter* took a similar tack when he proposed the great information constructs he called "*Mirror worlds* --"

-- as did *Muriel Cooper* and the *Visible Language Workshop* at *M.I.T.* when they created *interactive landscapes* of *words* and *data* users could *dive* into.

More recently, such "*zoom-and-bloom*" information interfaces as "*The Brain*" and Inxight's *Site Lens* have taken spatial models to a *new level*.



And the only reason one of them came into our homes *first* was that the *other* one needed a much fatter *pipe*.

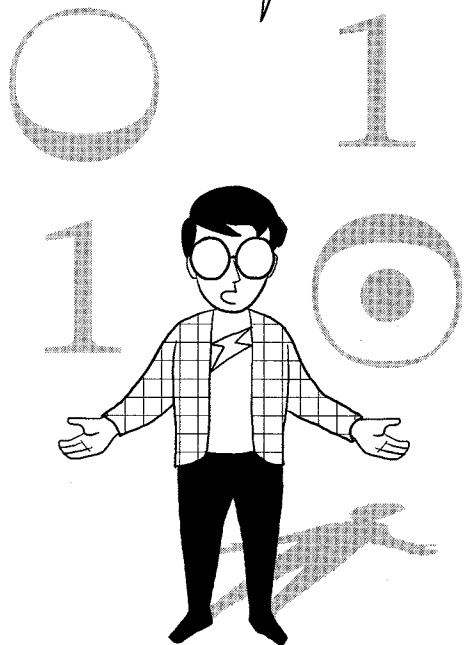


Once that bandwidth barrier falls, I believe that the spatial models will take their place alongside hypertext as part of our *everyday lives*, and that comics will have found its *native soil* at last.

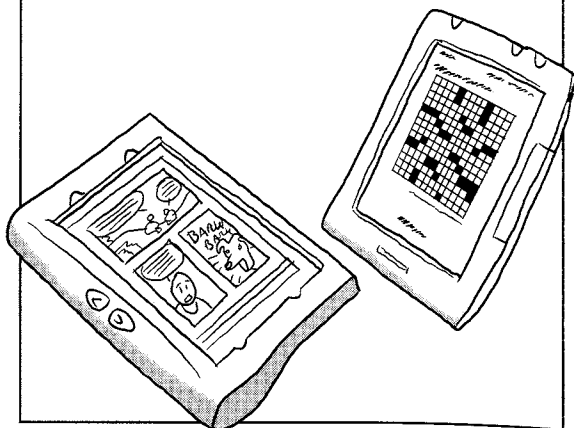


*As did Neal Stephenson with the eerily plausible "*Metaverse*"; a virtual public space he portrayed in 1994's *Snow Crash*.

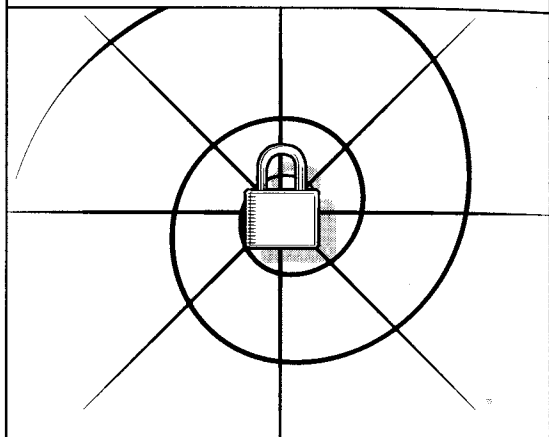
I can't *guarantee* the course that digital comics will take in the next 20 years. Small events taking place *now* may have lasting *consequences* for our twelfth revolution.



The advent of portable *reading devices* that assert the *screen-as-page* metaphor at the expense of the *screen-as-window* could *sidetrack* digital comics for years --



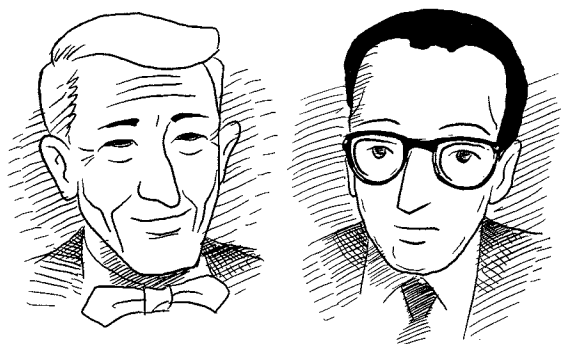
-- and the road toward preserving the open, *decentralized* architecture of the Web won't be without its *obstacles* and *detours*.



But a strong, simple *idea* can often *rise above* technological circumstance and acquire a legitimate air of *inevitability*.



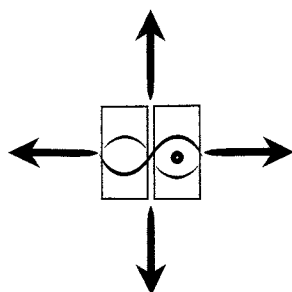
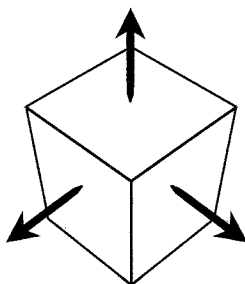
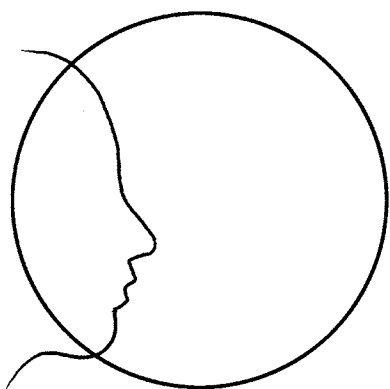
Such was the strength of the idea shared by *Vannevar Bush* and *J.C.R. Licklider*, 20 years apart, that all the world's *knowledge* could someday flow from the *tops* of our *desks* --



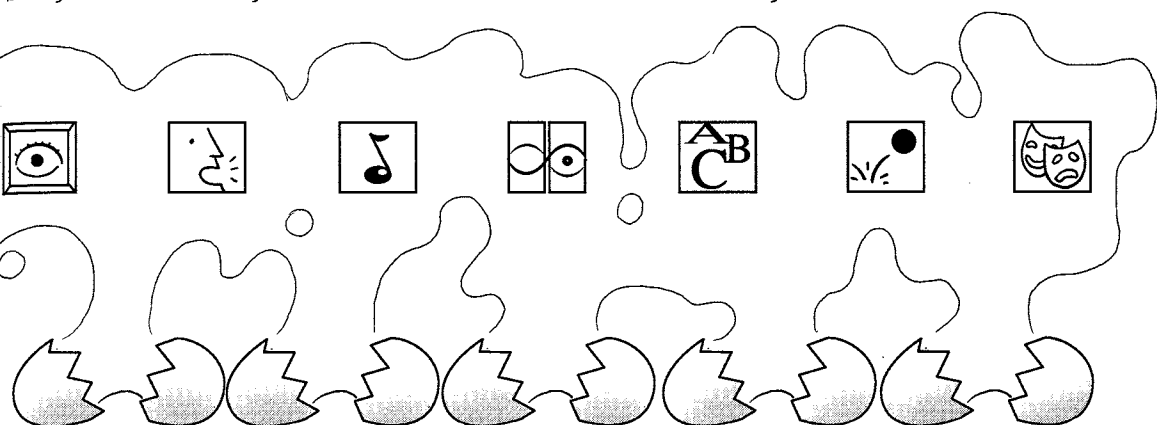
-- and such is today's popular belief that full visual and auditory *immersion*, until now the province of *science fiction*, will be an *everyday fact* before long.

Spatial approaches to art and information will have no trouble *taking root* in such a world, whenever it arrives --

-- and comics' own use of that *infinite canvas* will be a *part* of that *evolution*.

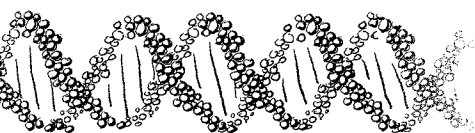


The *ideas* that *traditional media* harbor will continue to escape the *shells* of the technologies that brought them into being, until the irreducible *essence* of each has emerged --

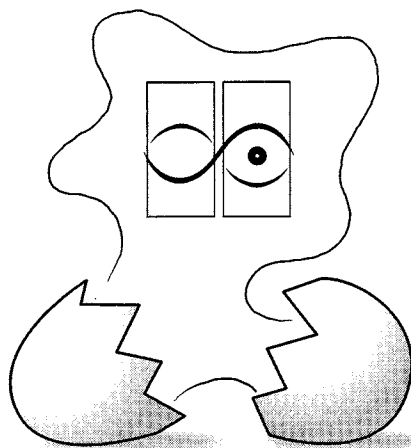
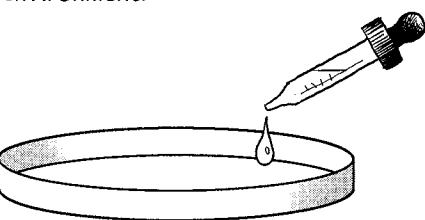


-- and with it the *code* --

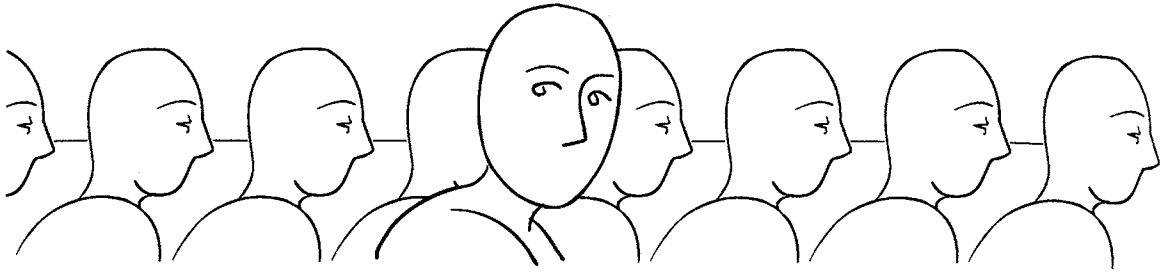
Comics *is* such an idea, and most of its checkered history has been the *shell*.



--for *new forms* to grow in their *new environment*.

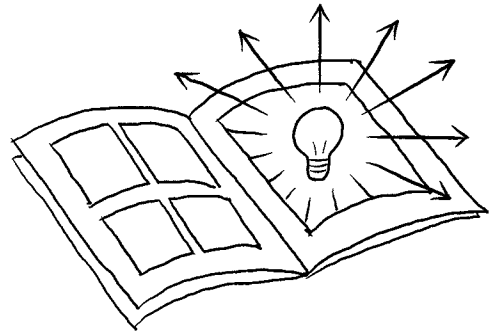
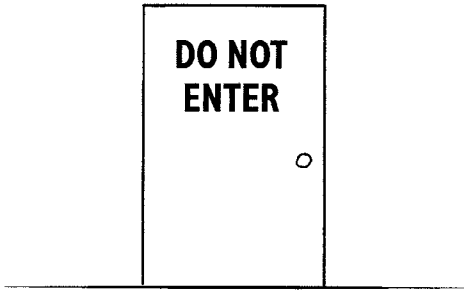


Here at the dawn of a *new century*, it's become a *cliché* to tout one's ability to think "*outside the box*," yet that's what any act of *true creation* requires.



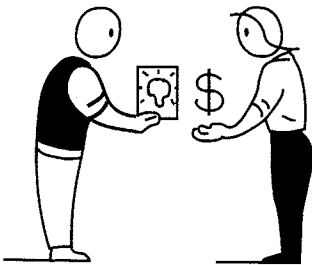
For *artists in general*, that box is the stifling influence of *conventional wisdom* --

-- and for *comics artists in particular*, thinking outside the box will soon have an additional, very *literal* meaning.

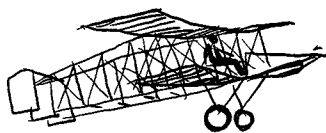


But it can also mean *rediscovering* a *simple truth* at the heart of a *complex system* --

-- taking on *quests* that *no one else* can see --



-- or finding in *solutions* to an old *need* --



-- the *beginnings* of a new *desire*.

No *art form* has lived in a smaller box than *comics* for the last *hundred years*.

