



Nick Sousanis

# UNFLATTENING

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## DEDICATION

For Rosalie Anne Goodbear Sousanis and all the possibilities that  
lie ahead for her . . .

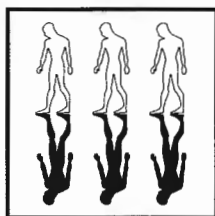




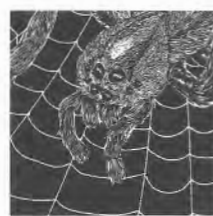
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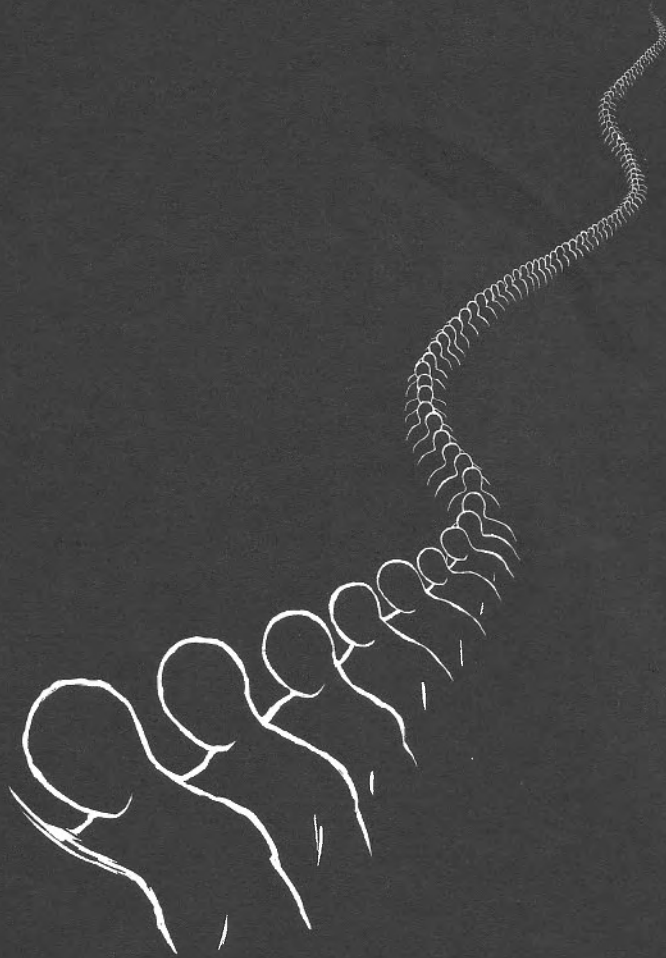
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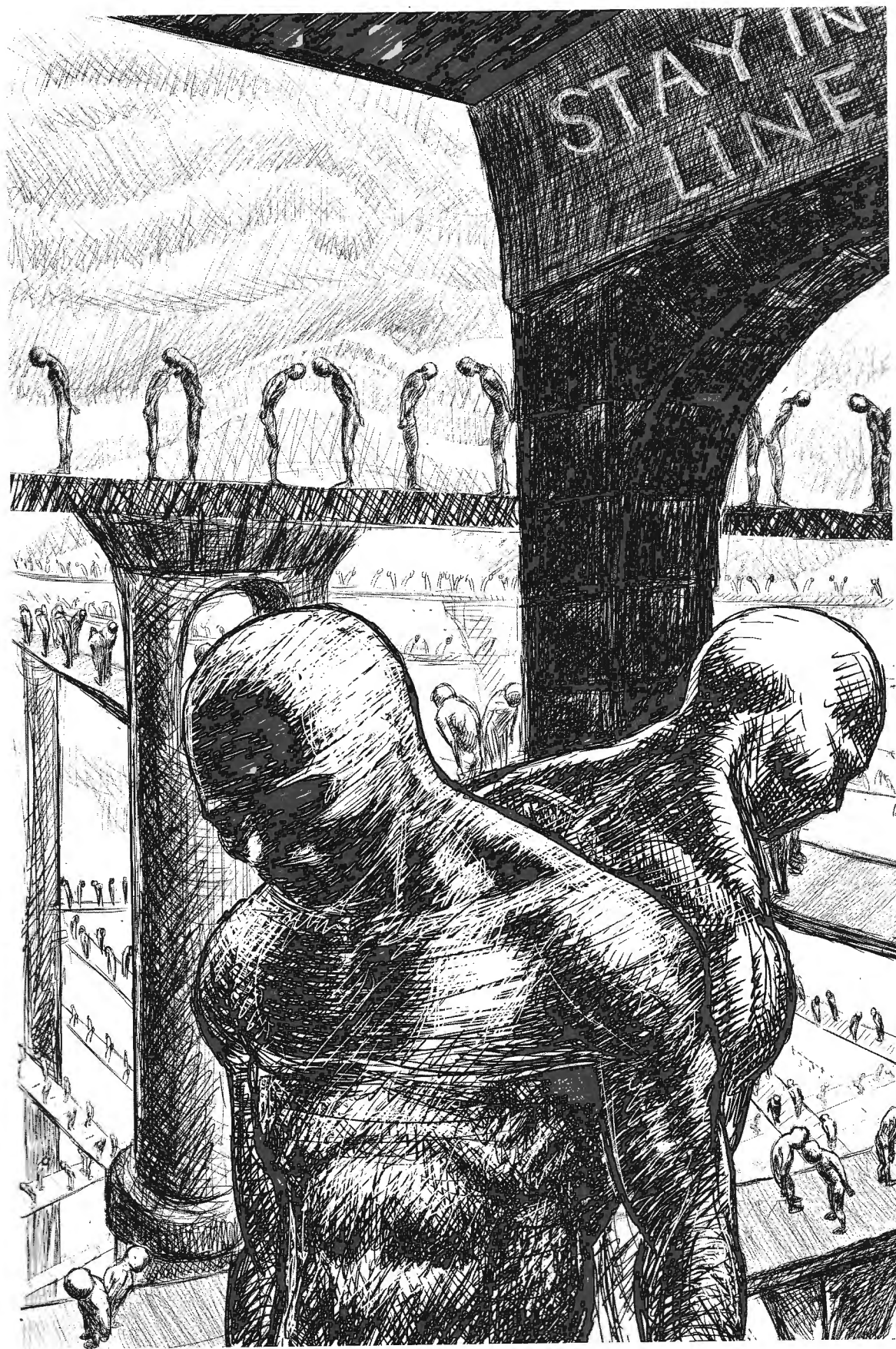


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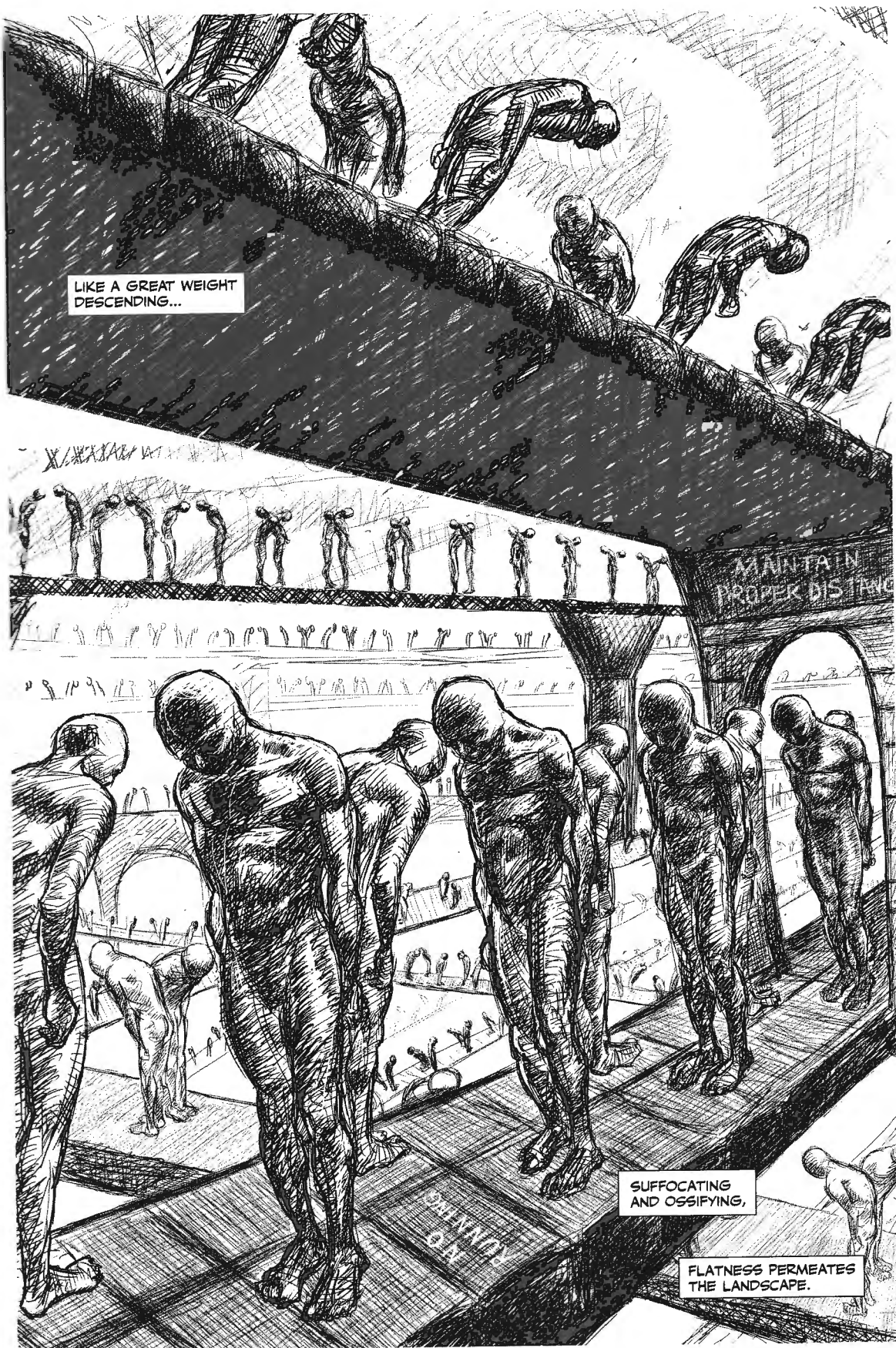
# FLATNESS











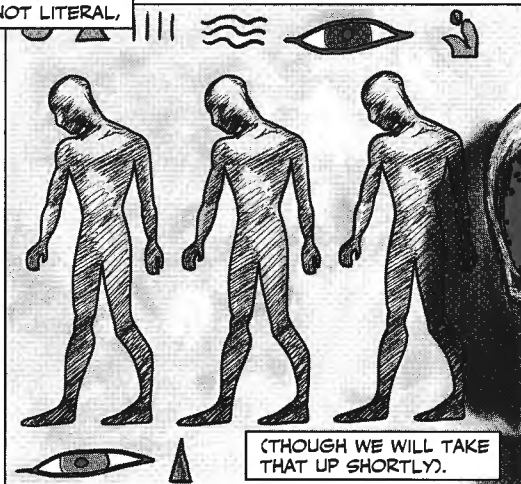
LIKE A GREAT WEIGHT  
DESCENDING...

MAINTAIN  
PROPER DISTANCE

SUFFOCATING  
AND OSSIFYING,

FLATNESS PERMEATES  
THE LANDSCAPE.

THIS FLATNESS  
IS NOT LITERAL,

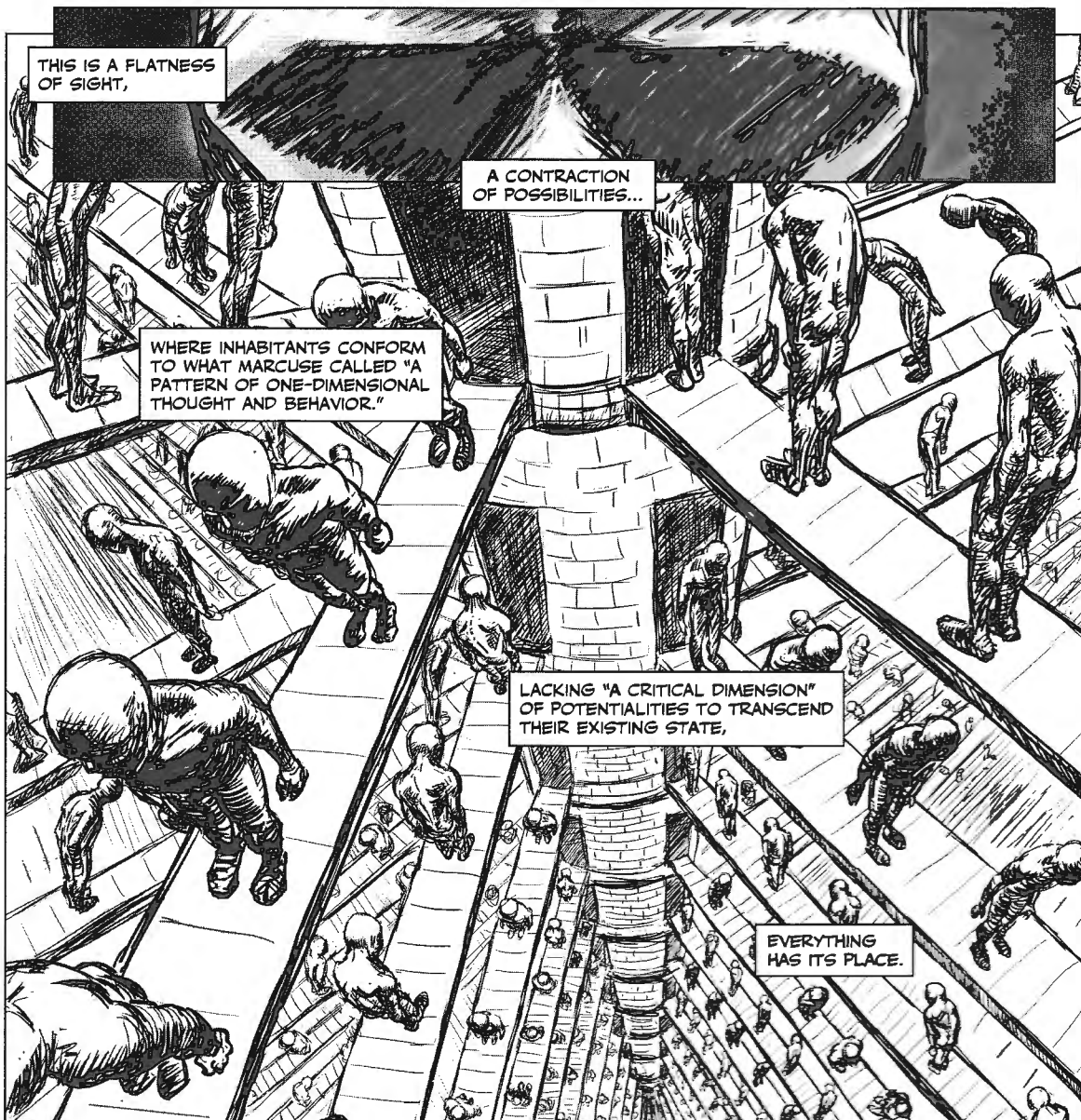


(THOUGH WE WILL TAKE  
THAT UP SHORTLY).

NO. IT CLOAKS ITS TRUE  
NATURE UNDER A  
HYPER-REAL FAÇADE.



THIS IS A FLATNESS  
OF SIGHT,



A CONTRACTION  
OF POSSIBILITIES...

WHERE INHABITANTS CONFORM  
TO WHAT MARCUSE CALLED "A  
PATTERN OF ONE-DIMENSIONAL  
THOUGHT AND BEHAVIOR."

LACKING "A CRITICAL DIMENSION"  
OF POTENTIALITIES TO TRANSCEND  
THEIR EXISTING STATE,

EVERYTHING  
HAS ITS PLACE.

HERE, EVEN CHOICES  
(OF WHICH THERE ARE  
SEEMINGLY MANY),  
ARE PREDEFINED.

FORGOTTEN IS THE WONDER  
OF WHAT MIGHT BE,

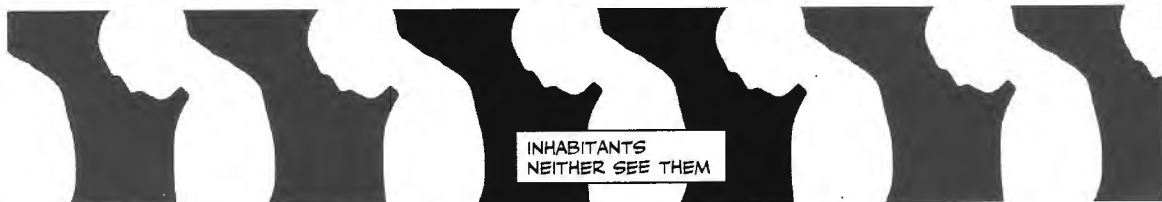
IN ITS PLACE, A  
SINGLE CHORUS...

THIS IS HOW IT IS.

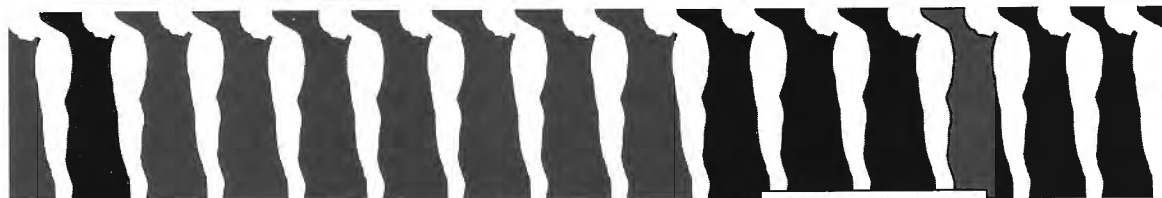




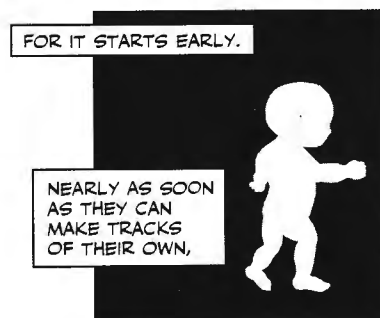
SO PERVASIVE ARE  
THE CONFINES,



INHABITANTS  
NEITHER SEE THEM

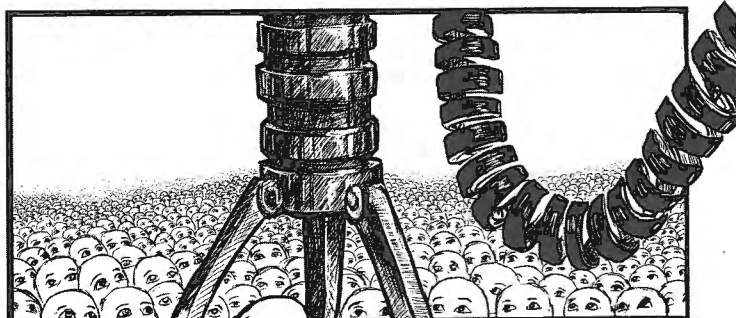


NOR REALIZE THEIR  
OWN ROLE IN  
PERPETUATING THEM.



FOR IT STARTS EARLY.

NEARLY AS SOON  
AS THEY CAN  
MAKE TRACKS  
OF THEIR OWN,

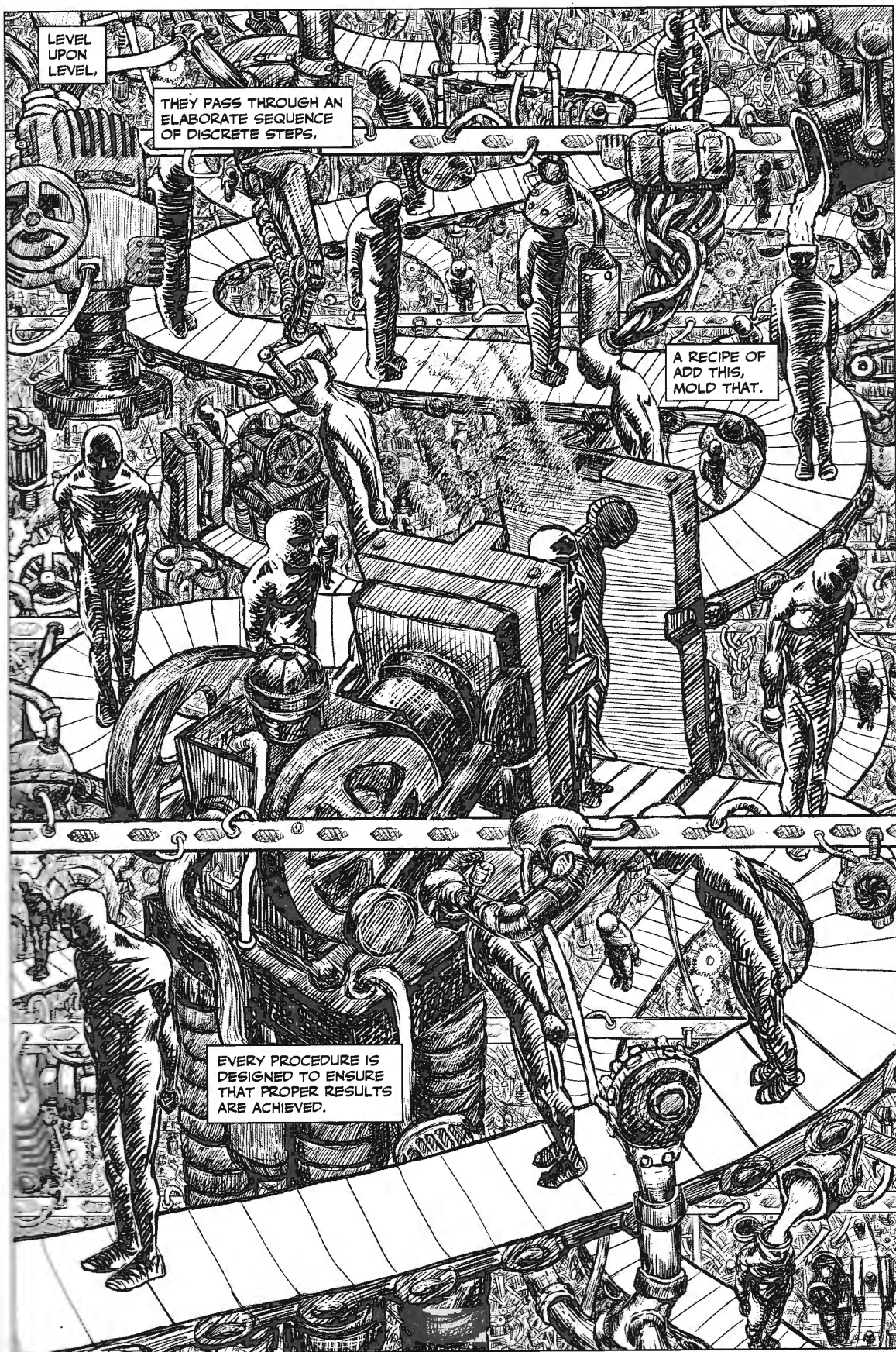


THEY ARE SORTED OUT  
AND PUT ON TRACKS,

ASSIGNED  
PATHS,

AND SENT FORTH TO  
RECEIVE INSTRUCTION.





LEVEL  
UPON  
LEVEL,

THEY PASS THROUGH AN  
ELABORATE SEQUENCE  
OF DISCRETE STEPS,

A RECIPE OF  
ADD THIS,  
MOLD THAT.

EVERY PROCEDURE IS  
DESIGNED TO ENSURE  
THAT PROPER RESULTS  
ARE ACHIEVED.



THIS ALL TAKES  
PLACE IN  
BOXES,  
WITHIN  
BOXES...

NOT ONLY  
SPACE, BUT TIME  
AND EXPERIENCE  
TOO, HAVE BEEN  
PUT IN BOXES.

DIVIDED UP AND  
NEATLY PACKAGED  
INTO DISCRETE UNITS

FOR EFFICIENT  
TRANSMISSION,

DIRECTLY DISPENSED FROM  
SENDER TO RECEIVERS.



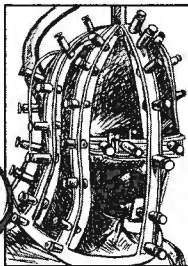
THESE ENCLOSURES  
BECOME INTERNALIZED.

WHAT WAS OUTSIDE IS  
REPLICATED WITHIN.

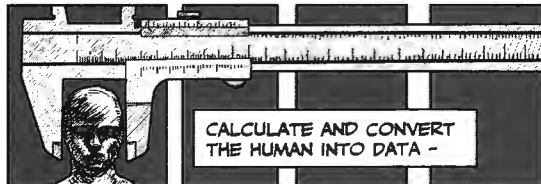
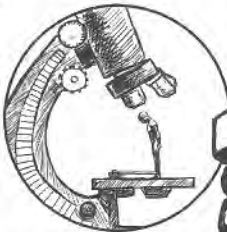




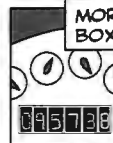
ALL ARE SUBJECTED TO PERIODIC EXAMINATIONS,



PUT THROUGH A SERIES OF INSTRUMENTS - TOOLS DEVISED TO...



CALCULATE AND CONVERT THE HUMAN INTO DATA -



MORE BOXES -

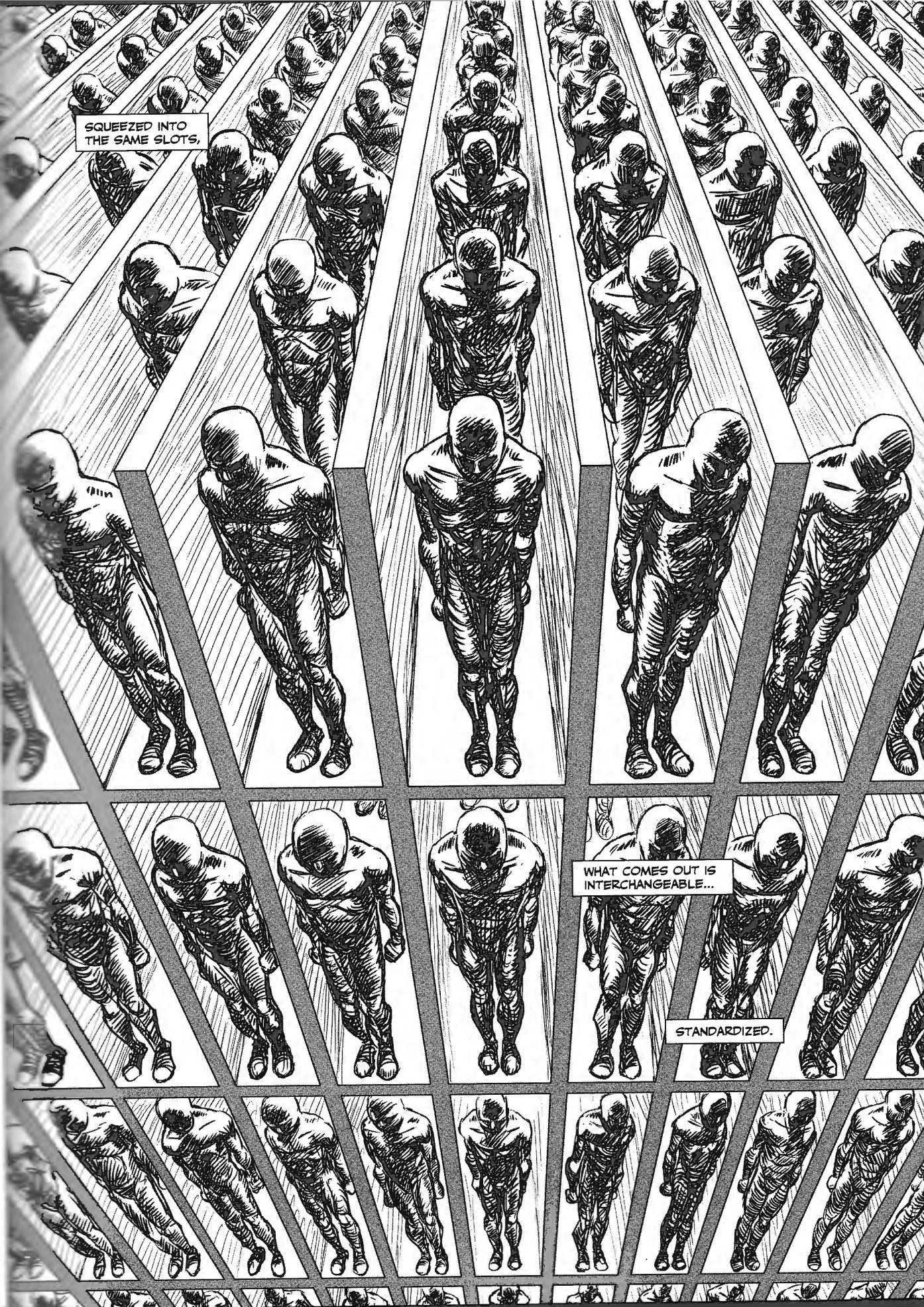


IMPOSED BY FORCES FAR REMOVED

- UNSEEN AND UNSEEING -

IN ORDER TO DETERMINE HOW THEY MEASURE UP.



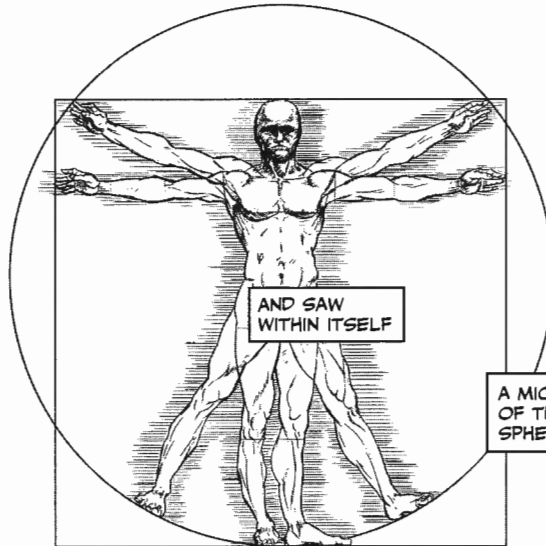


SQUEEZED INTO  
THE SAME SLOTS.

WHAT COMES OUT IS  
INTERCHANGEABLE...

STANDARDIZED.

THIS CREATURE, WHO  
ONCE ATTEMPTED TO  
DEFINE THE UNIVERSE  
THROUGH ITS OWN  
PROPORTIONS,



AND SAW  
WITHIN ITSELF

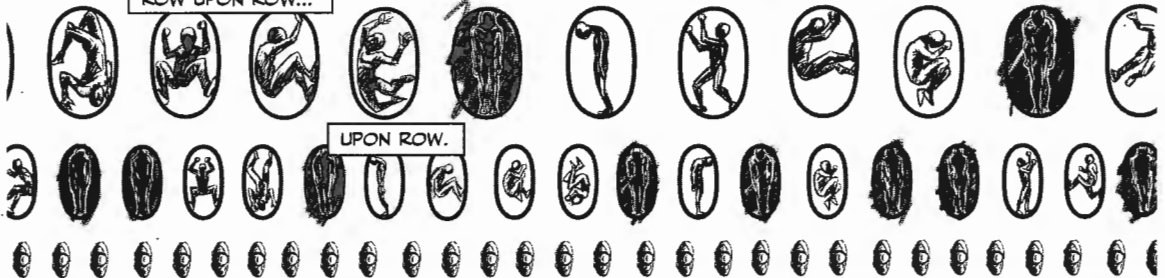
A MICROCOSM  
OF THE GRANDER  
SPHERES,

NOW FINDS  
ITSELF  
CONFINED,

BOXED INTO  
BUBBLES OF  
ITS OWN  
MAKING...

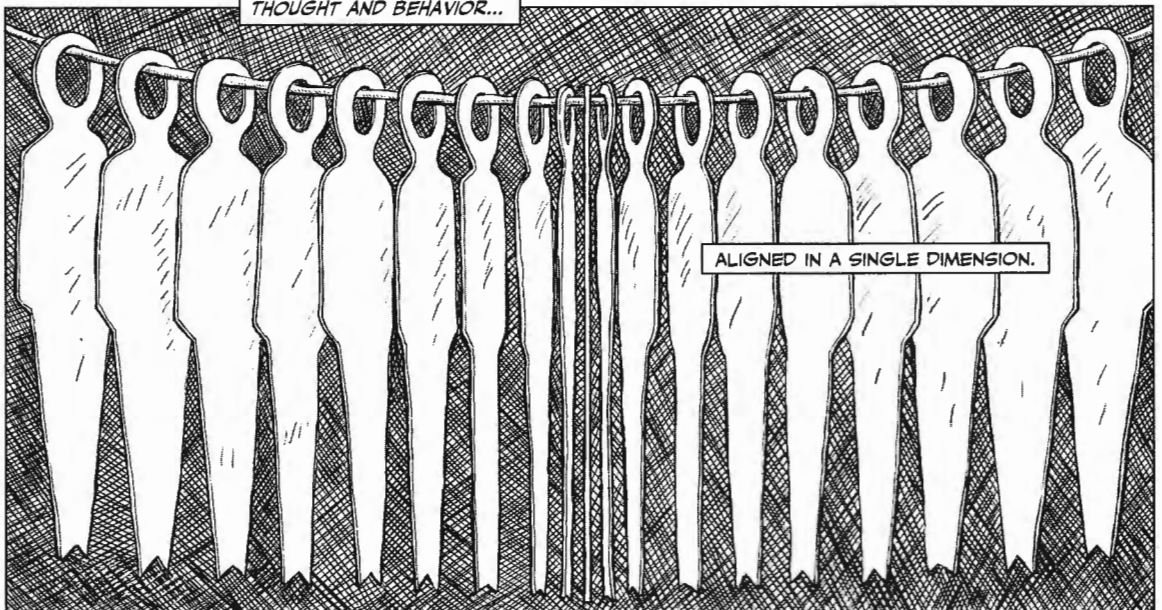


ROW UPON ROW...

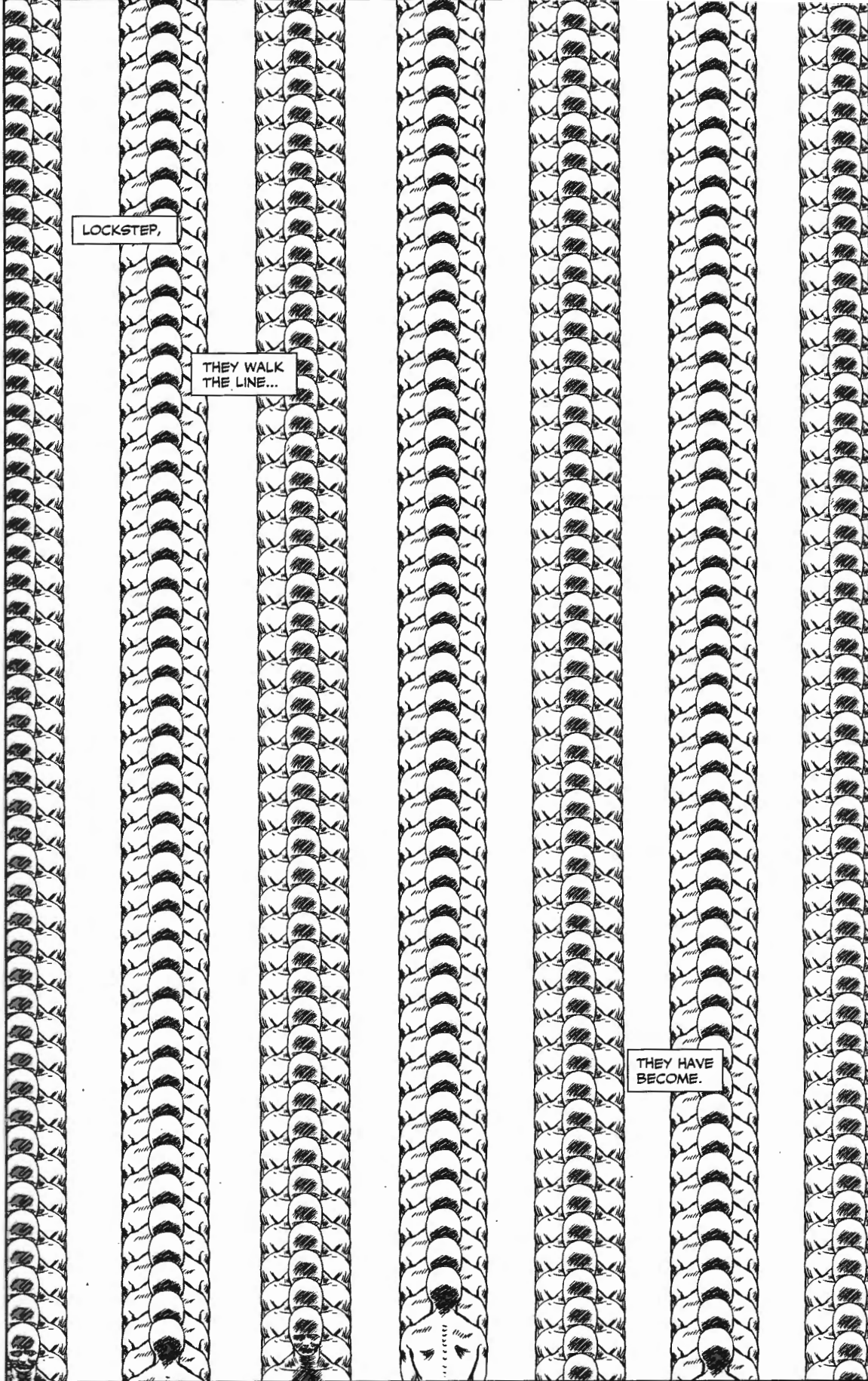


UPON ROW.

THOUGHT AND BEHAVIOR...

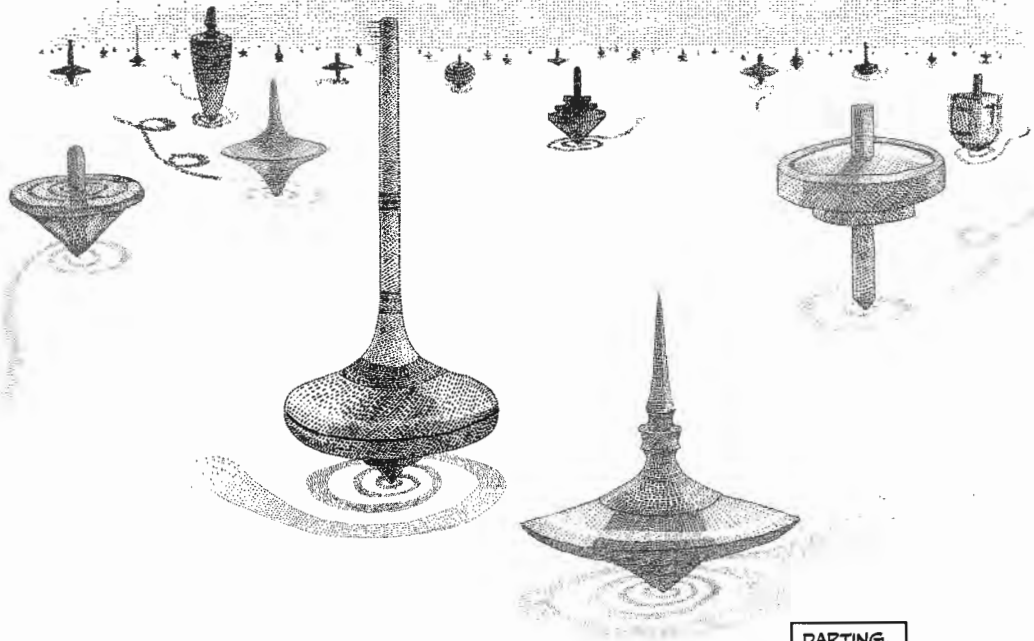


ALIGNED IN A SINGLE DIMENSION.





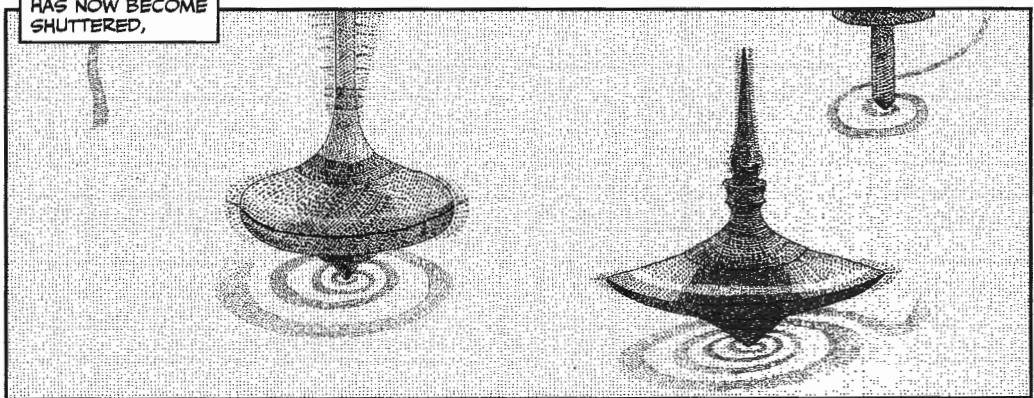
WHAT HAD FIRST OPENED  
ITS EYES WIDE -



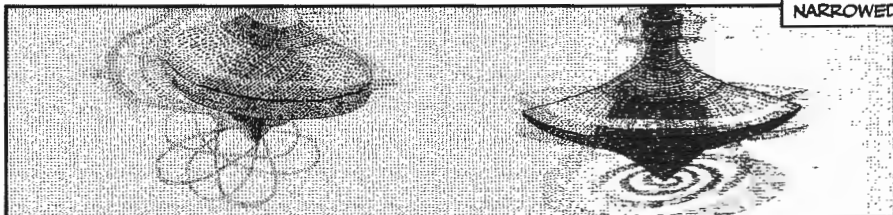
DARTING,  
DANCING,

ANIMATED AND  
TEEMING WITH  
POSSIBILITIES -

HAS NOW BECOME  
SHUTTERED,

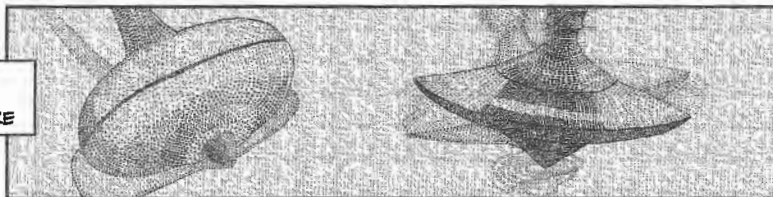


ITS VISION,  
NARROWED.





THE POTENTIAL  
ENERGY IN THIS  
DYNAMIC CREATURE



CURTAILED,



NEVER SET  
IN MOTION



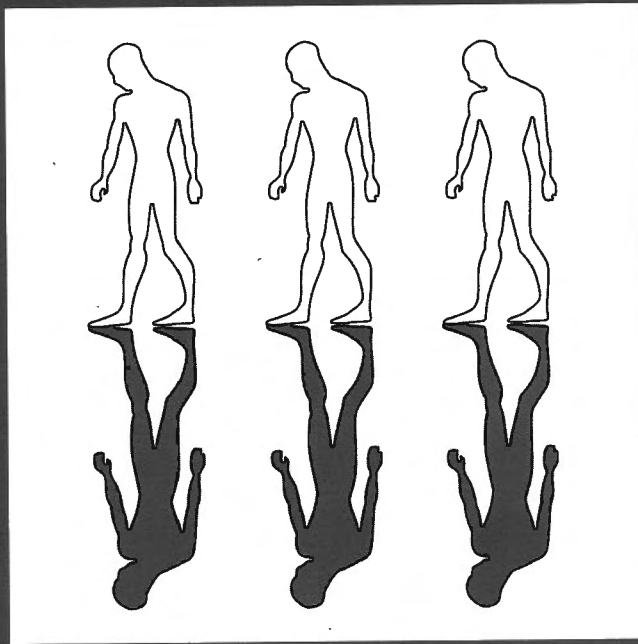
LEAVING ONLY  
FLATNESS.





interlude

# FLATLAND



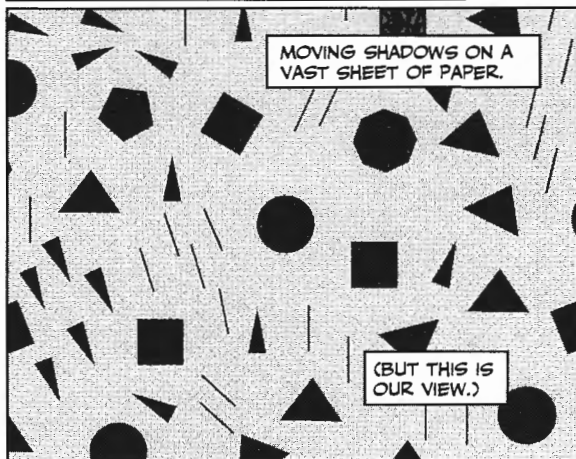


HAVING BEEN, AS MARCUSE  
PUT IT, "REDUCED TO THE  
TERMS OF THIS UNIVERSE,"

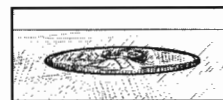
THEY EXIST AS NO MORE THAN  
SHADES, INSUBSTANTIAL AND  
WITHOUT AGENCY.



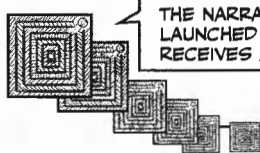
IN THIS REGARD, THEY RESEMBLE THE TWO-DIMENSIONAL GEOMETRIC INHABITANTS OF EDWIN A. ABBOTT'S *FLATLAND*.



TO UNDERSTAND WHAT FLATLANDERS SEE, LOOK FROM ABOVE AT A PENNY ON A TABLE, THEN LOWER YOUR GAZE. THE CIRCLE BECOMES AN OVAL, SQUISHING GRADUALLY UNTIL, AS YOUR EYE REACHES TABLE LEVEL, ONLY A STRAIGHT LINE REMAINS.



THIS IS WHAT FLATLANDERS SEE.

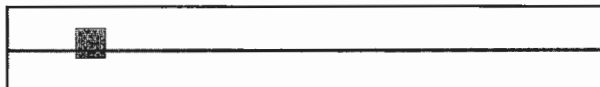


THE NARRATOR, A SQUARE NAMED 'A. SQUARE,' IS LAUNCHED ON A JOURNEY OF DISCOVERY WHEN HE RECEIVES A VISION OF A LOWER DIMENSION - "LINELAND."

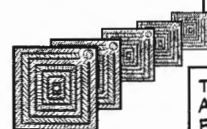
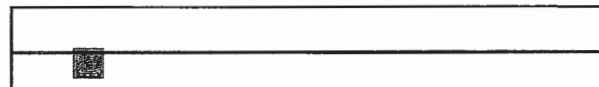
LINES AND DOTS, ALL EXISTING ON AND MOVING ALONG A SINGLE LINE.



PASSING THROUGH THEIR LINE A. SQUARE APPEARS AS ONE OF THEM.



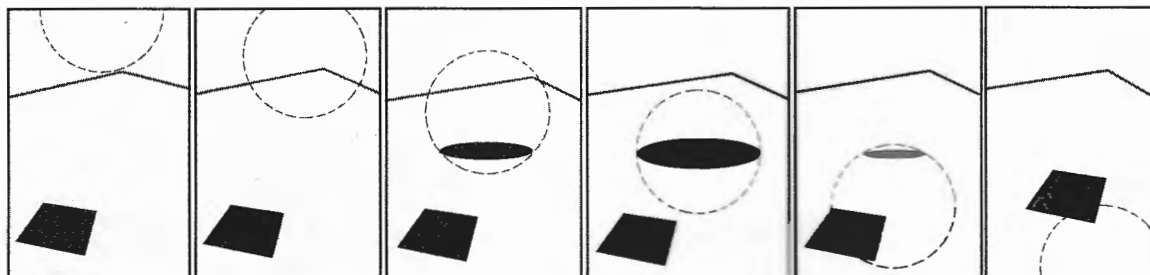
HIS ATTEMPTS TO EXPLAIN TWO DIMENSIONS ALL FELL ... FLAT.

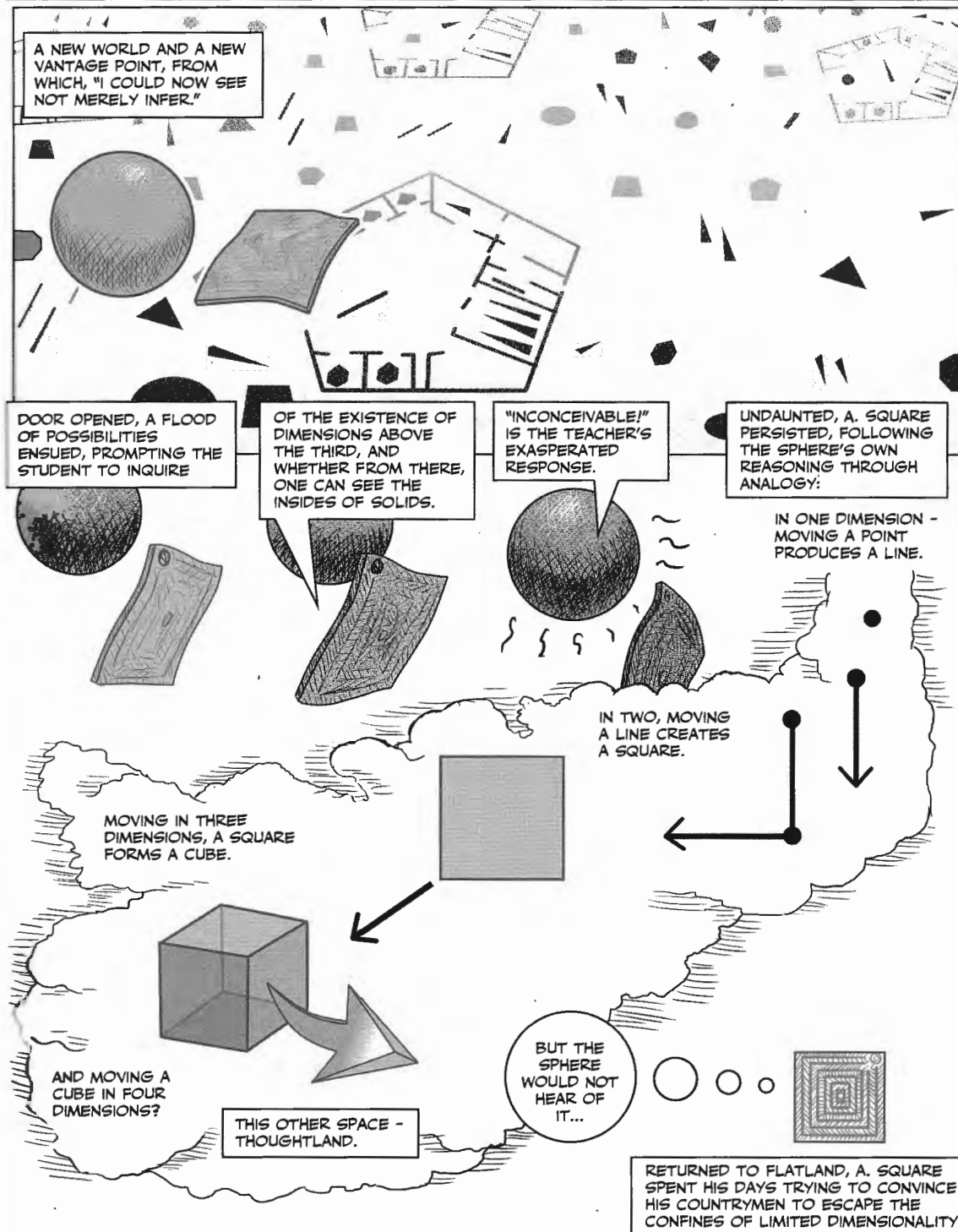
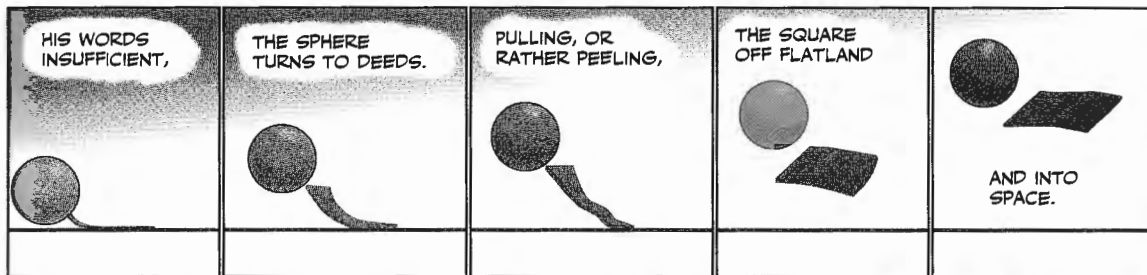


THE SQUARE NEXT RECEIVES A VISITOR CLAIMING TO BE FROM THE THIRD DIMENSION,

WHO APPEARS AS A CIRCLE STRANGELY VARYING IN SIZE.

JUST AS LINELANDERS COULDN'T CONCEIVE OF MOTION IN A DIRECTION OFF THE LINE - THE SQUARE COULD NOT COMPREHEND THE NOTION OF "UPWARDS NOT NORTHWARDS."







SUCH IS THE CASE WITH OUR  
FLATLANDERS, TRAPPED WITHIN  
THE BORDERS OF THEIR VISION.



UNABLE TO IMAGINE  
OTHERWISE.

DISRUPTING THESE DEEPLY INGRAINED PATTERNS TAKES A  
PROFOUND NUDGE - AS THE SPHERE GAVE TO THE SQUARE -

A RUPTURE IN  
EXPERIENCE,

ILLUMINATING  
BOUNDARIES

AND THE MEANS TO  
TRANSCEND THEM.

AND WITH THAT

COMES AN UNDERSTANDING  
THAT WE NEED NOT BE  
RENDERED INANIMATE,

AND THAT EMPOWERED,  
ON OUR OWN TWO FEET...

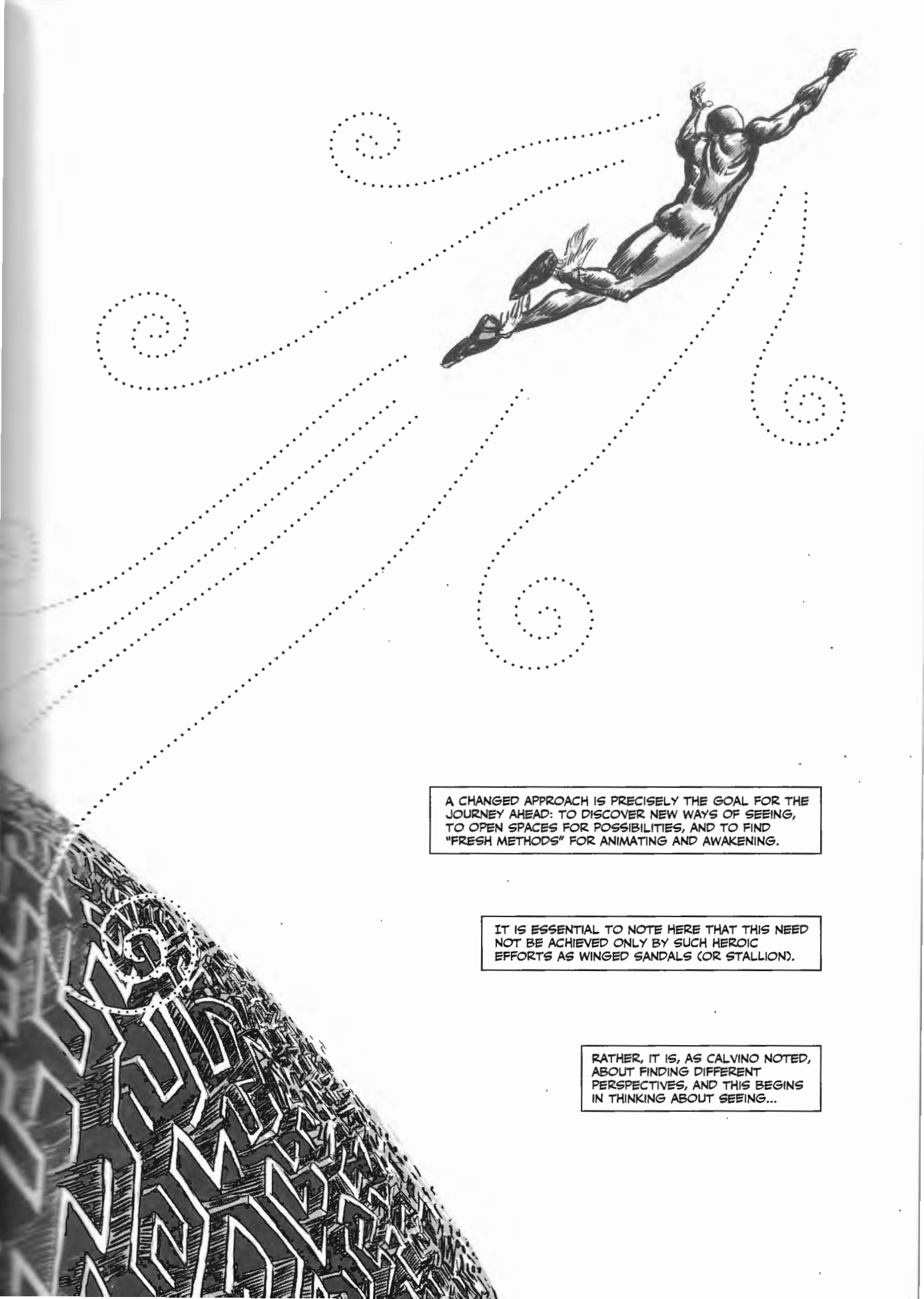
WE CAN  
STEP OUT...

AND LOOK  
ANEW.

ITALO CALVINO WROTE, "WHENEVER HUMANITY SEEMS  
CONDEMNED TO HEAVINESS, I THINK I SHOULD FLY LIKE  
PERSEUS INTO A DIFFERENT SPACE. I DON'T MEAN ESCAPING  
INTO DREAMS OR INTO THE IRRATIONAL. I MEAN THAT I HAVE  
TO CHANGE MY APPROACH. LOOK AT THE WORLD FROM A  
DIFFERENT PERSPECTIVE, WITH A DIFFERENT LOGIC AND WITH  
FRESH METHODS OF COGNITION AND VERIFICATION."







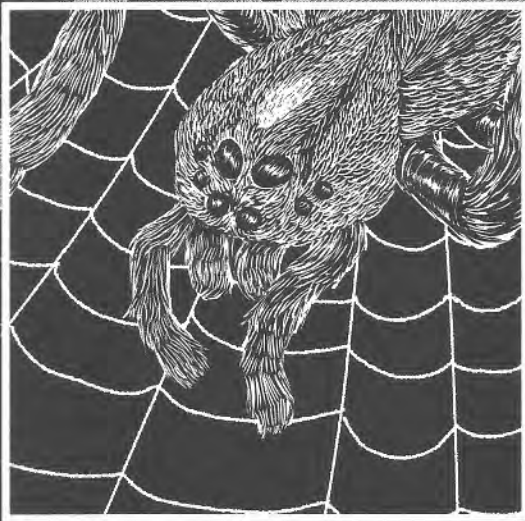
A CHANGED APPROACH IS PRECISELY THE GOAL FOR THE JOURNEY AHEAD: TO DISCOVER NEW WAYS OF SEEING, TO OPEN SPACES FOR POSSIBILITIES, AND TO FIND "FRESH METHODS" FOR ANIMATING AND AWAKENING.

IT IS ESSENTIAL TO NOTE HERE THAT THIS NEED NOT BE ACHIEVED ONLY BY SUCH HEROIC EFFORTS AS WINGED SANDALS (OR STALLION).

RATHER, IT IS, AS CALVINO NOTED, ABOUT FINDING DIFFERENT PERSPECTIVES, AND THIS BEGINS IN THINKING ABOUT SEEING...

two

THE IMPORTANCE  
OF SEEING DOUBLE  
AND THEN SOME



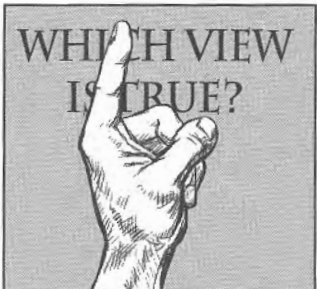
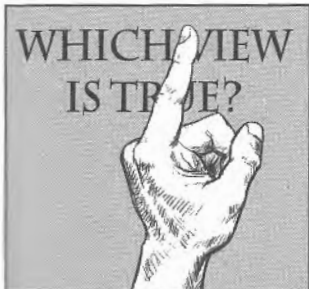
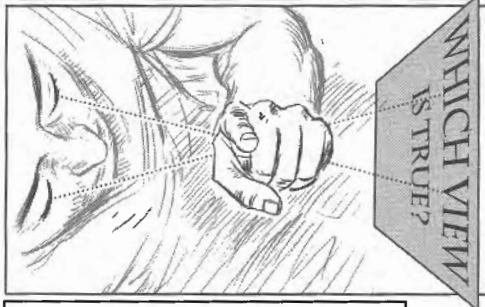
IN SEEKING NEW APPROACHES FOR OPENING  
EXPANSIVE SPACES AND AWAKENING POSSIBILITIES,

LET US LOOK TO OUR WAYS OF SEEING THEMSELVES, AND HOW, QUITE LITERALLY,  
THE MEANS TO CREATE PERSPECTIVE LIES RIGHT BETWEEN OUR EYES.

THE DISTANCE SEPARATING OUR EYES MEANS THAT  
THERE IS A DIFFERENCE BETWEEN THE VIEW EACH  
PRODUCES - THUS THERE IS NO SINGLE, "CORRECT" VIEW.

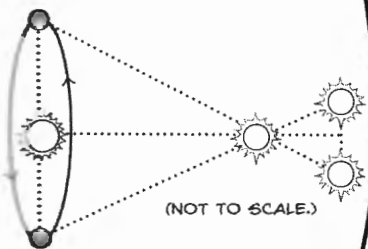
THIS BECOMES EVIDENT BY LOOKING ALTERNATELY  
THROUGH ONLY ONE EYE AT A TIME...

AND IT IS THIS DISPLACEMENT - PARALLAX -  
WHICH ENABLES US TO PERCEIVE DEPTH.

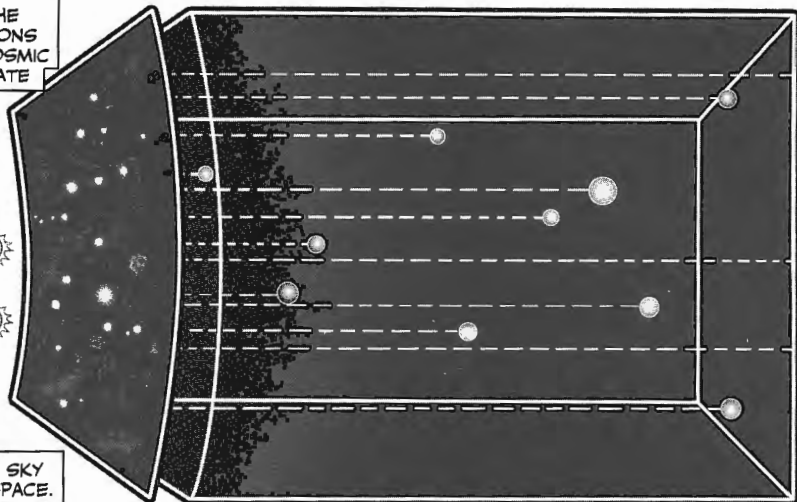


OUR STEREOSCOPIC VISION IS THE  
CREATION AND INTEGRATION OF TWO  
VIEWS. SEEING, MUCH LIKE WALKING ON  
TWO FEET, IS A CONSTANT NEGOTIATION  
BETWEEN TWO DISTINCT SOURCES.

BY MAKING A TRIP HALFWAY AROUND THE  
SUN, WE ESSENTIALLY CREATE TWO  
EYES A GREAT DISTANCE APART. THE  
DISPLACEMENT OF THE OBSERVATIONS  
FROM EACH AGAINST A DISTANT COSMIC  
BACKDROP ALLOWS US TO CALCULATE  
DISTANCES TO THE STARS,



THEREBY UNFLATTENING THE NIGHT SKY  
TO REVEAL THE VAST DEPTHS OF SPACE.



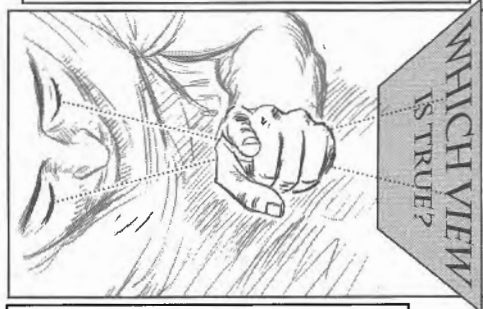
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THROUGH ONLY ONE EYE AT A TIME...

AND IT IS THIS DISPLACEMENT - PARALLAX -  
WHICH ENABLES US TO PERCEIVE DEPTH.



WHICH VIEW  
IS TRUE?

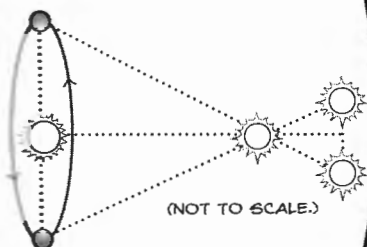


WHICH VIEW  
IS TRUE?

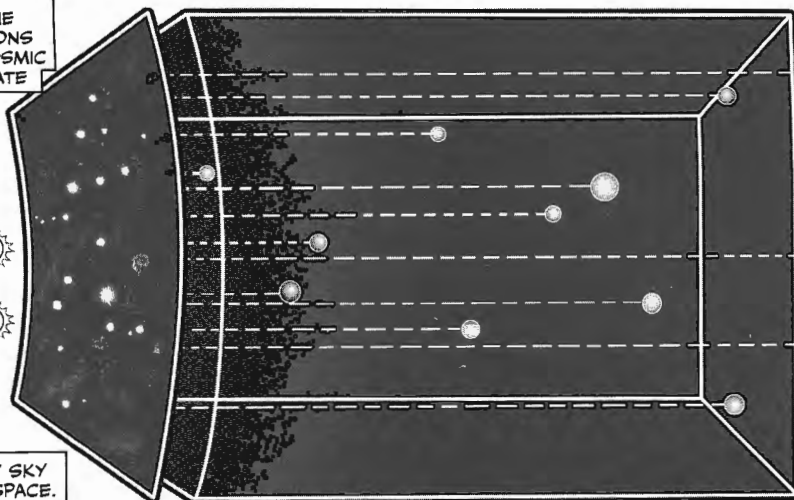


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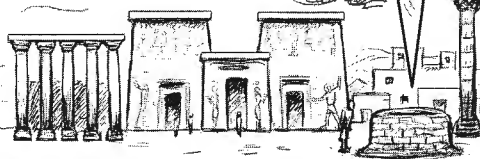
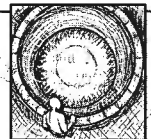




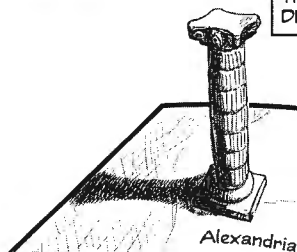
SOME 2000 YEARS EARLIER IN ALEXANDRIA, ERATOSTHENES APPLIED A SIMILAR TECHNIQUE TO THE EARTH ITSELF.



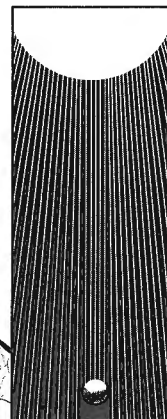
REPORTS FROM SYENE, FAR TO THE SOUTH, INDICATED THAT AT NOON ON THE SUMMER SOLSTICE, THE SUN SHONE TO THE BOTTOM OF A DEEP WELL AND COLUMNS THERE CAST NO SHADOWS.



YET, IN ALEXANDRIA AT THE SAME MOMENT, SHADOWS PERSISTED - THE SUN WAS NOT DIRECTLY OVERHEAD.



ERATOSTHENES KNEW THAT THE SUN WAS AT SUCH A GREAT DISTANCE THAT ITS RAYS STRUCK THE EARTH PARALLEL TO ONE ANOTHER,

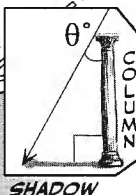


(NOT TO SCALE!)

WHICH MEANT THAT THIS OBSERVED DISCREPANCY OF SHADOWS AT THESE TWO LOCATIONS COULD ONLY OCCUR IF THE EARTH WAS CURVED (DEMONSTRATING A LONG-HELD SUPPOSITION).

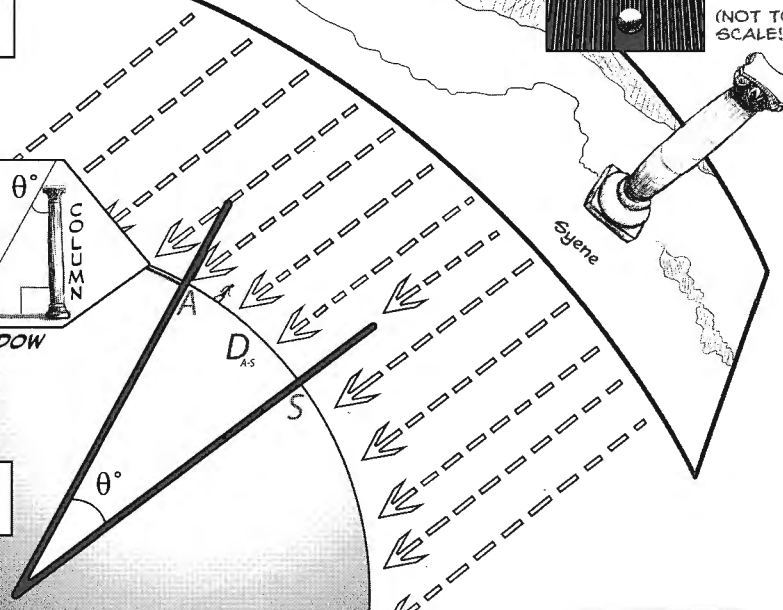
ERATOSTHENES CONTINUED.

BY MEASURING THE LENGTH OF A SHADOW CAST AT ALEXANDRIA AND THE HEIGHT OF THE COLUMN CASTING IT, HE FOUND THE ANGLE OF DISPLACEMENT BETWEEN ALEXANDRIA AND SYENE.



SHADOW

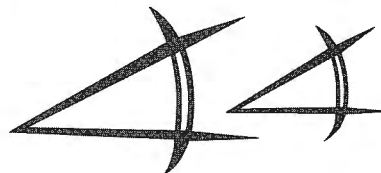
(ESSENTIALLY THE FRACTION OF THE CIRCLE SEPARATING THEM.)



$$C = \frac{360^\circ}{\theta^\circ} \times D_{AS}$$

HE THEN HAD THE ACTUAL DISTANCE BETWEEN THE CITIES PACED OUT, AND USED THIS RESULT WITH THE DISPLACEMENT ANGLE TO CALCULATE THE CIRCUMFERENCE OF THE EARTH WITH GREAT ACCURACY.

TWO POINTS - TWO EYES - CONNECTED, FOSTERED AN EXPANSION OF SIGHT AND RESHAPED OUR VIEW OF THE PLANET.



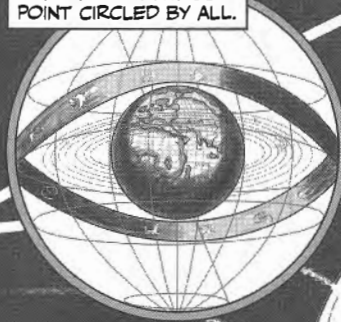
THIS SUGGESTS A DEFINITION TO BUILD ON: UNFLATTENING IS A SIMULTANEOUS ENGAGEMENT OF MULTIPLE VANTAGE POINTS FROM WHICH TO ENGENDER NEW WAYS OF SEEING.

LET US PAUSE A BIT MORE  
ON ASTRONOMICAL MATTERS.



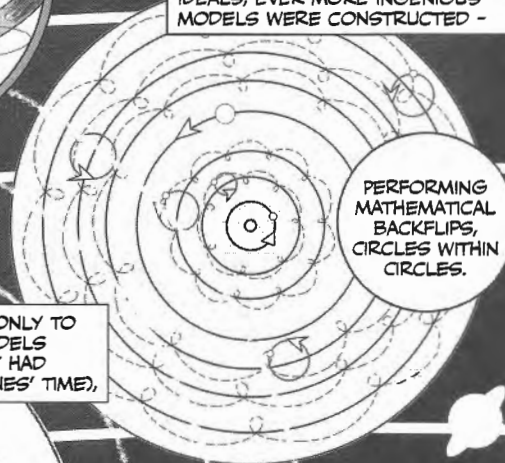
THE UNFLAT EARTH NEATLY  
FIT AT THE CORE OF THE  
IDEA OF HARMONIOUSLY  
NESTED SPHERES -

A STATIC VANTAGE  
POINT CIRCLED BY ALL.



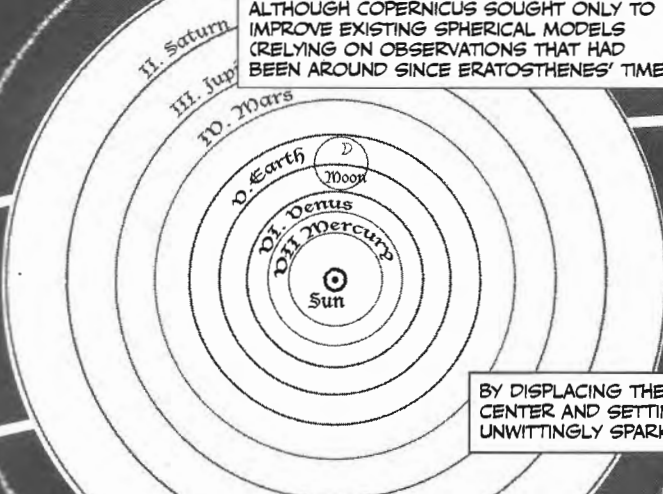
DESPITE OBSERVATIONS OF HOW  
THINGS MOVED ACROSS THE SKY THAT  
BETRAYED THIS THINKING, DEEPLY  
HELD BELIEFS LED TO THE DISMISSAL  
OF ALTERNATIVES - AS INCONCEIVABLE  
AS "UPWARDS NOT NORTHWARDS."

IN AN EFFORT TO MAKE THE  
OBSERVATIONS CONFORM TO THE  
IDEALS, EVER MORE INGENUOUS  
MODELS WERE CONSTRUCTED -



PERFORMING  
MATHEMATICAL  
BACKFLIPS,  
CIRCLES WITHIN  
CIRCLES.

ALTHOUGH COPERNICUS SOUGHT ONLY TO  
IMPROVE EXISTING SPHERICAL MODELS  
(RELYING ON OBSERVATIONS THAT HAD  
BEEN AROUND SINCE ERATOSTHENES' TIME),



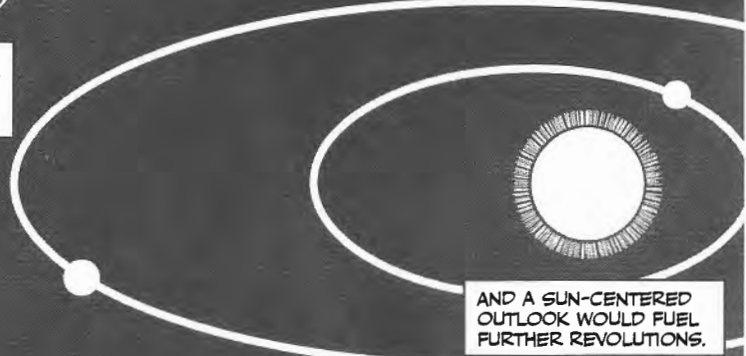
BY DISPLACING THE EARTH FROM THE  
CENTER AND SETTING IT SPINNING, HE  
UNWITTINGLY SPARKED A REVOLUTION.

In "On the Revolutions  
of the Celestial Spheres."

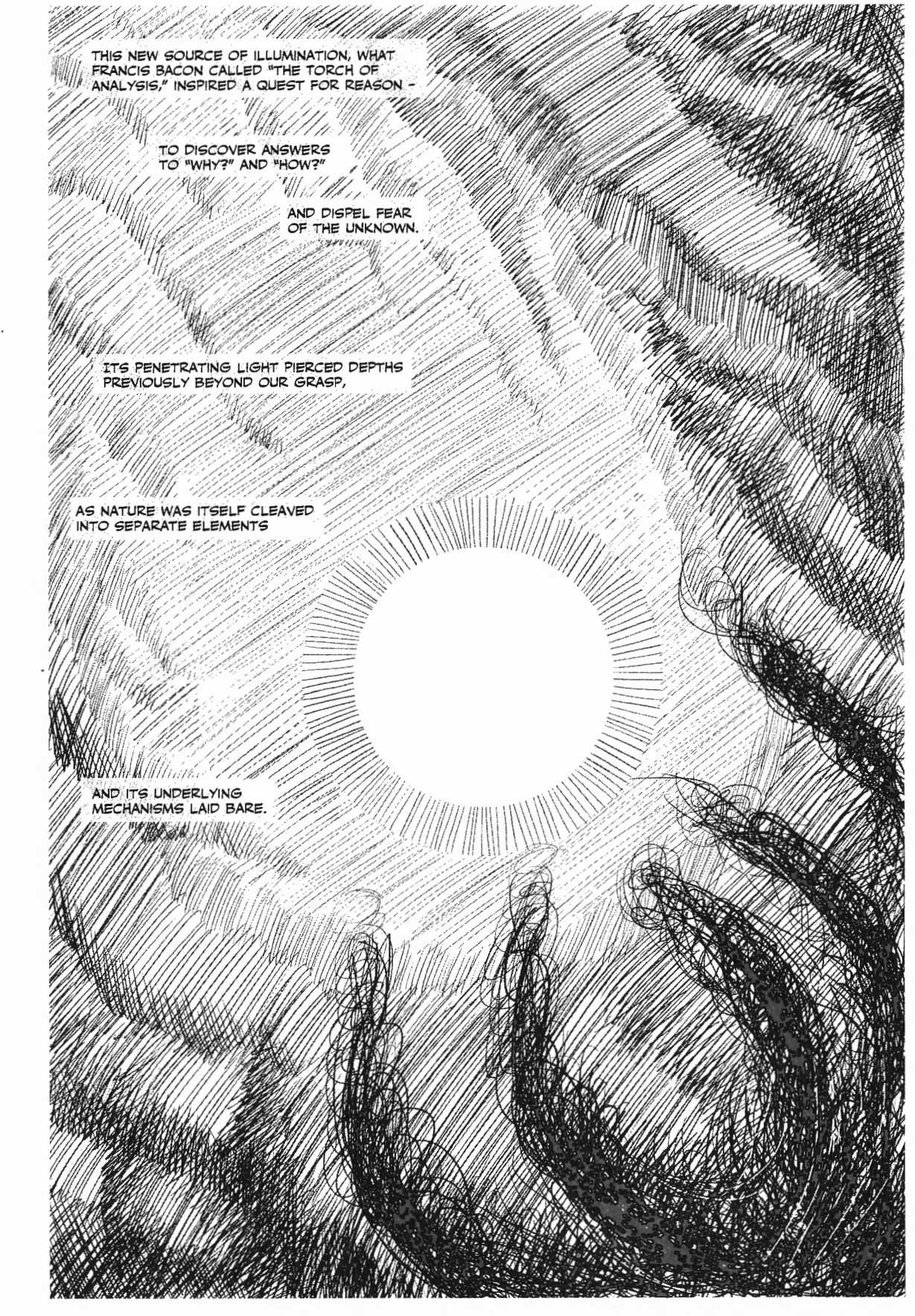
NOTHING CHANGED, EXCEPT THE POINT  
OF VIEW - WHICH CHANGED EVERYTHING.

WHILE OTHERS WOULD  
EXPAND UPON THIS WORK,

THE FUNDAMENTAL SHIFT OF  
VIEWPOINT IRREVOCABLY RUPTURED  
A STASIS OF THOUGHT, ITS  
IMPLICATIONS RIPPLED OUTWARD ...



AND A SUN-CENTERED  
OUTLOOK WOULD FUEL  
FURTHER REVOLUTIONS.



THIS NEW SOURCE OF ILLUMINATION, WHAT  
FRANCIS BACON CALLED "THE TORCH OF  
ANALYSIS," INSPIRED A QUEST FOR REASON -

TO DISCOVER ANSWERS  
TO "WHY?" AND "HOW?"

AND DISPEL FEAR  
OF THE UNKNOWN.

ITS PENETRATING LIGHT PIERCED DEPTHS  
PREVIOUSLY BEYOND OUR GRASP,

AS NATURE WAS ITSELF CLEAVED  
INTO SEPARATE ELEMENTS

AND ITS UNDERLYING  
MECHANISMS LAID BARE.

TO PROBE DEEPER AND  
PEER STILL FARTHER,

MORE POWERFUL  
INSTRUMENTS WERE BUILT.

THIS IN TURN MEANT THAT  
OPERATORS BECAME INCREASINGLY  
SPECIALIZED IN THEIR TRAINING,

AND THEN SET THEIR  
SIGHTS ON MORE  
SPECIFIC TARGETS.

THIS NARROWING  
OF FOCUS

LED

TO

FRAGMENTATION -

A CASCADE  
OF INDIVIDUAL  
SEARCHLIGHTS.

DIVISIONS  
GREW.

BORDERS WERE  
ERECTED.

DISTINCT TERRITORIES  
WERE DRAWN UP,

DELINEATING  
PROVINCES OF  
EXCLUSION

CLAIMS  
STAKED

AREAS  
CARVED  
OUT

FIELDS  
DEFINED.

WALLED OFF WITHIN  
ISOLATED DOMAINS,

COMMUNICATION  
ACROSS BOUNDARIES  
WAS STIFLED.

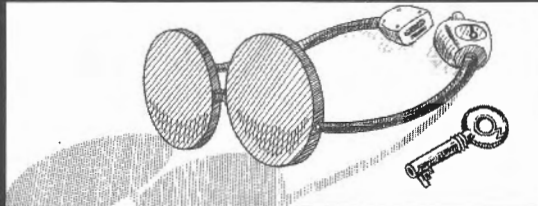
THEY KEPT TO THEMSELVES,  
PURSUING SEPARATE PATHS  
TO UNDERSTANDING.



TO BE SURE, THESE LENSES WE'VE  
FASHIONED HAVE ENABLED GREAT SIGHT  
TO EXPAND OUR UNDERSTANDING.

YET BY RESTRICTING OUR VISION TO  
A NARROW RANGE OF THE SPECTRUM,  
THEY COLOR PERCEPTION,

LEADING US TO MISTAKE THE VIEW  
THROUGH THEM FOR REALITY.



*"But isn't everything here green?" asked Dorothy.*

*"No more than in any other city," replied Oz;  
"but when you wear green spectacles, why of  
course everything you see looks green to you."*

RELIANCE ON A SOLITARY  
VANTAGE POINT FAILS TO  
ILLUMINATE THE WHOLE PICTURE.

A FIXED VIEWPOINT -

A SINGLE LINE OF THOUGHT -

CAN BE A TRAP - WHERE WE SEE  
ONLY WHAT WE'RE LOOKING FOR.

BLIND TO  
OTHER  
POSSIBILITIES

IN ORDER TO SEE  
WHAT WE'RE NOT...

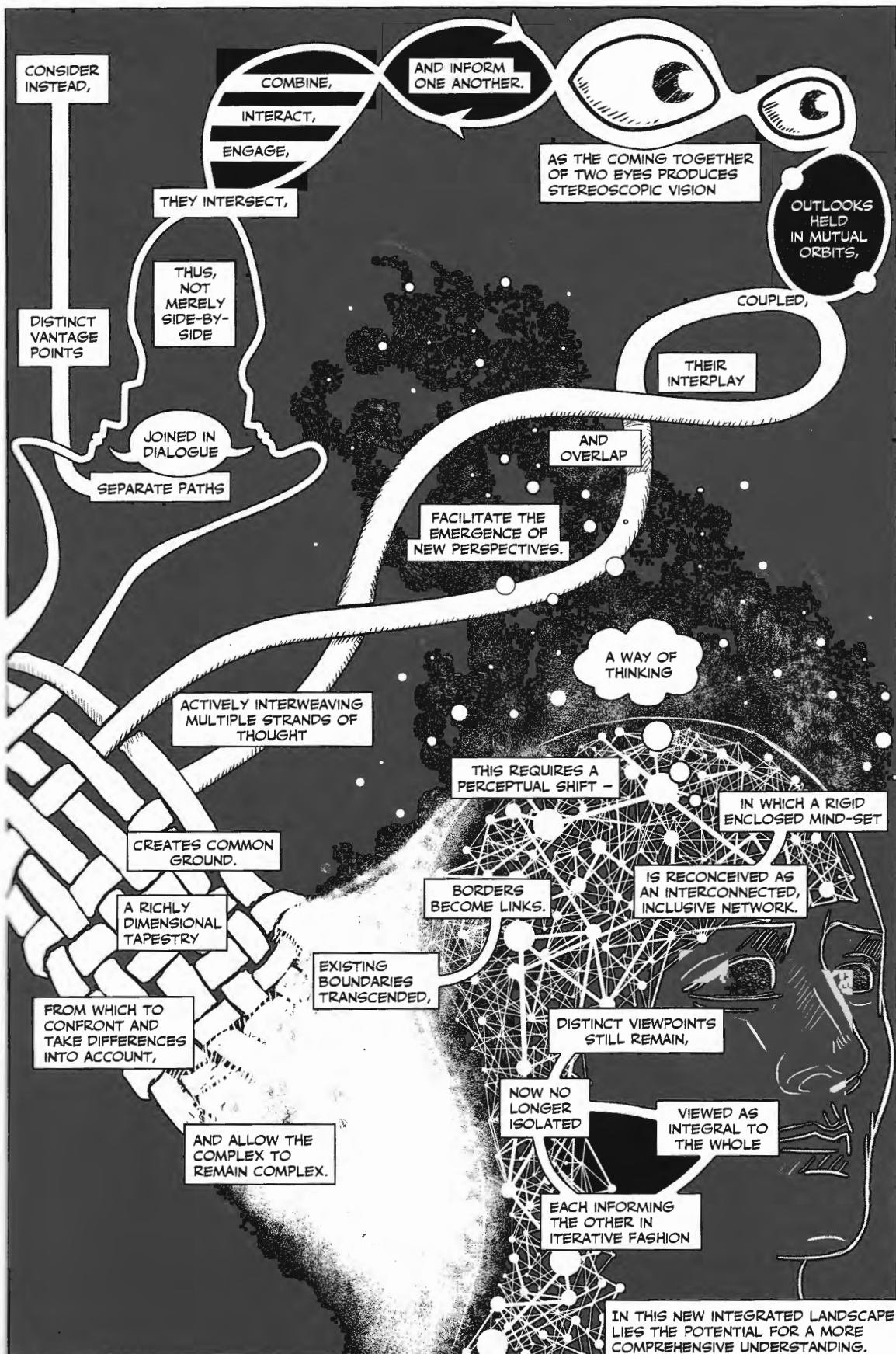
ANOTHER  
APPROACH IS  
NECESSARY.

LOOKING FROM A  
DIFFERENT ANGLE...

DEPRIVILEGING THIS  
ABSOLUTE VANTAGE POINT  
OPENS UP THE WORLD - THE  
LESSON COPERNICUS  
UNLEASHED REVERBERATES.

TO REVEAL THAT A SINGLE,  
"TRUE" PERSPECTIVE IS FALSE.

UPENDS OUR  
FOUNDATIONS...



THE OBSTACLE TO  
OPENING EXPANSIVE  
SPACES IS NOT THE  
CULTIVATION OF  
SEPARATE PATHS,



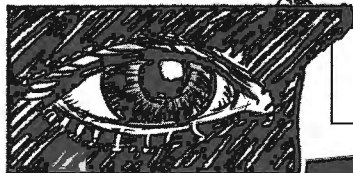
THAT C. P. SNOW WARNED  
OF IN *THE TWO CULTURES*,  
WHERE PEOPLE CAN'T TALK  
TO ONE ANOTHER ACROSS  
SUB-DIVISIONS OF THOUGHT.

RATHER IT'S A "GULF OF MUTUAL  
INCOMPREHENSION" ...



FOR AS WE'VE SEEN WITH  
ERATOSTHENES AND THE  
CONCEPT OF PARALLAX, DISTANCE  
BETWEEN AND DIFFERENCES OF  
VIEW ARE ESSENTIAL -

AS LONG AS CHANNELS  
FOR COMMUNICATION  
REMAIN OPEN AND ALIVE.



THESE CONTESTED SPACES IN BETWEEN ARE  
FERTILE BUT ILL-DEFINED. IN ORDER FOR THEM  
TO BEAR FRUIT, WE NEED TO RECONCEPTUALIZE  
DISCOURSE ACROSS THE DIVIDES.

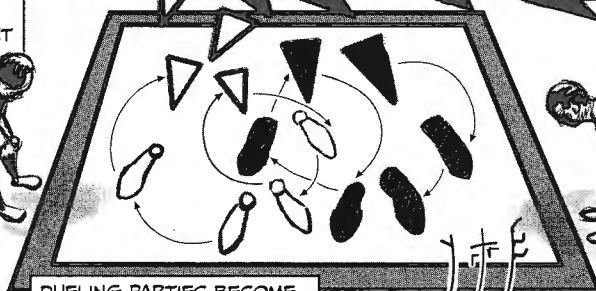


LET US FORGO THINKING  
OF ARGUMENT AS WAR -

WITH OPPOSING  
SIDES,

WINNERS AND  
LOSERS.

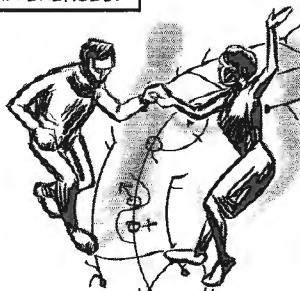
FOLLOWING LAKOFF AND  
JOHNSON, IMAGINE ARGUMENT  
REFRAMED AS DANCE.



DUELING PARTIES BECOME  
COLLABORATIVE PARTNERS.



THIS DOESN'T  
MEAN ERASING  
OR IGNORING  
DIFFERENCES.



INSTEAD, IT'S A COMPLEX  
DYNAMIC, WHAT SIMEON DREYFUSS  
CALLS "HOLDING DIFFERENT WAYS  
OF KNOWING IN RELATIONSHIP."

IN RECOGNIZING THAT  
OUR SOLITARY  
STANDPOINT IS LIMITED,



WE COME TO EMBRACE  
ANOTHER'S VIEWPOINT AS  
ESSENTIAL TO OUR OWN.



LACKING ACCESS TO  
"AS IT IS," WE MAKE DO  
WITH "AS IT APPEARS."

EXPANDING OUR UNDERSTANDING  
REQUIRES DIVERGENCE OF THOUGHT AND  
DIVERSITY OF THINKERS - THE INDIVIDUAL  
WAYS OF SEEING UNIQUE TO EACH OF US.

RATHER THAN ARRANGING  
THIS MULTIPLICITY OF  
VIEWPOINTS IN TREE-LIKE,  
HIERARCHICAL FASHION,

FOLLOWING DELEUZE & GUATTARI, INSTEAD  
CONSIDER A DE-CENTERED, Laterally  
BRANCHING, RHIZOMATIC STRUCTURE, WHERE  
EACH NODE IS CONNECTED TO ANY OTHER.

WHEN TAKEN TOGETHER,  
AS BAKHTIN OBSERVED,  
THESE KALEIDOSCOPIC  
VIEWS OPEN "OUR OWN  
MONOLITHIC AND CLOSED  
WORLD" TO "THE GREAT  
WORLD OF ONE'S OWN  
PLUS 'THE OTHERS.'"

SEEING THROUGH ANOTHER'S EYES -  
FROM WHERE THEY STAND AND  
ATTENDING TO WHAT THEY ATTEND TO -

SERVES TO SHIFT OUR VISION  
FROM THE ONE-DIMENSIONAL TO  
A MORE MULTIDIMENSIONAL VIEW.





IN PREPARATION FOR THE JOURNEY AHEAD, LET  
US REFLECT ON WHAT WE HAVE ENCOUNTERED.



AND FROM THOSE EXPERIENCES,  
DERIVE TOOLS FOR NAVIGATION.

FIRST, CONSIDER WHAT JAMES CARSE SUGGESTS: WE UNDO BOUNDARIES THROUGH THE AWARENESS THAT "IT IS OUR VISION, AND NOT WHAT WE ARE VIEWING, THAT IS LIMITED."

CONTINUALLY SEEKING WHAT LIES BEYOND YOUR HORIZON IS CURIOSITY.

CONSTANTINE CAVAFY DESCRIBED THE QUEST TO ITHACA - A DESTINATION EVER OUT OF REACH, YET ALWAYS PROVIDING A "MARVELOUS JOURNEY" ALONG THE WAY.

THIS RECALLS PRAGMATISM, WHICH WILLIAM JAMES DEFINES AS BEING NEVER ABOUT "CLOSING YOUR QUEST," BUT "AS A PROGRAM FOR MORE WORK" -

A MEANS FOR CHANGING EXISTING REALITIES.

THERE ARE NEVER FINAL BRICKS TO PUT IN PLACE FROM WHICH TO SEE EVERYTHING...

ONLY STEPPING STONES TOWARD WHAT'S NEXT?

after Muybridge

PIVOTING FROM  
THE CYCLOPTIC

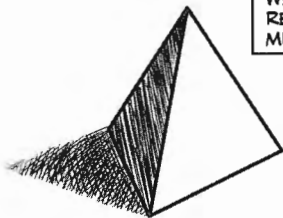


TO SEEING FROM TWO  
OR MORE POINTS AT  
THE SAME TIME,

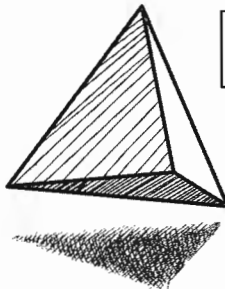
WHAT WE ONCE ONLY KNEW  
IN ONE WAY, AS BEING FLAT -

HAVING APPROACHED  
IT HEAD ON, FROM A  
SINGLE SIDE -

WE NOW COME TO  
RECOGNIZE IN ITS  
MULTI-FACETEDNESS.

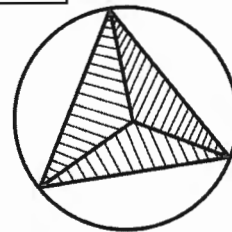


THE DIMENSIONALITY OF  
OBJECTS MEANS WE CAN  
MOVE AROUND THEM.

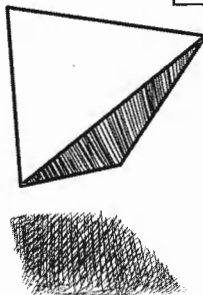


SO ERATOSTHENES SHOWED  
(AND OTHERS SUBSEQUENTLY  
DEMONSTRATED),

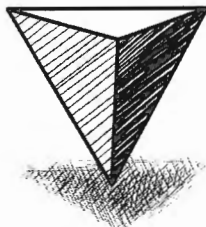
THE FOUR CORNERS  
OF THE EARTH COULD  
BE CIRCUMNAVIGATED.



WE CAN LOOK  
AGAIN FROM  
OTHER SIDES,



TURN THINGS  
OVER AND  
UPSIDE DOWN.

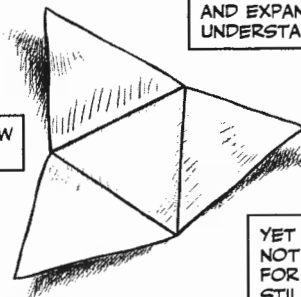


CHANGING OUR  
STANDPOINT  
REVEALS UNSEEN  
ASPECTS



THAT OPEN NEW  
POSSIBILITIES

AND EXPAND OUR  
UNDERSTANDING.

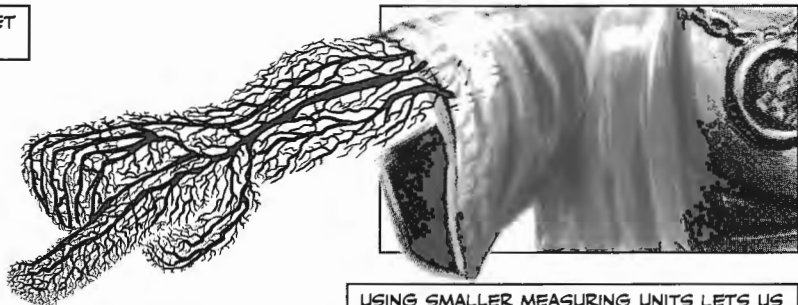


YET THESE TOO ARE  
NOT ENDPOINTS,  
FOR HIDDEN DEPTHS  
STILL REMAIN...



FROM THE HORIZON OUT THERE, LET US TURN OUR ATTENTION INWARD.

TAKE AS AN EXAMPLE THE UNEXPECTED RESULTS IN MEASURING A COASTLINE'S LENGTH (IN THIS CASE ITHACA).



FINDING THE PERIMETER OF SMOOTH FIGURES IS STRAIGHTFORWARD,

USING SMALLER MEASURING UNITS LETS US EVENTUALLY ZERO IN ON A FIXED ANSWER.

BUT COASTLINES, TO THE CONTRARY...



AS THE LENGTH OF OUR MEASURING STICK DECREASES,

SUBSEQUENT READINGS DO NOT CONVERGE TO A FINAL RESULT.

INSTEAD THEY EXPAND INFINITELY.

THE TOTAL LENGTH WE OBTAIN DEPENDS ENTIRELY ON THE SIZE OF OUR MEASURING STICK.

AS AN ASIDE, LET'S GENERATE A SIMILAR FIGURE:

STARTING WITH A STRAIGHT LINE

REPLACE THE MIDDLE THIRD WITH A TRIANGULAR KINK.

REPEAT FOR EACH SEGMENT IN THE NEW FIGURE...

CONTINUING TO ITERATE YIELDS SOMETHING CRINKLY EVERYWHERE.

The Koch "Snowflake"

THE CLOSER WE LOOK THE MORE THERE IS TO DISCOVER.

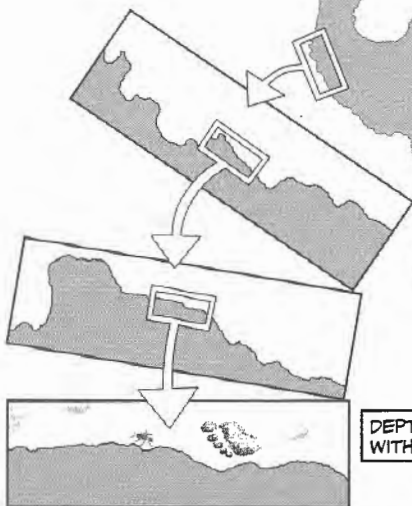
LACED WITH INLETS WITHIN INLETS,

FOLDS WITHIN FOLDS...

DEPTHS WITHIN DEPTHS.

OUR WORLD IS NEITHER SMOOTH NOR FLAT ANYWHERE, A FACT BENOIT MANDELBROT SOUGHT TO ADDRESS IN DEVELOPING FRACTAL MATHEMATICS, WHICH HE SAW AS A MEANS OF HELPING PEOPLE "SEE THE SAME WORLD DIFFERENTLY."

OVERCOMING A LINEAR, STATIC VIEW REQUIRES SUCH A SHIFT IN AWARENESS.



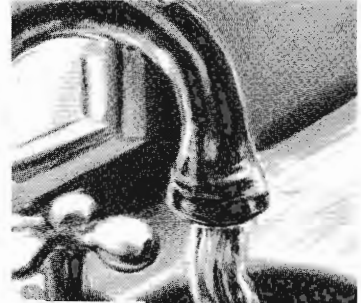
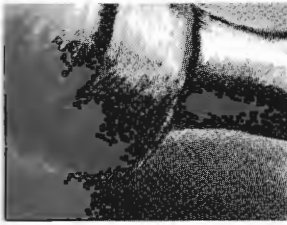
HEWING STRICTLY TO THE EDGE "BETWIXT THE SAND AND THE FOAM," THE ANT ENCOUNTERS A PROFOUNDLY DIFFERENT SHORELINE THAN THE HUMAN.

CURIOUSER AND CURIOUSER...

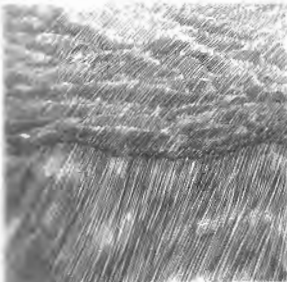


ATTUNING OURSELVES TO DIFFERENT WAYS OF SEEING - AS WITH A DOG'S SENSES - EXPANDS OUR WORLD TO REVEAL UNANTICIPATED DEPTHS, CRINKLY SPACES AWAITING EXPLORATION.

A FURTHER CRENULATION: IN *ULYSSES* JAMES JOYCE UTILIZED DIVERSE NARRATIVE PERSPECTIVES TO CREATE LITERARY PARALLAX.

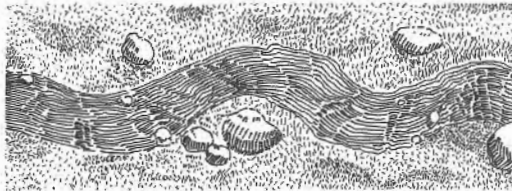


ANSWERING:  
"DID IT FLOW?"

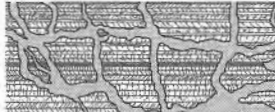


BY SEEING THROUGH MULTIPLE EYES, WE CAN TRACE OTHERWISE INVISIBLE CONNECTIONS ACROSS LAYERS OF TIME AND SPACE,

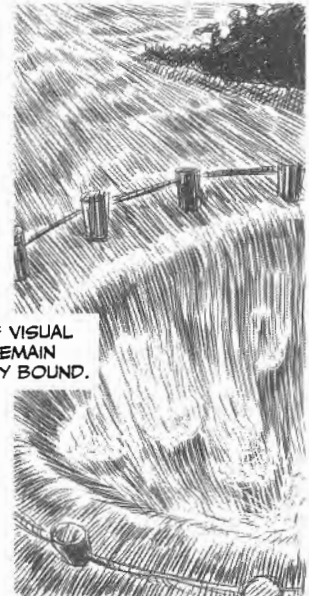
THEREBY TRANSFORMING THE SEEMINGLY MUNDANE ACT OF TURNING ON A FAUCET INTO AN ODYSSEY IN ITS OWN RIGHT.



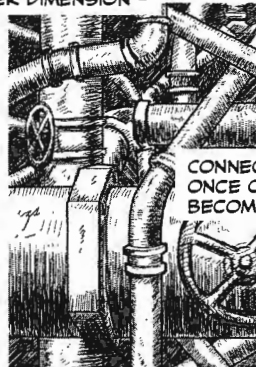
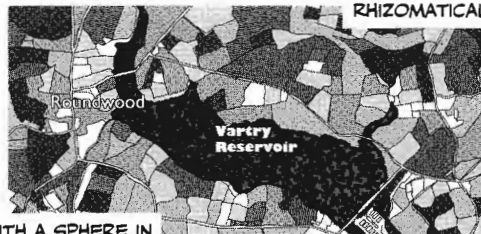
THIS EXPANSIVE WAY OF SEEING CORRESPONDS TO AN UNDERSTANDING OF ECOSYSTEMS...



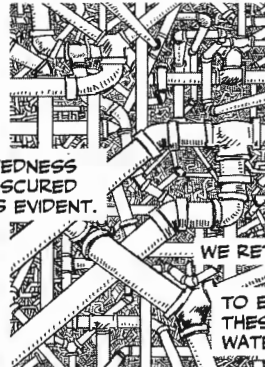
WHICH, DESPITE VISUAL BOUNDARIES, REMAIN RHIZOMATICALLY BOUND.



AS WITH A SPHERE IN FLATLAND, FROM A HIGHER DIMENSION -



CONNECTEDNESS ONCE OBSCURED BECOMES EVIDENT.



WE RETURN,

TO ENCOUNTER THESE SAME WATERS ANEW.





THE WAYS OF SEEING PUT FORTH ARE  
OFFERED NOT AS SET STEPS TO FOLLOW,

BUT AS AN ATTITUDE -

A MEANS OF ORIENTATION -

A MULTIDIMENSIONAL  
COMPASS,

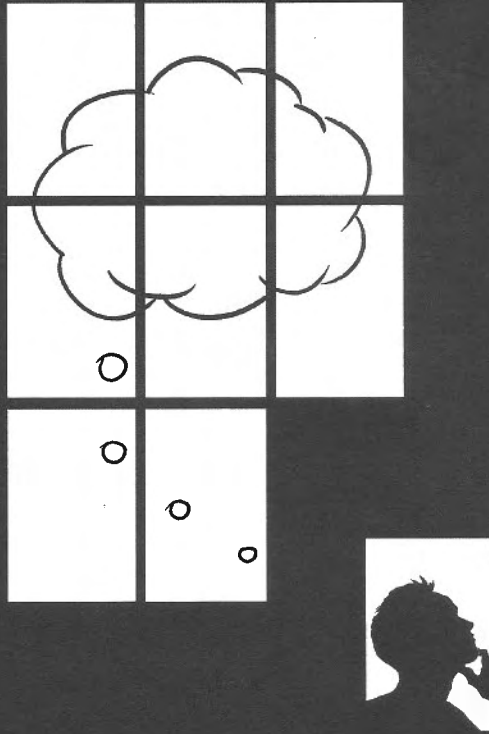
TO HELP US FIND OUR  
WAY BEYOND THE  
CONFINES OF "HOW IT IS,"

AND SEEK OUT NEW WAYS OF  
BEING IN DIRECTIONS NOT ONLY  
NORTHWARDS AND UPWARDS,

BUT OUTWARDS, INWARDS,  
AND IN DIMENSIONS NOT YET  
WITHIN OUR IMAGINATION...

three

# THE SHAPE OF OUR THOUGHTS





THE MEANS BY WHICH WE ORDER  
EXPERIENCE AND GIVE STRUCTURE  
TO OUR THOUGHTS -

OUR LANGUAGES -



ARE THE STUFF WE BREATHE  
IN AND A SEA WE SWIM IN.

LANGUAGES ARE POWERFUL TOOLS  
FOR EXPLORING THE EVER GREATER  
DEPTHS OF OUR UNDERSTANDING.



BUT FOR ALL THEIR  
STRENGTHS, LANGUAGES  
CAN ALSO BECOME TRAPS.



IN MISTAKING THEIR  
BOUNDARIES FOR REALITY,



WE FIND OURSELVES, MUCH  
LIKE FLATLANDERS, BLIND  
TO POSSIBILITIES BEYOND  
THESE ARTIFICIAL BORDERS,



LACKING BOTH THE  
AWARENESS AND THE  
MEANS TO STEP OUT.

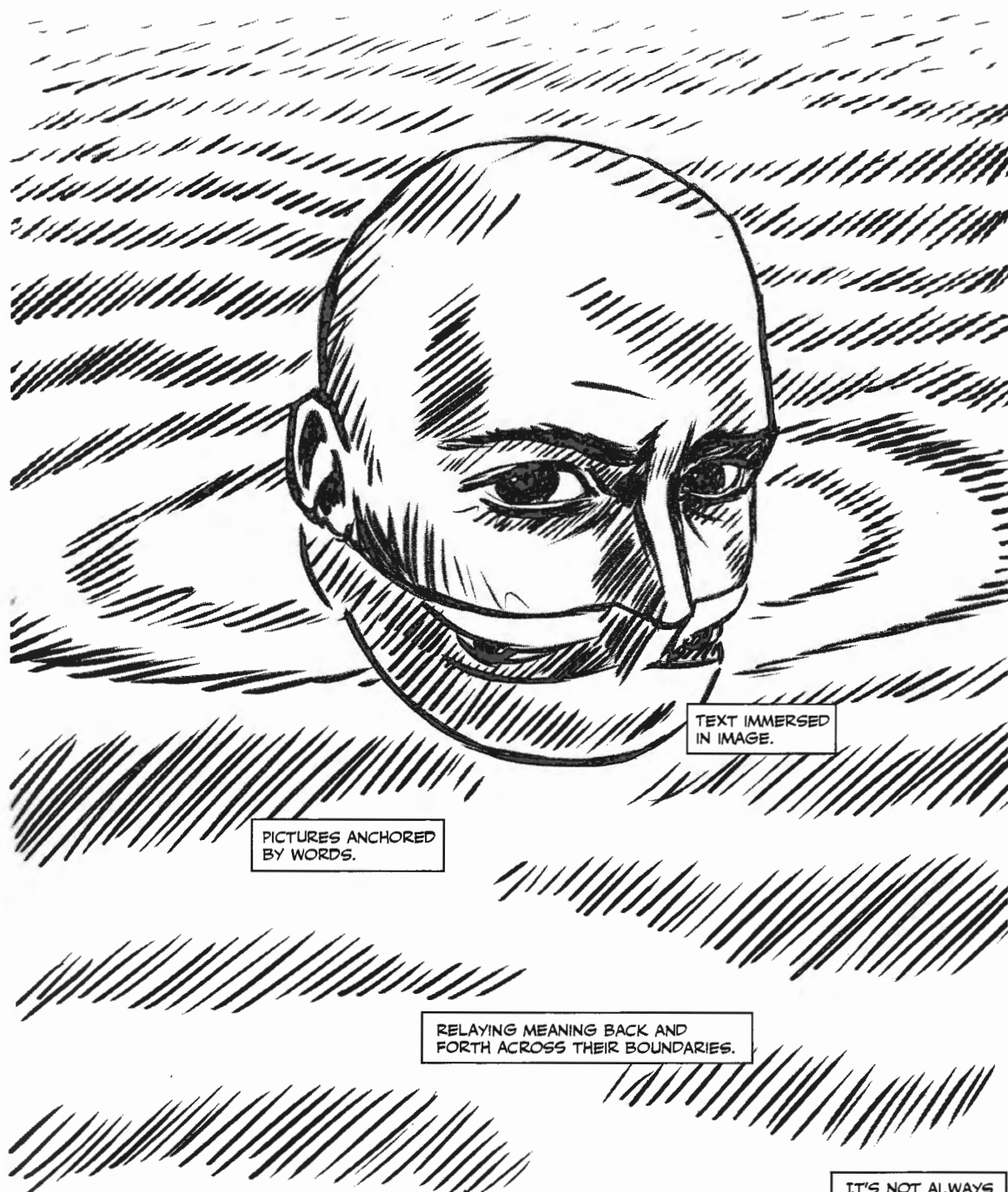


THE MEDIUM WE  
THINK IN DEFINES  
WHAT WE CAN SEE.



AS S. I. HAYAKAWA DESCRIBED THE SITUATION: "WE ARE THE PRISONERS OF ANCIENT ORIENTATIONS IMBEDDED IN THE LANGUAGES WE HAVE INHERITED."

WE'VE BEEN CONDUCTING THIS DISCUSSION AMPHIBIOUSLY - BREATHING IN THE WORLDS OF IMAGE AND TEXT - SEEING FROM BOTH SIDES.



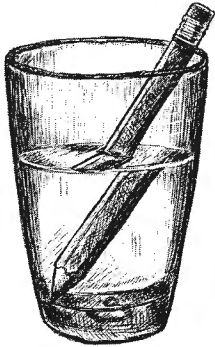
TEXT IMMERSED  
IN IMAGE.

PICTURES ANCHORED  
BY WORDS.

RELAYING MEANING BACK AND  
FORTH ACROSS THEIR BOUNDARIES.

IT'S NOT ALWAYS  
DONE THIS WAY...

Traditionally, words have been privileged as the proper mode of explanation, as *the* tool of thought. Images have, on the other hand, long been sequestered to the realm of spectacle and aesthetics, sidelined in serious discussions as mere illustration to support the text — never as



*Fig 1: Object bent in water*

equal partner. The source of this historical bias can be traced to Plato, who professed a deep distrust of perception, citing its illusory nature: “The object which appears to bend as it enters water provokes a lively puzzlement about what is real” (Murdoch, 1977, p. 44). For Plato, human life was a pilgrimage (p. 2) from the world of appearance in the cave to the reality of pure forms — of truth. He insisted that “we see *through* the eyes . . . not *with* them”

(Jay, 1994, p. 27). If appearances were deceiving, images were far more treacherous, these “shadows of shadows,” capable of obscuring the search for truth — mistaking fire for the sun. Plato considered thinking as a kind of “inner speech” (Murdoch, p. 31). Thus, despite a similar distrust of writing as an “inferior substitute for memory and live understanding” (p. 22), he tolerated the written word as a necessary evil to convey thought.

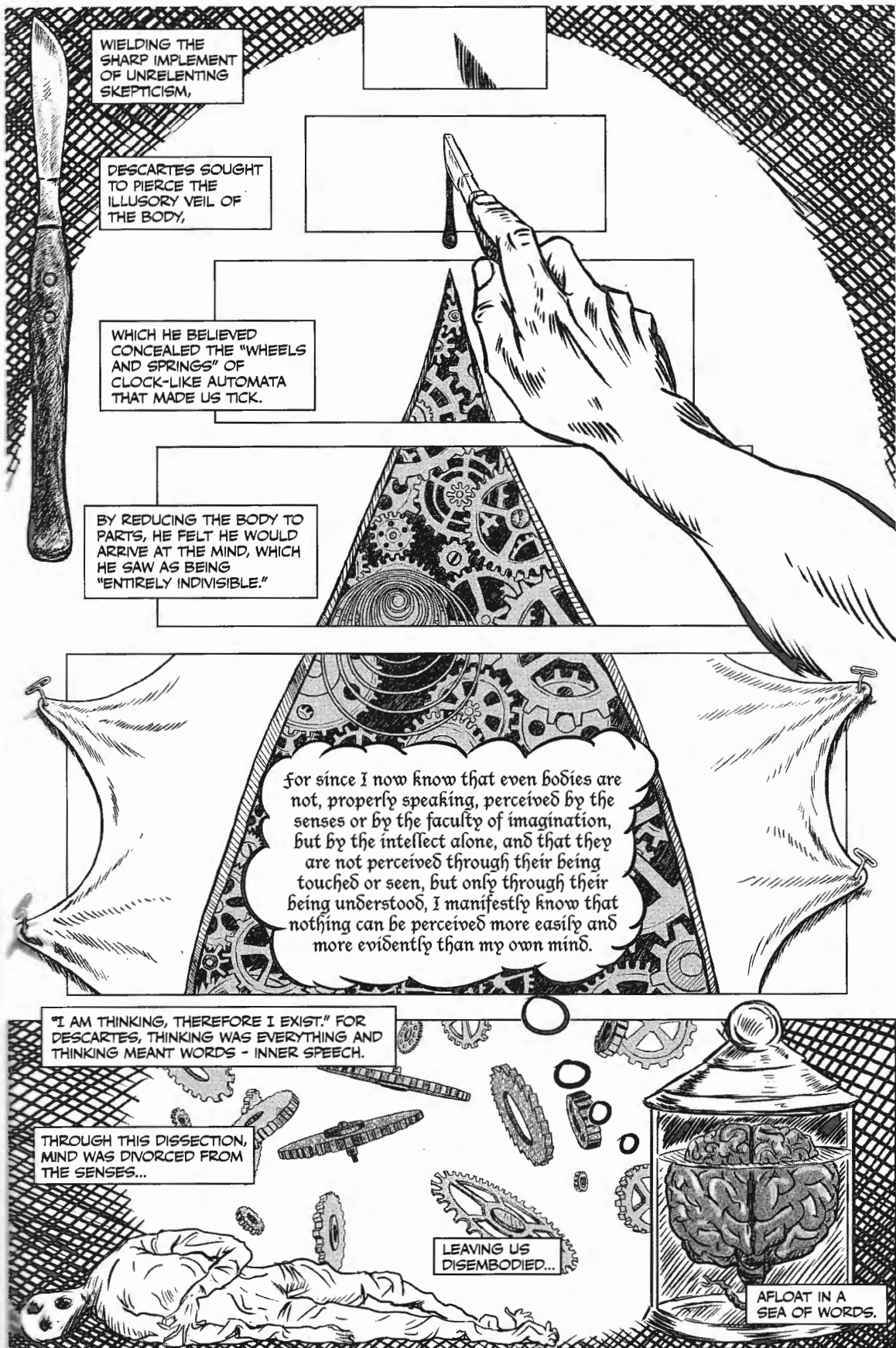
Descartes took this distrust of the senses a step further, as he considered the possibility that all he perceived might be a deception of a supremely powerful evil spirit. His observations of wax in the presence of flame betrayed the reality that the substance remained unchanged:

But I need to realize that the perception of the wax is neither a seeing, nor a touching, nor an imagining. Nor has it ever been, even though it previously seemed so; rather it is an inspection on the part of the mind alone. This inspection can be imperfect and confused, as it was before, or clear and distinct, as it is now, depending on how close I pay attention to the things in which the piece of wax consists. (1637/2002, p. 1)

This reasoning about wax raised questions as to how he could know anything, “all the things that had ever entered my mind were no more true than the illusions of my dreams” (p. 87). From there, Descartes proceeded with his program of radical doubt, setting out to discard and raze any “false opinions” he had come to accept in his life. By burning away all he’d come to believe, he could build up from what he knew with certainty.







WIELDING THE  
SHARP IMPLEMENT  
OF UNRELENTING  
SKEPTICISM,

DESCARTES SOUGHT  
TO PIERCE THE  
ILLUSORY VEIL OF  
THE BODY,

WHICH HE BELIEVED  
CONCEALED THE "WHEELS  
AND SPRINGS" OF  
CLOCK-LIKE AUTOMATA  
THAT MADE US TICK.

BY REDUCING THE BODY TO  
PARTS, HE FELT HE WOULD  
ARRIVE AT THE MIND, WHICH  
HE SAW AS BEING  
"ENTIRELY INDIVISIBLE."

for since I now know that even bodies are  
not, properly speaking, perceived by the  
senses or by the faculty of imagination,  
but by the intellect alone, and that they  
are not perceived through their being  
touched or seen, but only through their  
being understood, I manifestly know that  
nothing can be perceived more easily and  
more evidently than my own mind.

"I AM THINKING, THEREFORE I EXIST." FOR  
DESCARTES, THINKING WAS EVERYTHING AND  
THINKING MEANT WORDS - INNER SPEECH.

THROUGH THIS DISSECTION,  
MIND WAS DIVORCED FROM  
THE SENSES...

LEAVING US  
DISEMBODED...

AFLOAT IN A  
SEA OF WORDS.

YET DESCARTES WAS AT ODDS WITH HIS OWN VIEWS, STATING: "ALL THE CONDUCT OF OUR LIVES DEPENDS ON OUR SENSES." OF THOSE, HE CONSIDERED SIGHT "THE MOST NOBLE,"

WHILE MOUNTING AN ATTACK ON THE SENSES, DESCARTES WAS SIMULTANEOUSLY INVESTIGATING OPTIC PHENOMENA.

AND HE SAW GREAT PROMISE IN THE RECENT INVENTIONS EXTENDING VISION'S REACH AND STUDIES OF THE EYE'S INNER WORKINGS.

DESCARTES PUT FORTH AN EXPLANATION OF REFRACTION - THE WAY IN WHICH LIGHT (OR ANY WAVE) BENDS WHEN MOVING BETWEEN DIFFERENT MEDIUMS.

THIS CHANGE IN DIRECTION IS TOWARD THE PERPENDICULAR WHEN ENTERING SLOWER MATERIALS...

AND AWAY FROM IT UPON EXITING (OR ENTERING A FASTER MEDIUM).

WITH REFRACTION, HE COULD DESCRIBE RAINBOWS.

IN EACH DROP LIGHT IS BENT...

\*DIFFERENT WAVELENGTHS OF LIGHT REFRACT TO DIFFERENT DEGREES

BLUE MORE THAN RED.\*

REFLECTS

BENDS AGAIN

THUS, WE SEE RED AROUND THE OUTSIDE.

RED EXITS AT A STEEPER ANGLE.

(IN EVERY DIRECTION)

WITH THIS UNDERSTANDING, WE CAN REVISIT PLATO'S WATER-BENT OBJECT.



OVERHEAD VIEW

LIGHT REFRACTS

APPEARS TO HAVE COME FROM HERE.

THE "ILLUSION" HAS MUCH TO TELL US IF WE KNOW HOW TO LISTEN.

RATHER THAN BEING CAUSE TO DISMISS SENSE EXPERIENCE,

THESE "BENDS" IN APPEARANCE INSTEAD POINT OUT THAT IT IS THROUGH THE COUPLING OF BOTH

REASON AND PERCEPTION

- NOT ONE OR THE OTHER IN ISOLATION - THAT WE CAN DISCERN GLIMPSES OF THE UNDERLYING PHENOMENA AT WORK.

CONSIDER THEN, THIS INTERPLAY BETWEEN VISUAL AND VERBAL MEDIUMS WE'VE BEEN PERFORMING AS

A KIND OF REFRACTION

THAT SIMILARLY SERVES TO EXPAND OUR VIEW BY REVEALING BOUNDARIES ENACTED BY A SINGLE MODE.

WHEN REPRESENTED THROUGH ANY SINGLE MODE,

THIS WORLD OF OUR EXPERIENCE,

OF ENDLESS HORIZONS,

DISTORTIONS HAPPEN.

CONNECTIONS SEVERED.

IS NECESSARILY FLATTENED.

A SHADOW CAST FROM A HIGHER DIMENSION.

INFORMATION LOST.

ITS WHOLENESS CONCEALS ITS LIMITATIONS AND OFFERS THE IMPRESSION THAT IT'S COMPLETE, BUT THIS IS ONLY ONE WAY OF LOOKING.

CHANGING ORIENTATION PUTS FORTH A DECIDEDLY DIFFERENT WORLD VIEW.

BUCKMINSTER FULLER'S "DYMAXION MAP" PROJECTS THE GLOBE ONTO AN ICOSAHEDRON BEFORE UNFOLDING IT.)

THUS RECAST, CONNECTIONS ARE EMPHASIZED IN PLACE OF OPPOSITIONS.

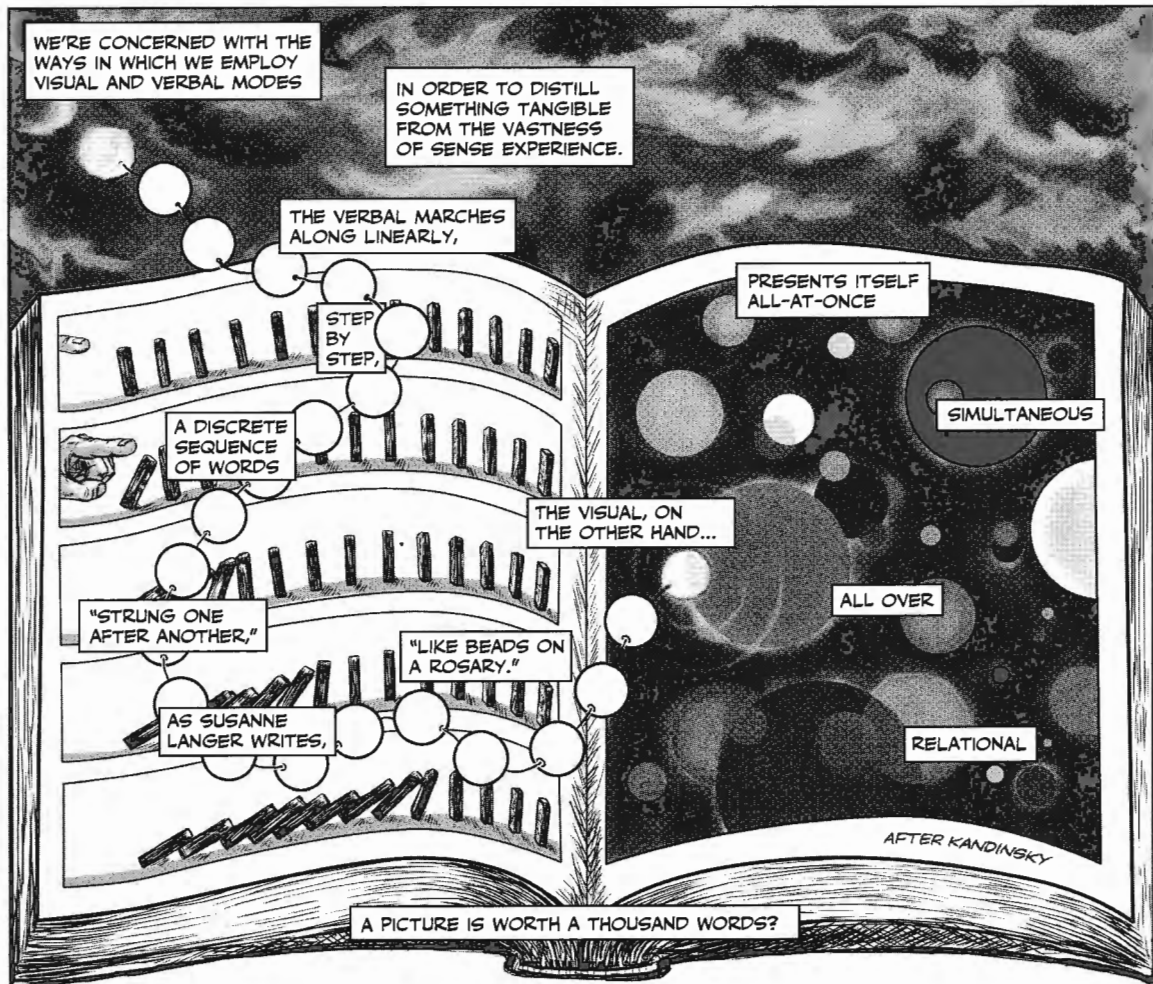
IN SELECTING FOR WHAT IT PRESENTS, EACH MODE EXCLUDES WHAT IT DOES NOT.

NOT EVEN THE MOST EXPANSIVE MAPPING CAN CONVEY EVERYTHING. JUST AS THE THERMOMETER PROVIDES BUT A PARTIAL VIEW OF THE WEATHER,

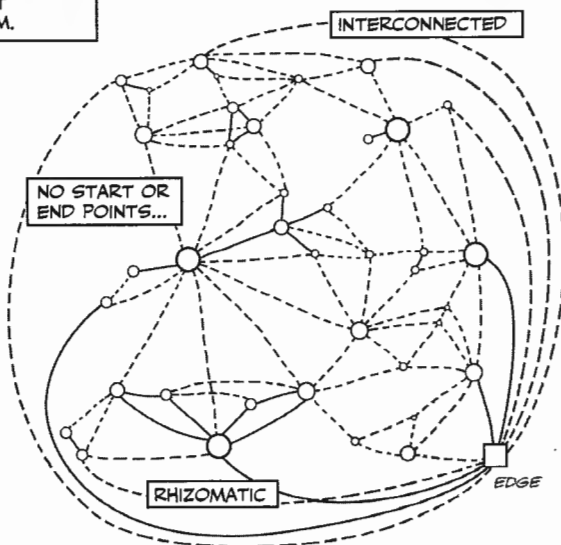
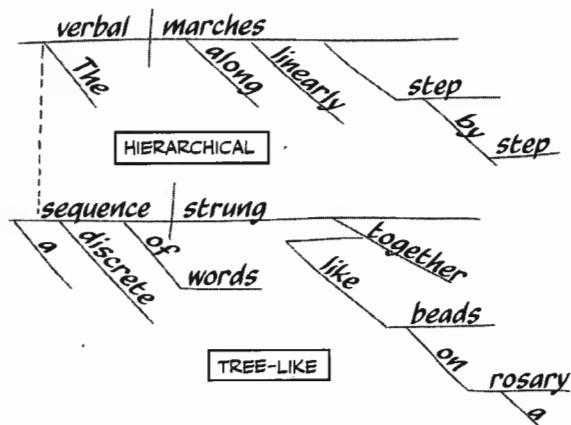


EVERY LANGUAGE, HAYAKAWA SUGGESTS, "LEAVES WORK UNDONE FOR OTHER LANGUAGES TO DO."





PERHAPS. BUT BECAUSE OF THEIR DISTINCT STRUCTURES, THERE IS NO DIRECT CORRESPONDENCE BETWEEN THEM.



A DESCRIPTION OF AN IMAGE NEVER ACTUALLY REPRESENTS THE IMAGE. RATHER, AS MICHAEL BAXANDALL OBSERVES, IT IS A REPRESENTATION OF THINKING ABOUT HAVING SEEN A PICTURE - IT'S ALREADY FORMULATED IN ITS OWN TERMS.

WHILE IMAGE IS, TEXT IS ALWAYS ABOUT.



IN RELYING ON TEXT AS THE PRIMARY MEANS OF FORMULATING UNDERSTANDING, WHAT STANDS OUTSIDE ITS LINEAR STRUCTURE IS DISMISSED,

Labeled irrational - no more conceivable than the notion of "upwards" to a flatlander.

THE VISUAL PROVIDES EXPRESSION WHERE WORDS FAIL.



WHAT HAVE WE BEEN MISSING?

AND WHAT CAN BE MADE VISIBLE WHEN WE WORK IN A FORM THAT IS NOT ONLY ABOUT, BUT IS ALSO THE THING ITSELF.



AT THIS JUNCTURE,  
IT'S TIME TO...



ATTEND TO THE  
INTRICACIES...



PEEL AWAY  
AND...



DELVE INTO THE  
INNER WORKINGS...



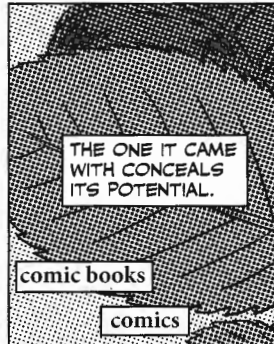
OF THIS HYBRID FORM

(MEANT TO BE BOTH  
READ AND VIEWED).



FIRST, ITS  
NAME -

EVER A  
PRICKLY TOPIC.



THE ONE IT CAME  
WITH CONCEALS  
ITS POTENTIAL.

comic books

comics

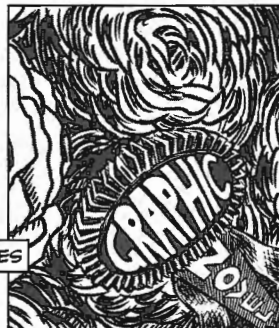


HENCE, A QUEST FOR  
RESPECTABILITY:

after Rending



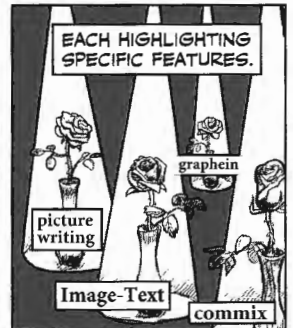
GRANDER VARIETIES  
PUT FORTH;



GRAPHIC  
NOVEL



MORE DESCRIPTIVE  
TITLES ADOPTED;

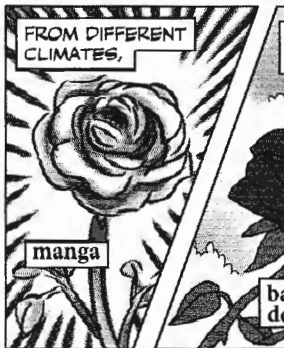


EACH HIGHLIGHTING  
SPECIFIC FEATURES.

picture  
writing

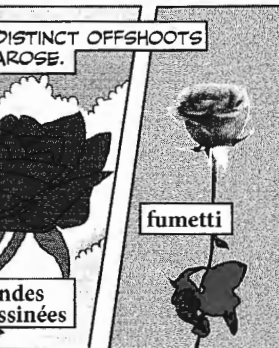
Image-Text

commix



FROM DIFFERENT  
CLIMATES,

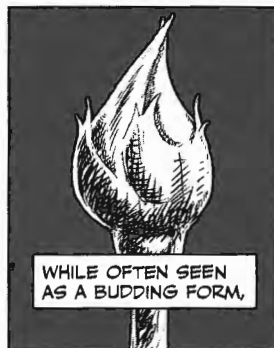
manga



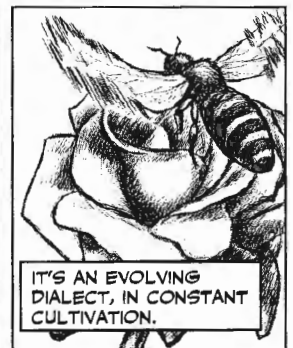
DISTINCT OFFSHOOTS  
AROSE.

fumetti

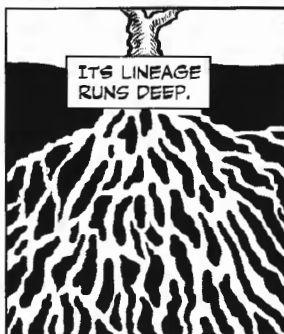
bandes  
dessinées



WHILE OFTEN SEEN  
AS A BUDDING FORM,



IT'S AN EVOLVING  
DIALECT, IN CONSTANT  
CULTIVATION.

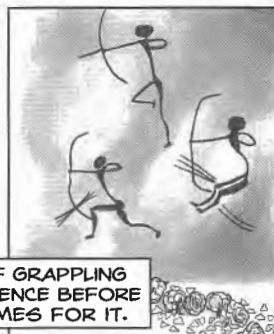


ITS LINEAGE  
RUNS DEEP.



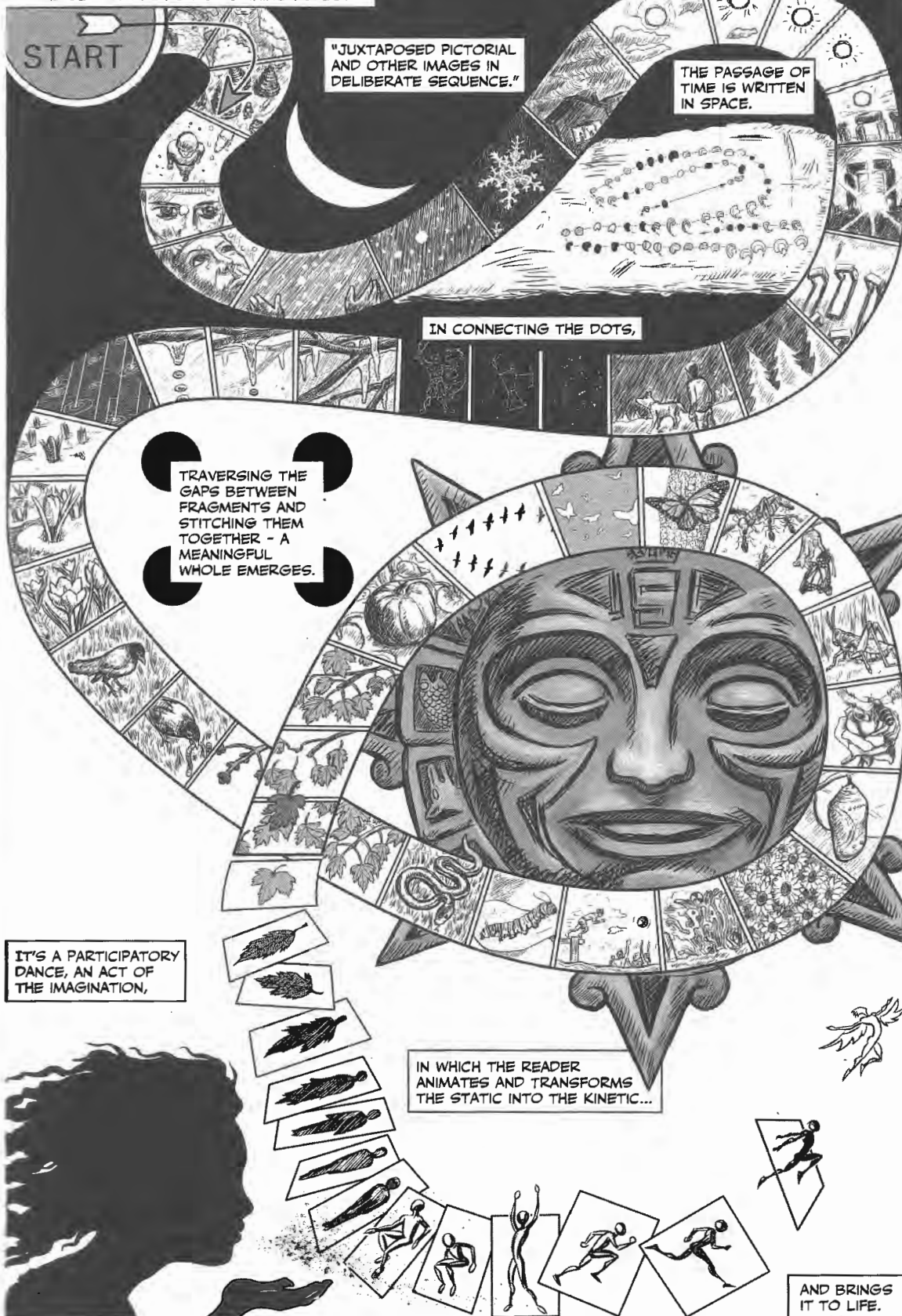
ITS HISTORY OUR OWN.

A MEANS OF GRAPPLING  
WITH EXPERIENCE BEFORE  
WE HAD NAMES FOR IT.



COMICS, AS I PREFER,  
"BY ANY OTHER NAME  
WOULD SMELL AS  
SWEET."

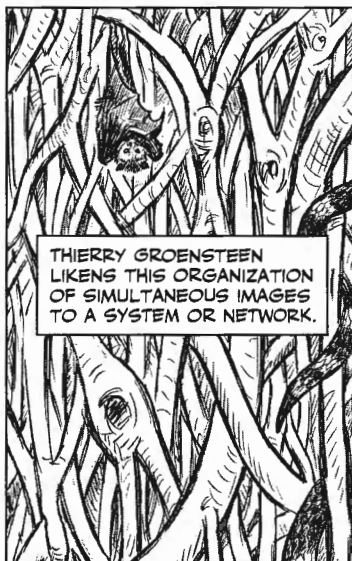
TO UNRAVEL THE FORM'S CAPACITIES, LET'S BEGIN WITH SCOTT MCCLOUD'S CONSIDERATION OF THE SEQUENTIAL AS ITS DEFINING ASPECT:







WHILE COMICS ARE READ  
SEQUENTIALLY LIKE TEXT,  
THE ENTIRE COMPOSITION  
IS ALSO TAKEN IN -  
VIEWED - ALLATONCE.



THIERRY GROENSTEEN  
LIKENS THIS ORGANIZATION  
OF SIMULTANEOUS IMAGES  
TO A SYSTEM OR NETWORK.



A CONNECTED SPACE,  
NOT RELIANT ON A  
CHAIN-LIKE SEQUENCE  
LINEARLY PROCEEDING  
FROM POINT TO POINT...



RATHER ASSOCIATIONS  
THAT STRETCH WEB-LIKE  
ACROSS THE PAGE  
BRAIDING FRAGMENTS  
INTO A COHESIVE WHOLE.



EACH ELEMENT  
IS THUS:



ONE WITH  
EVERYTHING.



THIS SPATIAL INTERPLAY  
OF SEQUENTIAL AND  
SIMULTANEOUS -



IMBUES COMICS  
WITH A DUAL  
NATURE -



BOTH TREE-LIKE,  
HIERARCHICAL AND  
RHIZOMATIC, INTERWOVEN  
IN A SINGLE FORM.



THESE TWO DISTINCT KINDS OF AWARENESS - THE SEQUENTIAL AND SIMULTANEOUS - CORRESPOND WITH IAIN MCGILCHRIST'S CHARACTERIZATION OF THE LEFT AND RIGHT HEMISPHERES OF THE BRAIN.

MCGILCHRIST DISMISSES THE LONG-HELD VIEW OF NEATLY MAPPING LEFT TO THE VERBAL AND RIGHT TO VISUAL, PROPOSING INSTEAD THAT THE HEMISPHERES ARE FUNDAMENTALLY DIFFERENT WAYS OF ATTENDING TO THE WORLD:

THE LEFT BREAKS DOWN AND ISOLATES INFORMATION INTO SEGMENTED PARTS AND THE RIGHT ADDRESSES THE WHOLE IN ITS CONTEXT.

EVOLUTIONARILY SPEAKING, THERE IS A GREAT ADVANTAGE IN BEING ABLE TO BRING TWO DISTINCT TYPES OF ATTENTION TO BEAR AT THE SAME TIME.

WHILE THE LEFT IS DIRECTED INWARD, NARROWLY FOCUSED ON MATTERS IMMEDIATELY AT HAND, THE RIGHT REMAINS OPEN, OUTWARDLY DIRECTED, AND BROADLY ALERT - ESSENTIAL TO AVOID BEING EATEN!

THE VERY FABRIC OF OUR EXPERIENCE EMERGES FROM THE INTERACTION AND INTEGRATION OF EACH HEMISPHERE'S SEPARATE MEANS OF PERCEIVING -

THESE DIFFERENT WAYS OF KNOWING HELD IN RELATIONSHIP AT ONE TIME.

SIMILARLY,

COMICS HOLD SEQUENTIAL AND SIMULTANEOUS MODES IN ELECTRIC TENSION,

EMBEDDED WITHIN THE SEQUENTIAL-SIMULTANEOUS ECOSYSTEM THAT IS COMICS.

He was an old man who fished alone in a skiff in the Gulf Stream and he had gone eighty-four days now without taking a fish. In the first forty days a boy had been with him.

But after forty days without a fish the boy's parents had told him that the old man was now definitely and finally *salao*, which is the worst form of unlucky and the boy had gone a

WORDS AND PICTURES, LONG KEPT APART, ARE ALLOWED TO COHABIT.

JOINED IN RELATIONSHIP, VISUAL AND VERBAL INTERMINGLE...



after Botticelli

DESCRIPTION

DEPICTION

TEXT

BECOMES AN INTEGRAL ELEMENT OF THE COMPOSITION.

INTERPENETRATE

INTERANIMATE

INTERWEAVE

REFRACTION BETWEEN MODES.

GENERATES A KIND OF MULTIPLICATIVE RESONANCE - A DYNAMIC CYCLE OF READ=LOOK, LOOK=READ...

EQUAL PARTNERS IN THIS UNION.

INTERDEPENDENT

INEXTRICABLE

EACH INFORMS AND ENRICHES THE OTHER TO ACHIEVE A MEANING, AS R. C. HARVEY SAYS, "THAT NEITHER CONVEYS ALONE WITHOUT THE OTHER."

# WORDS UNRAILED

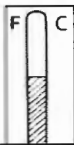
DAVID LEWIS CALLS IMAGE-TEXT INTERACTION A "DOUBLE ORIENTATION" - A "LOOKING IN MORE THAN ONE DIRECTION AT THE SAME TIME."

EQUALLY FITTING FOR OUR PURPOSES: EDWARD TUPTÉ'S DESCRIPTION OF THIS INTEGRATION OF WORDS AND PICTURES IN WHICH THEY ACT AS ONE, AS BEING ESSENTIAL FOR "ESCAPING FLATLANDS" OF INFORMATION EXCHANGE...

TO PLUMB GREATER DEPTHS OF DISCOURSE.

WORDS,  
AS WE'VE COME TO SEE,  
ARE NOT THE SOLE VEHICLE  
FOR COMMUNICATING  
THOUGHT.

FOR LIKE THE  
THERMOMETER,



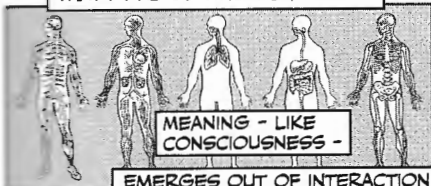
ANY SINGLE  
MODE ONLY  
PROVIDES A  
PARTIAL VIEW.

Descartes took this distrust a step further, as he considered the possibility that all he perceived might be the illusion of a supremely powerful evil. His observations of wax in the *Meditations* led him to that

THE MANY POSSIBLE  
PATHS BY WHICH WE  
MAKE MEANING



ARE AS VARIED AS THE SYSTEMS  
THAT MAKE US WHO WE ARE.



MEANING - LIKE  
CONSCIOUSNESS -

EMERGES OUT OF INTERACTION  
AMONG ALL THE ELEMENTS.

COMICS, BEYOND UNITING TEXT AND  
IMAGE, ALLOW FOR THE INTEGRATION  
AND INCORPORATION OF MULTIPLE  
MODES AND SIGNS AND SYMBOLS -

OUTSIDE THE SCOPE OF WHAT  
NELSON GOODMAN IDENTIFIES  
AS NOTATIONAL SYSTEMS AND  
REPRESENTATIONAL IMAGERY.

THIS MAKES FOR AN  
EXPANSIVE PALETTE -

A MOSAIC, AS PERRY NODELMAN  
CALLS IT, COMPOSED OF  
SEPARATE ELEMENTS,

ORCHESTRATED,

NOT ONE-AT-A-TIME,

RATHER,  
SPATIALLY  
ENTWINED,

MULTIPLE LAYERS ARE  
CONVEYED IN UNISON.

EACH RETAINING ITS  
DISTINCT IDENTITY,  
WHILE CONTRIBUTING  
TO THE WHOLE.

THROUGH THEIR  
VERY ARRANGEMENT,

THESE ASPECTS  
COME TOGETHER IN  
MUTUALLY AFFECTING  
RELATIONSHIPS...

TO PRODUCE  
A SYMPHONY.

OVER THE COURSE  
OF THIS CHAPTER,

WE'VE SOUGHT TO  
RECONSIDER HOW WE  
ORDER EXPERIENCE  
AND GIVE SHAPE TO  
OUR THOUGHTS.

LINEAR SEQUENCES  
OF ROWS

HAVE THEIR STRENGTHS BUT

THEY ARE NOT THE  
ONLY POSSIBILITY.

WHEN WE TAKE THE ALL-OVER  
COMPOSITION INTO ACCOUNT

FORM AND EXPRESSION  
BECOME ONE.

MEANING IS  
THUS CONVEYED  
NOT ONLY BY  
WHAT'S DEPICTED,  
BUT THROUGH  
STRUCTURE: THE  
SIZE, SHAPE,  
PLACEMENT,  
AND

RELATIONSHIP OF  
COMPONENTS -

WHAT THEY'RE  
NEXT TO

AND WHAT  
THEY'RE NOT,  
MATTERS.

ART SPIEGELMAN DESCRIBES EACH  
PAGE AS AN ARCHITECTONIC UNIT -

IDEAS MADE  
SPATIAL.

CITING GOETHE, CHRIS WARE  
LIKENS COMICS TO "FROZEN  
MUSIC," A SPACE TO  
RECONSTITUTE MEMORY.

FROM THE  
FORKING  
PATHS,

TANGENTIAL (AND  
PARENTHERICAL),

UNBOUND,

MOMENTS NESTED  
WITHIN MOMENTS,

LAYERED AND  
OVERLAPPING,

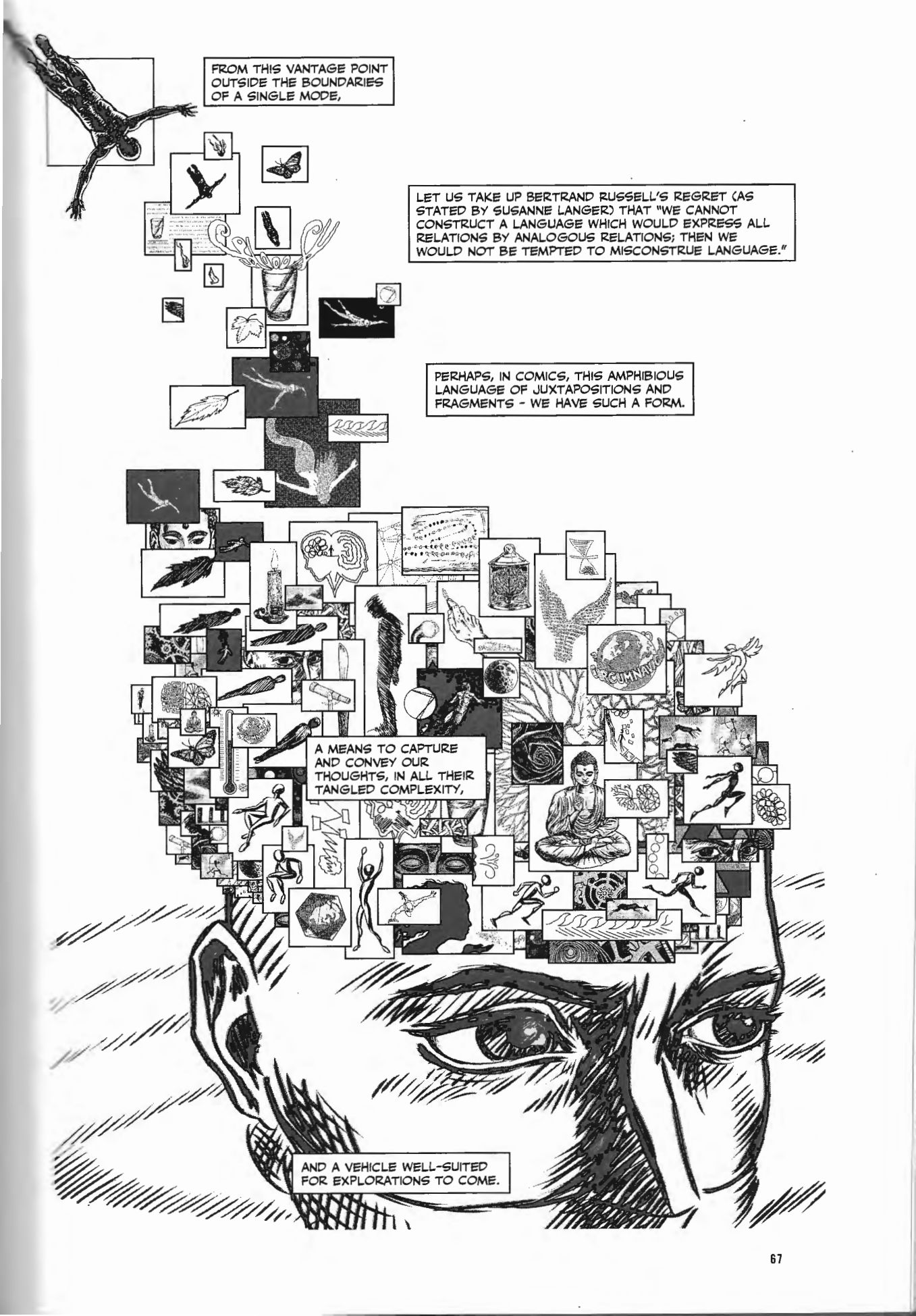
INTERSECTING,

COMICS CAN HOLD  
THE UNFLAT WAYS  
IN WHICH THOUGHT  
UNFOLDS.

THROUGH ITS  
MULTIPLICITY OF  
APPROACHES FOR  
CONSTITUTING  
EXPERIENCE, THIS  
FORM CAN PROVIDE  
AN ELEVATED  
PERSPECTIVE FROM  
WHICH TO  
ILLUMINATE THE  
TRAPS OF OUR OWN  
MAKING AND OFFER  
A MEANS TO...

STEP OUT.





FROM THIS VANTAGE POINT  
OUTSIDE THE BOUNDARIES  
OF A SINGLE MODE,

LET US TAKE UP BERTRAND RUSSELL'S REGRET (AS  
STATED BY SUSANNE LANGER) THAT "WE CANNOT  
CONSTRUCT A LANGUAGE WHICH WOULD EXPRESS ALL  
RELATIONS BY ANALOGOUS RELATIONS; THEN WE  
WOULD NOT BE TEMPTED TO MISCONSTRUE LANGUAGE."

PERHAPS, IN COMICS, THIS AMPHIBIOUS  
LANGUAGE OF JUXTAPOSITIONS AND  
FRAGMENTS - WE HAVE SUCH A FORM.

A MEANS TO CAPTURE  
AND CONVEY OUR  
THOUGHTS, IN ALL THEIR  
TANGLED COMPLEXITY,

AND A VEHICLE WELL-SUITED  
FOR EXPLORATIONS TO COME.

four

# OUR BODIES IN MOTION



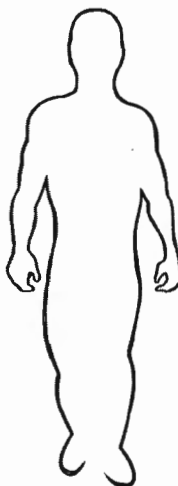
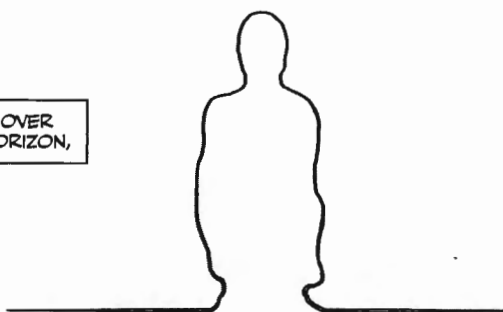
THE IMAGE-TEXT DIVIDE...

BREACHED,

WE NOW INTRODUCE ANOTHER  
DIMENSION TO OUR THINKING...



AND SET FORTH OVER  
AN EXPANSIVE HORIZON,



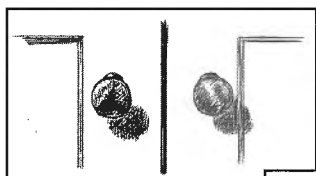
COMPLETE WITH ITS OWN  
FORMS FOR EXPRESSION  
AND MEANS OF DISCOVERY.

RUDOLF ARNHEIM SAYS THAT "TO SEE MEANS TO SEE IN RELATION."

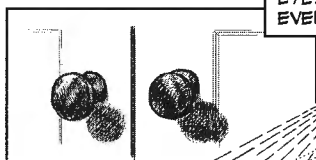


FROM THE RELATIONSHIP BETWEEN THE SEPARATE VIEWS FROM EACH EYE

TO HOW THE MOVEMENT OF OUR HEAD AND BODIES ALTERS OUR RELATIONSHIP TO OUR ENVIRONMENT,

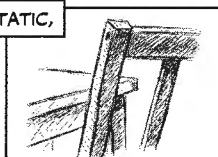


PERCEPTION IS A DYNAMIC ACTIVITY.

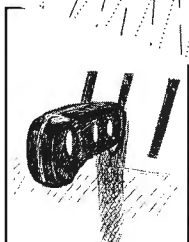
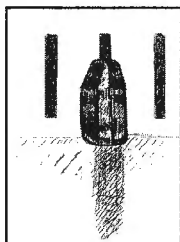


EYES DARTING, EVER IN MOTION,

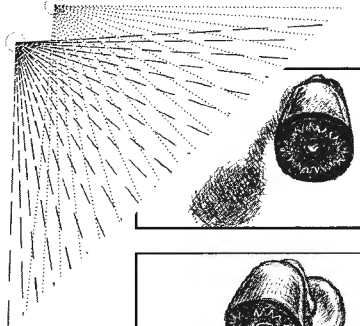
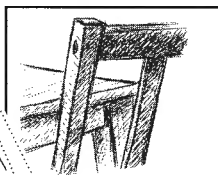
NEVER STATIC,



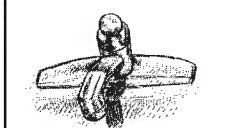
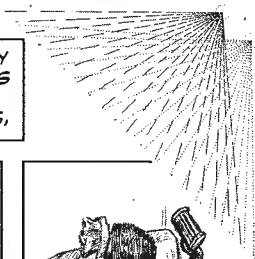
WE ARE CONSTANTLY MAKING COMPARISONS, EVALUATING, AND CONTEXTUALIZING ALL WE ENCOUNTER.



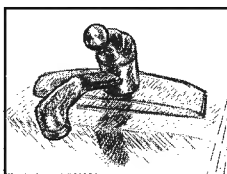
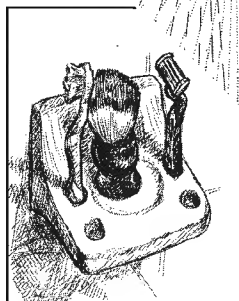
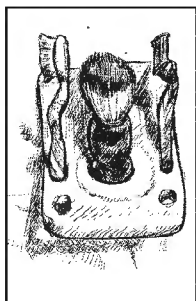
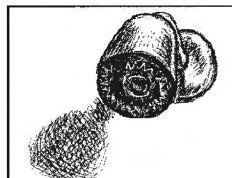
VISION REACHES OUT, EXPLORING OUR SURROUNDINGS AS IF BY TOUCH,



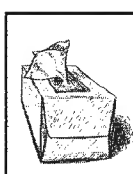
FEELING OUR WAY AROUND CORNERS AND BEHIND OBSCURED VIEWS,



CONTINUOUSLY REVEALING NEW ASPECTS,



GLEANNING FURTHER INFORMATION TO ACTIVELY FORMULATE UNDERSTANDING.

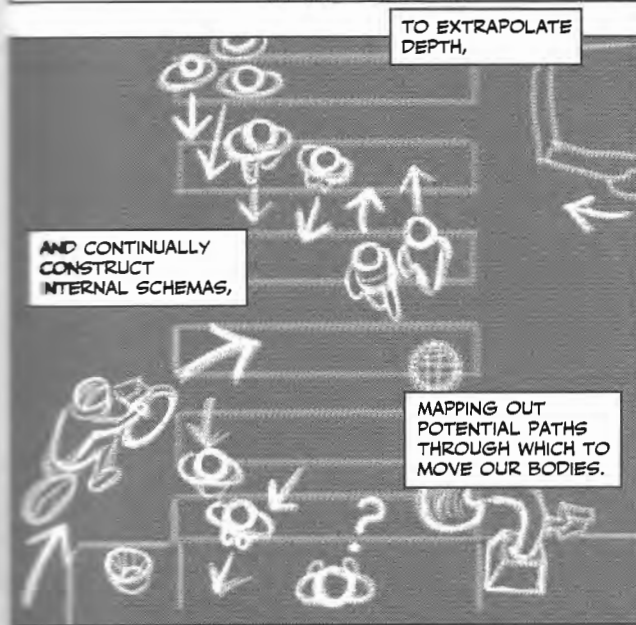






IT IS FROM THIS  
MULTIPLICITY OF  
APPEARANCES,

THAT WE CAN  
SORT THROUGH  
AND DIFFERENTIATE  
THE VASTNESS OF  
SENSE DATA,

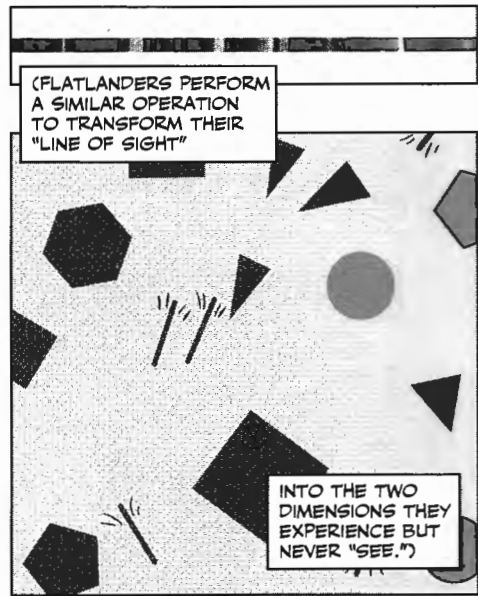


TO EXTRAPOLATE  
DEPTH,

AND CONTINUALLY  
CONSTRUCT  
INTERNAL SCHEMAS,

MAPPING OUT  
POTENTIAL PATHS  
THROUGH WHICH TO  
MOVE OUR BODIES.

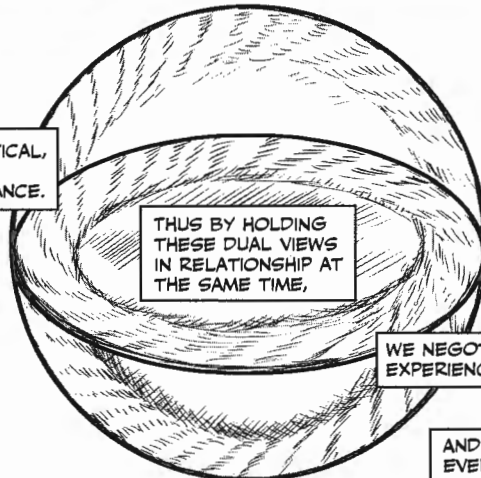
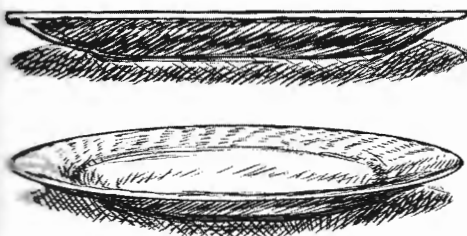
ALVA NOË SUGGESTS THAT "PERCEPTUAL  
EXPERIENCE IS A WAY OF ENCOUNTERING  
HOW THINGS ARE BY MAKING CONTACT  
WITH HOW THEY APPEAR TO BE."



(FLATLANDERS PERFORM  
A SIMILAR OPERATION  
TO TRANSFORM THEIR  
"LINE OF SIGHT"

INTO THE TWO  
DIMENSIONS THEY  
EXPERIENCE BUT  
NEVER "SEE.")

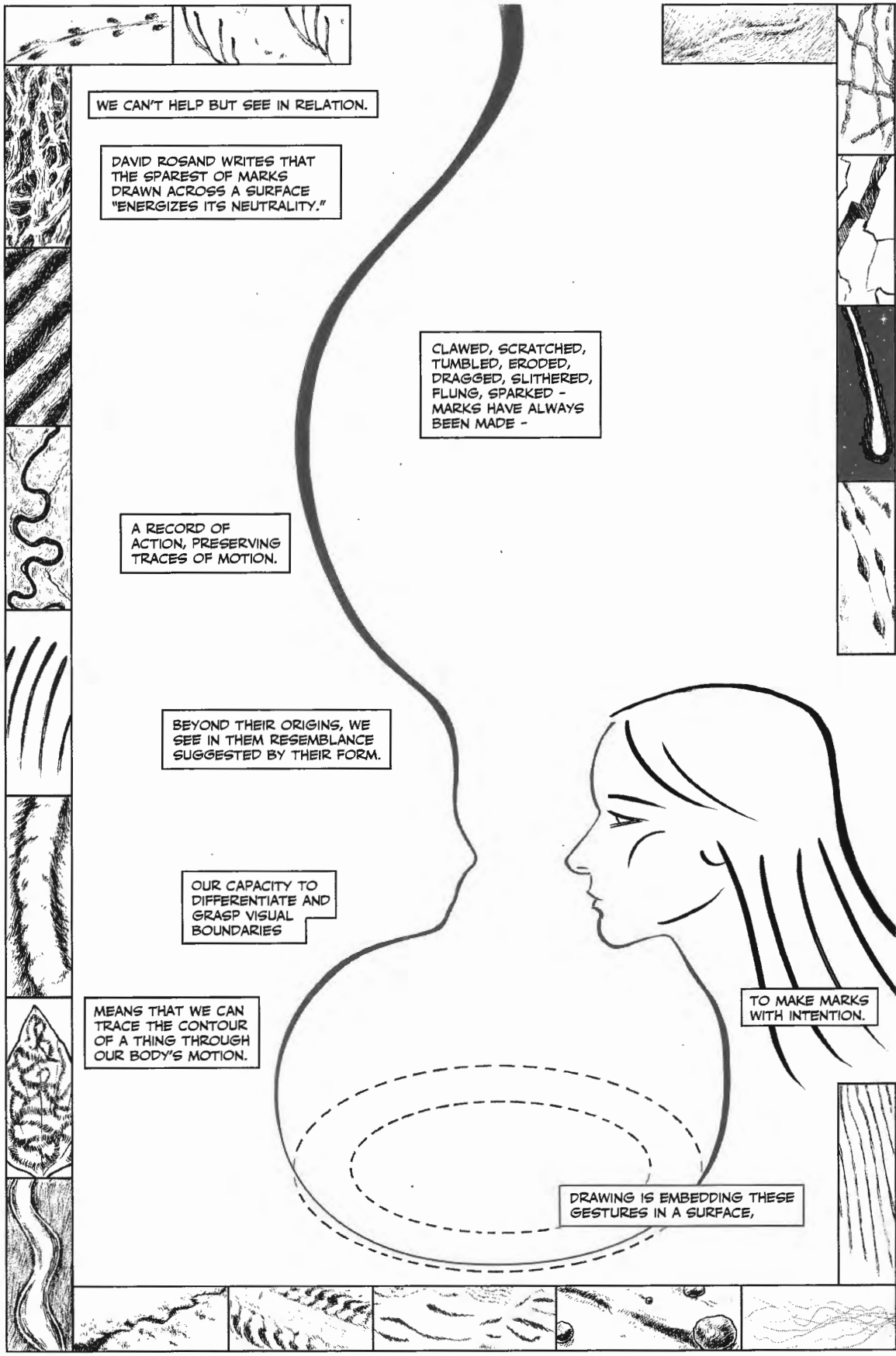
EVEN AS THE PLATE APPEARS ELLIPTICAL,  
WE ALSO RECOGNIZE IT AS BEING  
CIRCULAR IN ITS ELLIPTICAL APPEARANCE.



THUS BY HOLDING  
THESE DUAL VIEWS  
IN RELATIONSHIP AT  
THE SAME TIME,

WE NEGOTIATE  
EXPERIENCE.

AND WE DO THIS  
EVERY INSTANT.



WE CAN'T HELP BUT SEE IN RELATION.

DAVID ROSAND WRITES THAT THE SPAREST OF MARKS DRAWN ACROSS A SURFACE "ENERGIZES ITS NEUTRALITY."

CLAWED, SCRATCHED, TUMBLED, ERODED, DRAGGED, SLITHERED, FLUNG, SPARKED - MARKS HAVE ALWAYS BEEN MADE -

A RECORD OF ACTION, PRESERVING TRACES OF MOTION.

BEYOND THEIR ORIGINS, WE SEE IN THEM RESEMBLANCE SUGGESTED BY THEIR FORM.

OUR CAPACITY TO DIFFERENTIATE AND GRASP VISUAL BOUNDARIES

MEANS THAT WE CAN TRACE THE CONTOUR OF A THING THROUGH OUR BODY'S MOTION.

TO MAKE MARKS WITH INTENTION.

DRAWING IS EMBEDDING THESE GESTURES IN A SURFACE,

FROM CALM TO HEIGHTENED,  
A DRAWN LINE CARRIES THE  
MAKER'S EXPRESSION.

AND RISE UP.

TO STAND TALL AGAINST  
GRAVITY'S PULL

WE RECOGNIZE SOFT CURVES  
AS COMFORTING AND JAGGED  
MOVEMENTS AS SHARP EDGES  
OR TREACHEROUS PEAKS.

WE KNOW TOO WHAT  
IT FEELS LIKE

AND TO FALL.

CLOSING IN ON ITSELF,  
LINE BECOMES OUTLINE  
TO DESCRIBE SHAPE.

CREATING  
INTERIOR  
AND

EXTERIOR.

THERE ARE SKILLS, DRAFTSMANSHIP, BUT AT ITS CORE  
DRAWING IS EXPLOITING OUR SEEING IN RELATION.

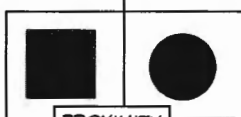
BY ORCHESTRATING THE RELATIONSHIP BETWEEN ELEMENTS  
AND THE SPACE THEY INHABIT, WE CAN TRIGGER  
CORRESPONDENCE WITH EXPERIENCE BOTH SEEN AND FELT.

CONSIDER:

DIFFERENCE



SIMILARITY



PROXIMITY

DISTANCE



ON,

WHICH IN TURN  
CONSISTS OF:

ABOVE

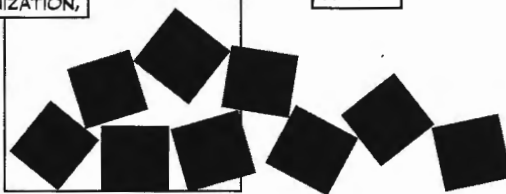
CONTACT

SUPPORT

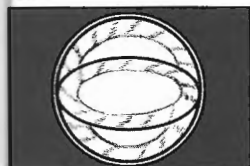


STRUCTURAL  
ORGANIZATION,

AND ITS  
LACK.



DEPTH IS IMPLIED BY  
COMPARING, AS ARNHEIM  
PUT IT, "WHAT IS WITH  
WHAT OUGHT TO BE" -



APPEARANCE DIVERGING  
FROM THE EXPECTED.

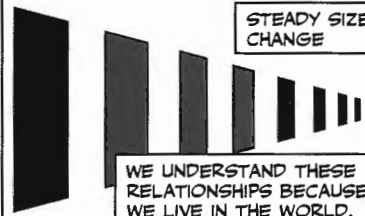
BEHIND



TILTED  
BACKWARD



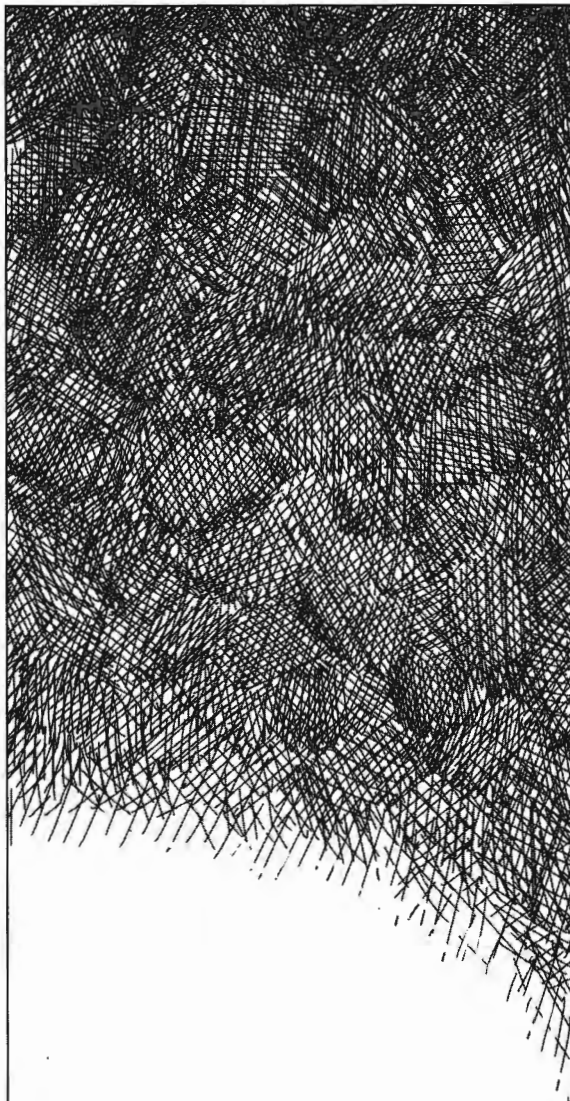
STEADY SIZE  
CHANGE



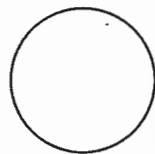
WE UNDERSTAND THESE  
RELATIONSHIPS BECAUSE  
WE LIVE IN THE WORLD.

LAKOFF AND JOHNSON AND NÚÑEZ SAY  
THAT OUR FUNDAMENTAL CONCEPTS DO  
NOT SPRING FROM THE REALM OF PURE,  
DISEMBODIED REASON, BUT ARE GROUNDED  
IN OUR SEEING AND BEING IN THE WORLD.

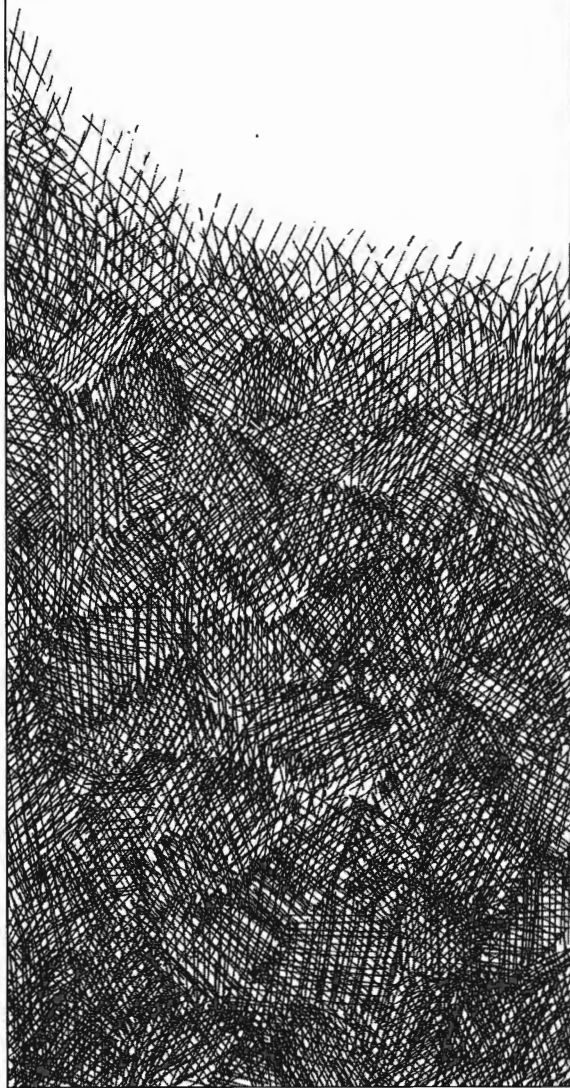
THAT IS, THROUGH OUR EVERYDAY PERCEPTUAL  
AND BODILY ACTIVITIES, WE FORM DYNAMIC  
IMAGE-LIKE STRUCTURES THAT ENABLE US TO  
ORGANIZE AND MAKE SENSE OF OUR EXPERIENCE.



SAD  
IS DOWN.



HAPPY IS UP.

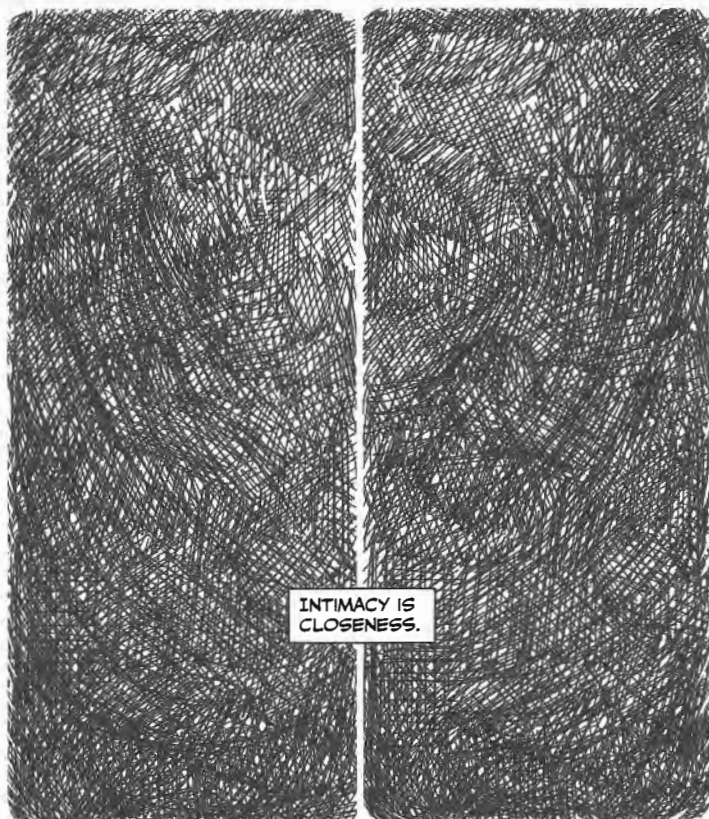


THESE STRUCTURES OPERATE BELOW OUR CONSCIOUS  
AWARENESS AND SHAPE OUR THINKING AND BEHAVIOR.

CONCRETE EXPERIENCES SERVE AS THE  
PRIMARY BUILDING BLOCKS FROM WHICH WE  
EXTEND OUR CAPACITY FOR THOUGHT AND  
GIVE RISE TO MORE ABSTRACTED CONCEPTS.

WE UNDERSTAND THE NEW  
IN TERMS OF THE KNOWN.

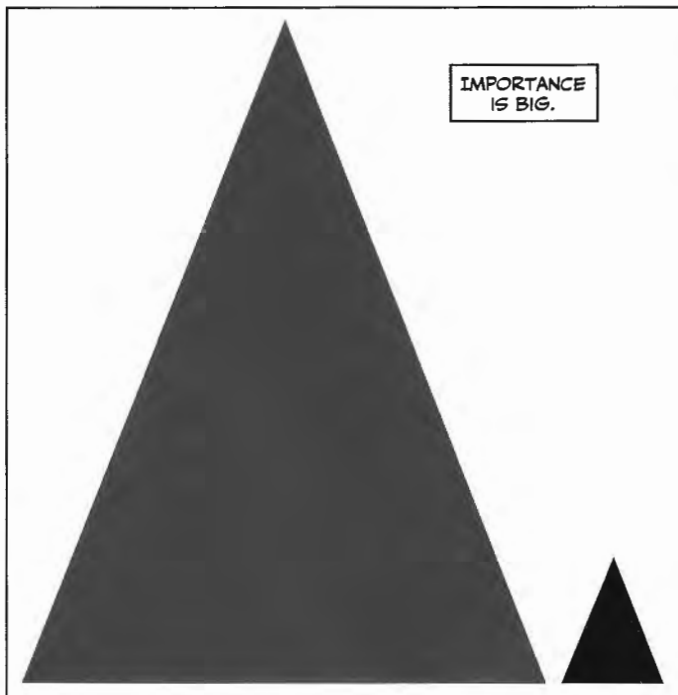




INTIMACY IS  
CLOSENESS.



ISOLATION  
IS APART



IMPORTANCE  
IS BIG.



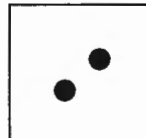
DIFFICULTY IS  
A BURDEN.

A JOURNEY  
IS A PATH

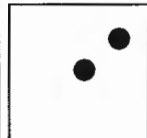
FROM A  
SOURCE



ALONG A  
ROUTE



CENTERED  
IS STABLE,



OFF IS  
UNBALANCED.

(INTENDED  
OR OTHER)



LEFT  
OUT



WITHIN

GO INTO

TO A  
GOAL.

AND OUT  
OF.

UNDERSTANDING  
IS GRASPING.

WE GRAB HOLD OF AN  
IDEA AND ENCLOSE IT  
WITHIN A FIRM GRIP.

NOW WITHIN OUR REACH, WE CAN  
MANIPULATE AND TURN IT OVER  
TO GET AT ALL ITS ASPECTS.



DRAWING IS A WAY OF SEEING  
AND THUS, A WAY OF KNOWING,

IN WHICH WE TOUCH MORE DIRECTLY  
THE PERCEPTUAL AND EMBODIED  
PROCESSES UNDERLYING THINKING.

THE PREVAILING  
IMAGE OF THINKING  
IS ALL IN OUR HEADS,

WHILE WE REMAIN  
STILL IN BODY.



FOR ALL OUR  
MENTAL PROWESS,  
OUR MINDS ARE  
NOT LIMITLESS.



DRAWING, AS MASAKI SUWA AND BARBARA TVERSKY  
SUGGEST, IS A MEANS OF ORCHESTRATING A  
CONVERSATION WITH YOURSELF.

PUTTING THOUGHTS DOWN  
ALLOWS US TO STEP  
OUTSIDE OURSELVES,

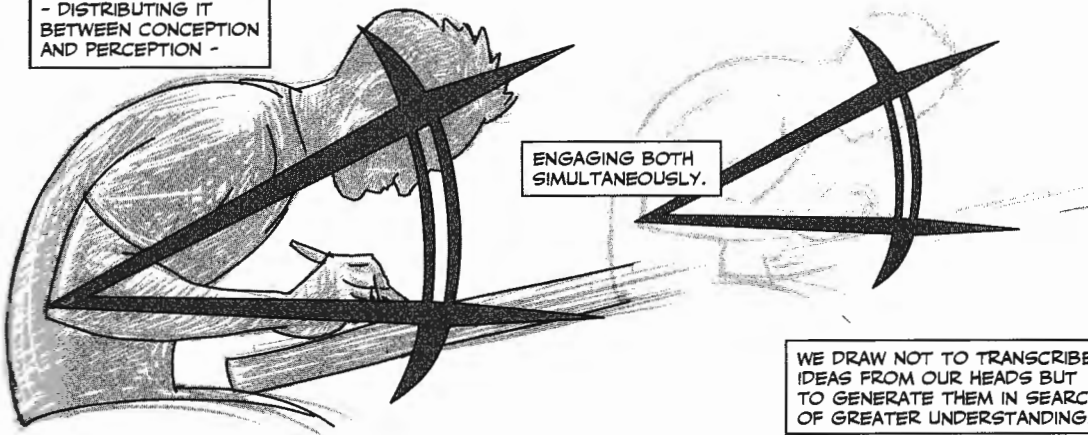
AND TAP INTO OUR  
VISUAL SYSTEM AND  
OUR ABILITY TO SEE  
IN RELATION.



WE THUS EXTEND  
OUR THINKING

- DISTRIBUTING IT  
BETWEEN CONCEPTION  
AND PERCEPTION -

ENGAGING BOTH  
SIMULTANEOUSLY.



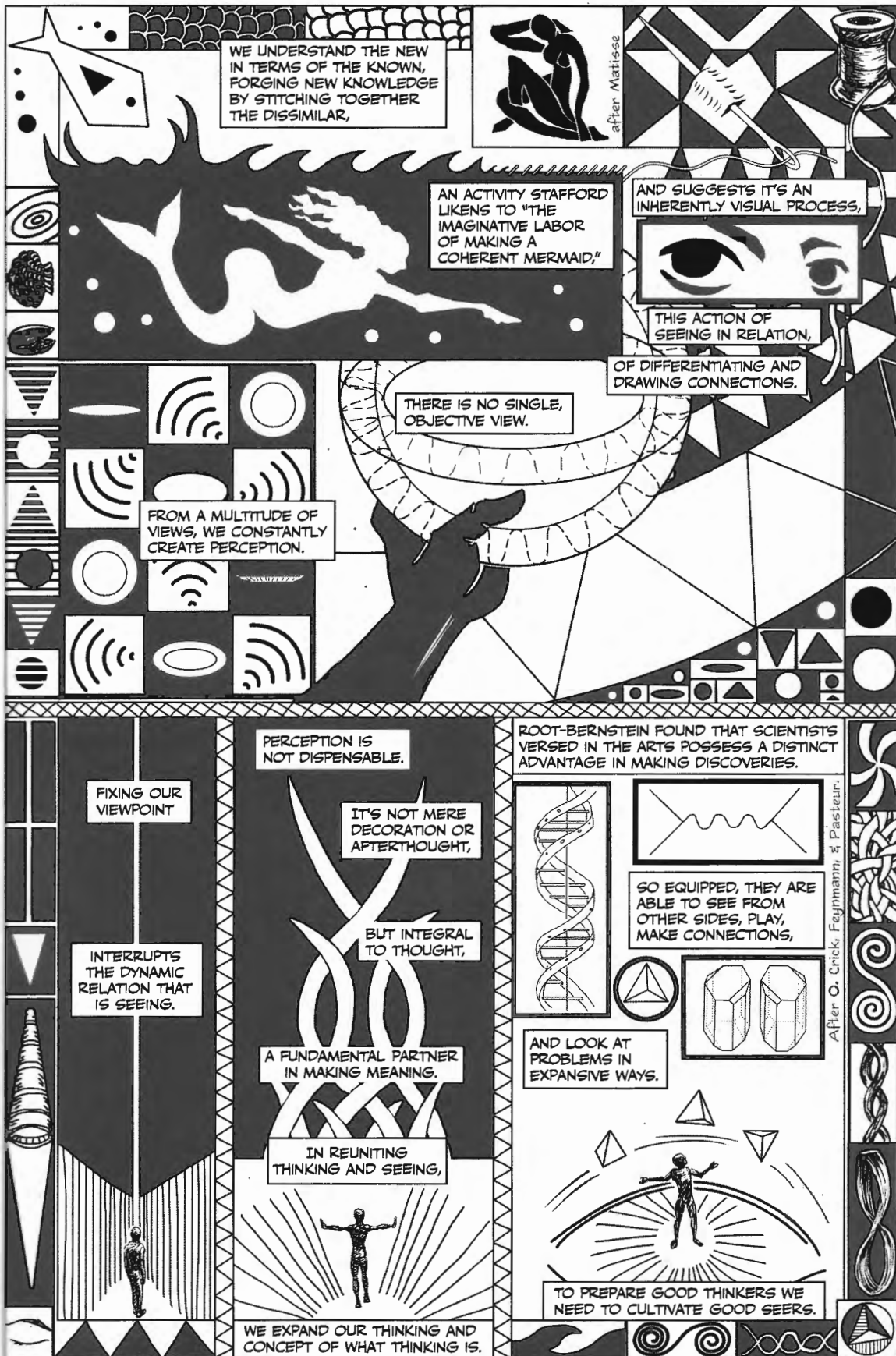
WE DRAW NOT TO TRANSCRIBE  
IDEAS FROM OUR HEADS BUT  
TO GENERATE THEM IN SEARCH  
OF GREATER UNDERSTANDING.

CHRIS MOFFETT WRITES THAT MOVING IS THE PROPER MODE OF THOUGHT: "THE WAY WE FIND OUR WAY." THE PHYSICAL ACTIVITY OF DRAWING OCCURS IN DYNAMIC RELATIONSHIP WITH THE ARTIST'S VISUAL RESPONSE TO WHAT'S PUT DOWN.

DRAWER AND DRAWING JOURNEY  
FORTH INTO THE UNKNOWN TOGETHER.







ARMED WITH MULTIPLE WAYS  
OF SEEING, WE GAIN ACCESS  
TO MULTIDIMENSIONAL SIGHT

LOCKSTEP,

- A SPHERE IN FLATLAND -

THIS LINE...

WHERE EXISTING BARRIERS TUMBLE  
AND CREATIVE POSSIBILITIES FLOURISH.

SUCH IS THE CASE WITH OUR  
FLATLANDERS, TRAPPED WITHIN  
THE BORDERS OF THEIR VISION.

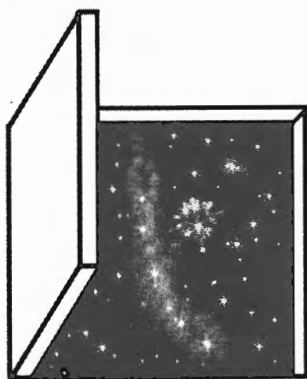
UNRAVEL  
OTHER  
IMAGINE

...ALIGNED IN A SINGLE DIMENSION.

BUT THERE ARE  
FURTHER DIMENSIONS  
STILL TO EXPLORE...

five

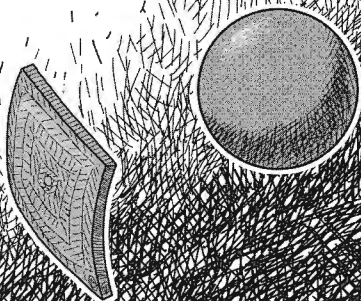
# THE FIFTH DIMENSION



IN FLATLAND, A. SQUARE HAS  
A FINAL PROPHETIC VISION,



IN WHICH HE AND THE SPHERE  
VISIT POINTLAND, THE ABYSS  
OF NO DIMENSIONS.



THERE, THEY ENCOUNTER ITS  
SOLE INHABITANT, A SOLIPSISTIC  
MONARCH AT ONCE HIS OWN  
WORLD AND HIS OWN UNIVERSE.

THEIR ATTEMPTS TO MAKE THEIR  
PRESENCE KNOWN TO HIM WENT  
NOWHERE - HE COULDN'T CONCEIVE  
OF ANY OTHER EXCEPT HIMSELF.



IN THE REALIZATION THAT  
THIS ISN'T ALL THERE IS,



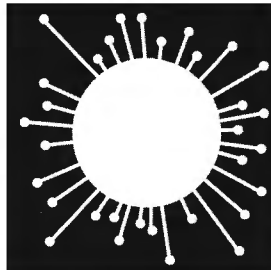
THAT WE'RE NOT ALONE,

THAT THERE ARE OTHER  
VANTAGE POINTS,

AND IN FACT, THERE ARE  
BOUNDLESS POSSIBLE  
PERSPECTIVES BEYOND  
WHERE WE'VE BEEN,

OR EVEN WHERE  
WE CAN GO,

THERE IS IMAGINATION.



IMAGINATION LETS US EXCEED OUR  
INEVITABLY LIMITED POINT OF VIEW TO  
FIND PERSPECTIVES NOT IN EXISTENCE  
OR DIMENSIONS NOT YET ACCESSIBLE.

WHILE WE CAN NO MORE WALK  
A MILE IN ANOTHER'S SHOES



THAN SEE THROUGH THEIR EYES,



A GULF BETWEEN US  
WILL ALWAYS REMAIN



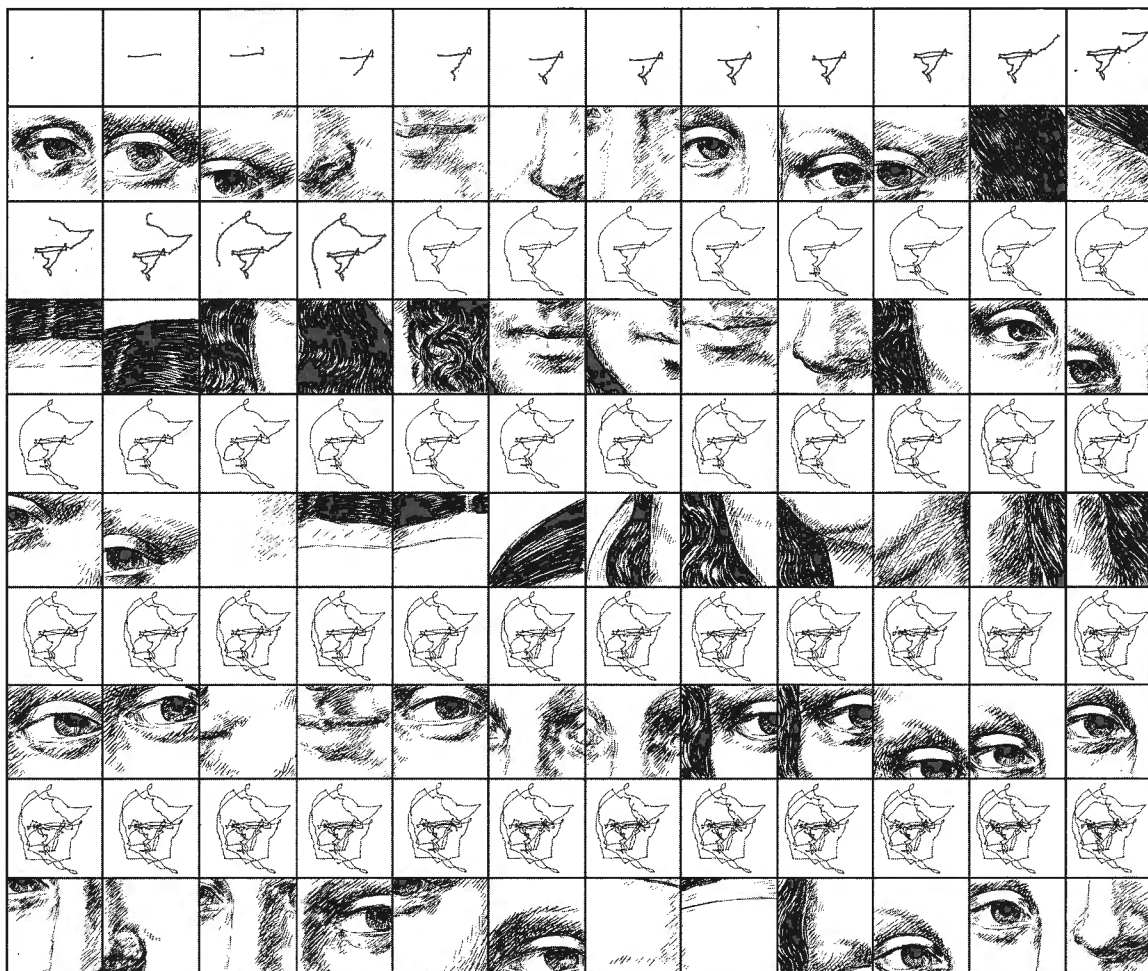
(AND THAT  
SEPARATION IS  
NECESSARY).



REACHING ACROSS THE GAP  
TO EXPERIENCE ANOTHER'S  
WAY OF KNOWING TAKES A  
LEAP OF THE IMAGINATION.



AS MAXINE GREENE SAYS, "IS IT  
NOT IMAGINATION THAT ALLOWS  
US TO ENCOUNTER THE OTHER  
AS DISCLOSED THROUGH THE  
IMAGE OF THAT OTHER'S FACE?"



"TO ENCOUNTER" THE WORLD  
OUTSIDE OURSELVES,

DANCING AND DARTING, OUR  
EYES GO TO WORK, A FLURRY  
OF MOTION PUNCTUATED BY  
BRIEF PAUSES A FEW TIMES A  
SECOND IN WHICH THEY FIX ON A  
TARGET - BEFORE DASHING OFF  
TO SEEK ANOTHER OF INTEREST.

OUR VISION CAPTURES  
DISCONNECTED STATIC  
SNAPSHOTS, AN INCOMPLETE  
PICTURE RIDDLED WITH GAPS.

IT IS THE IMAGINATION, ETIENNE  
PELAPRAT AND MICHAEL COLE  
ASSERT, THAT FILLS IN THE GAPS  
AND LINKS FRAGMENTS TO  
CREATE STABLE AND SINGLE  
IMAGES THAT MAKE IT POSSIBLE  
FOR US TO THINK AND TO ACT.

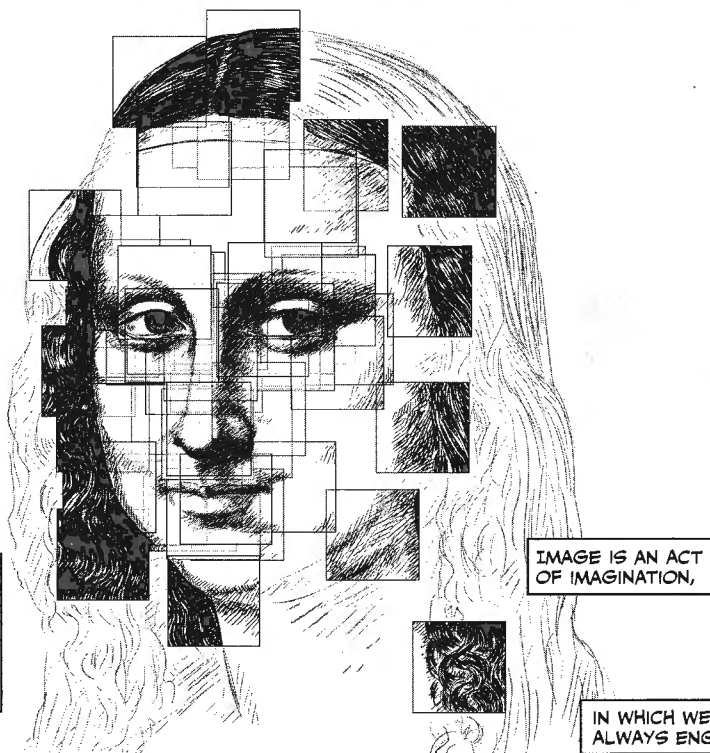


IMAGE IS AN ACT  
OF IMAGINATION,

IN WHICH WE ARE  
ALWAYS ENGAGED.

BOTH BINDING AGENT AND ACTION,  
IMAGINATION ALLOWS US TO SPAN  
GAPS IN PERCEPTION.

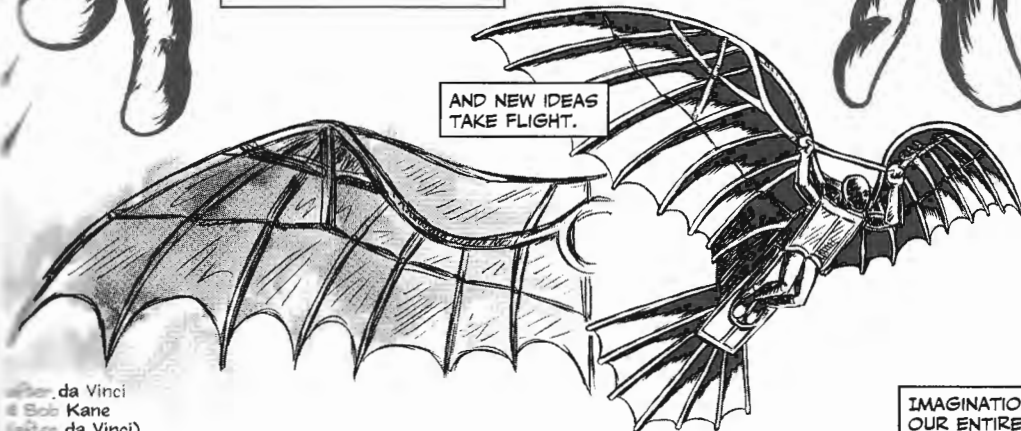


FROM THE NOVEL TO THE  
COMMONPLACE, IT'S HOW  
WE FORMULATE CONCEPTS,

WHICH GILLES FAUCONNIER  
AND MARK TURNER EXPLAIN  
AS BRINGING INPUT FROM  
DISTINCT SOURCES  
TOGETHER IN A THIRD SPACE,

A MENTAL FRAME IN WHICH  
SALIENT FEATURES FROM  
EACH INTERACT TO GIVE  
RISE TO NEW STRUCTURES,

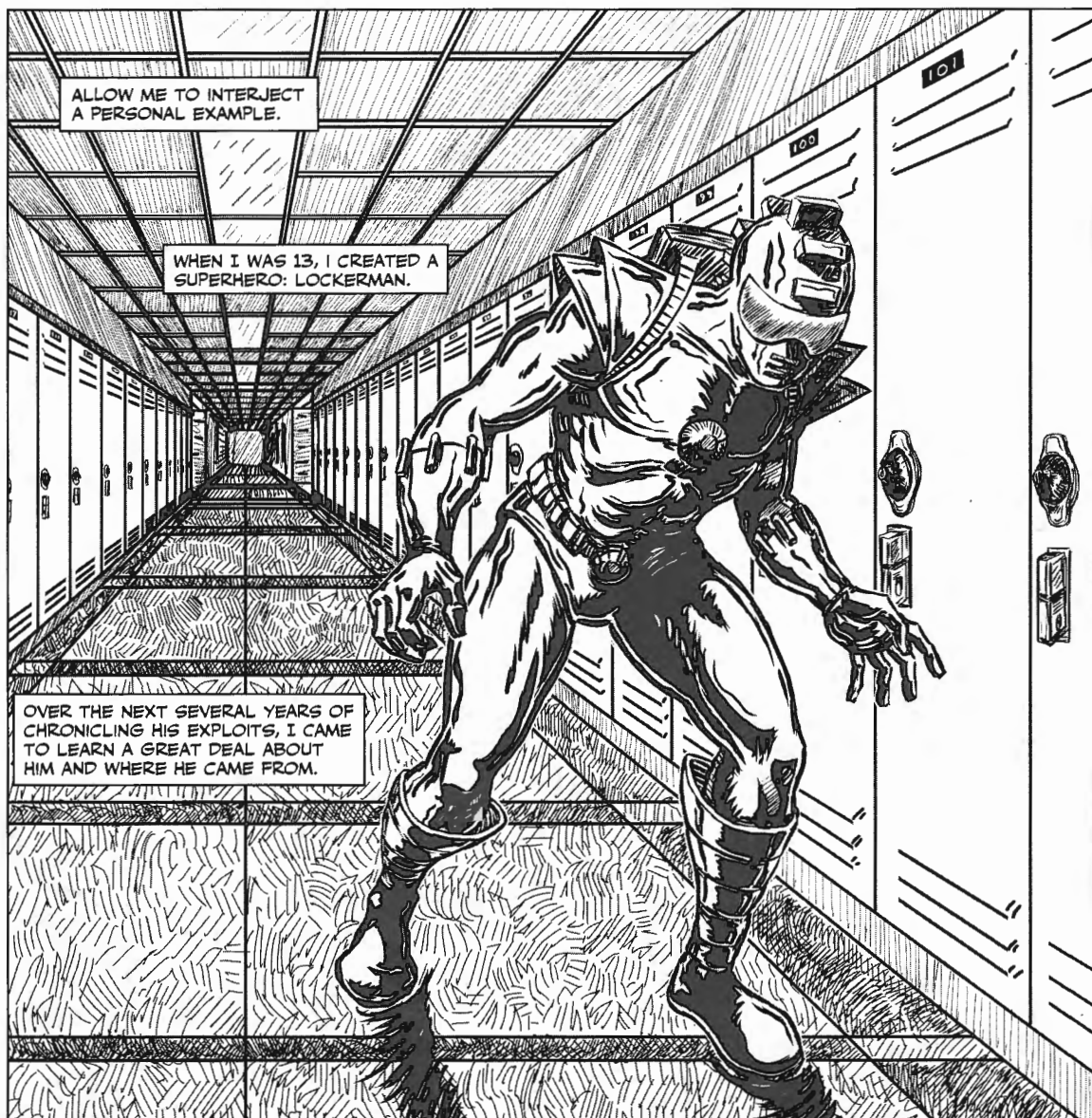
AND NEW IDEAS  
TAKE FLIGHT.



after da Vinci  
© Bob Kane  
inspired by da Vinci

IMAGINATION PERVADES  
OUR ENTIRE EXISTENCE.

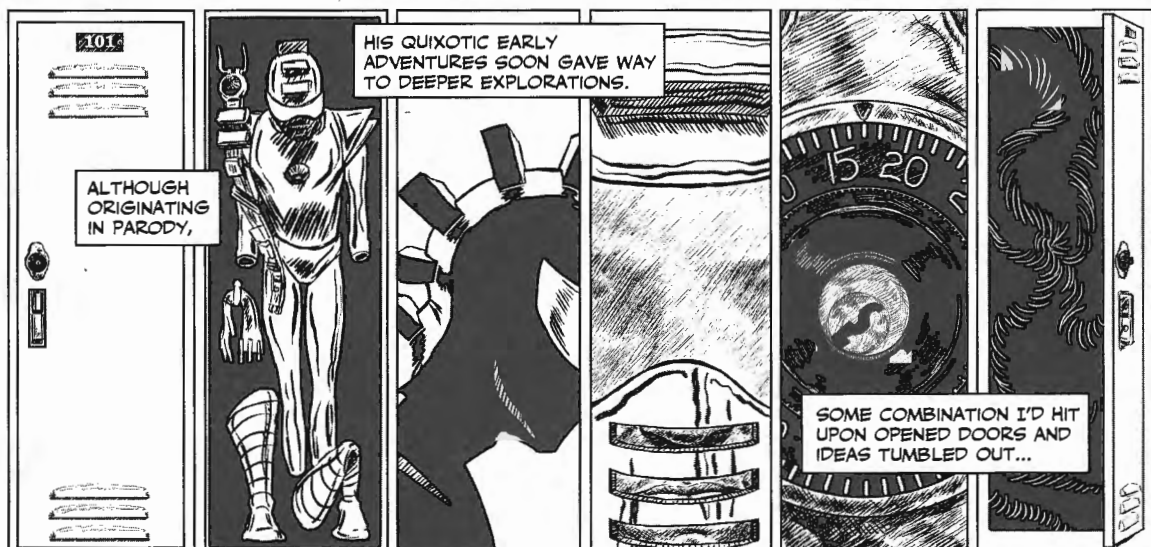




ALLOW ME TO INTERJECT  
A PERSONAL EXAMPLE.

WHEN I WAS 13, I CREATED A  
SUPERHERO: LOCKERMAN.

OVER THE NEXT SEVERAL YEARS OF  
CHRONICLING HIS EXPLOITS, I CAME  
TO LEARN A GREAT DEAL ABOUT  
HIM AND WHERE HE CAME FROM.



ALTHOUGH  
ORIGINATING  
IN PARODY,

HIS QUIXOTIC EARLY  
ADVENTURES SOON GAVE WAY  
TO DEEPER EXPLORATIONS.

SOME COMBINATION I'D HIT  
UPON OPENED DOORS AND  
IDEAS TUMBLED OUT...

I HAD GIVEN LOCKERMAN  
BUT A SINGLE SPECIAL  
ABILITY, TO STEP  
THROUGH ANY DOOR

(INITIALLY ONLY  
LOCKERS),



AND COME OUT ANY  
OTHER - ANYWHERE  
AND ANY WHEN...

IT IS THIS, THE IN-BETWEEN  
SPACE CONNECTING TWO PLACES  
OUTSIDE OF THE USUAL WAY.

THIS IS IMAGINATION.

A RUPTURE IN THE EXISTING  
FABRIC, A FOLD IN SPACE.

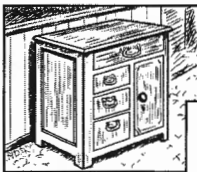


LOCKERMAN'S TRUE ORIGINS,  
I CAME TO REALIZE,

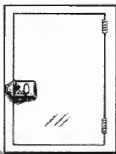
SPRANG FROM  
MY EARLY  
FASCINATION  
WITH KEYS  
AND LOCKS;



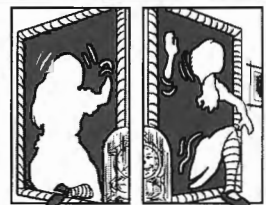
MY BROTHER'S TALL  
TALES ABOUT WHAT  
LAY WITHIN THE  
KITCHEN CUPBOARD



AND LURKED  
BEHIND THE ATTIC  
DOOR (WHICH  
REMAINED SHUT),



AS WELL AS WONDERLANDS  
ACCESSED BY ORDINARY  
PORTALS: RABBIT HOLES,



LOOKING GLASSES,

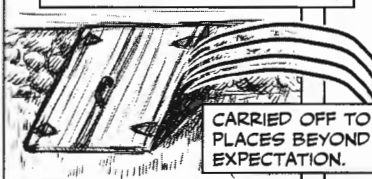


AND WARDROBES.

(AND WONDERING WHERE  
THE STAIRWAY BEHIND  
OUR HOUSE MIGHT LEAD);



SOMETIMES, FAILING TO GET  
THROUGH THE DOOR STILL  
MEANS BEING WHISKED AWAY,



CARRIED OFF TO  
PLACES BEYOND  
EXPECTATION.

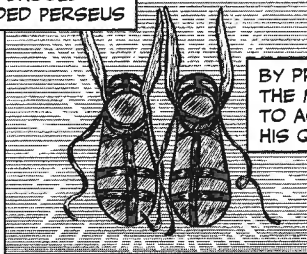
WHATEVER THE MODE OF  
TRANSPORTATION -  
IMAGINATION OFFERS A  
DIFFERENT VANTAGE POINT

FROM WHICH TO  
SET OFF ON A  
NEW JOURNEY.

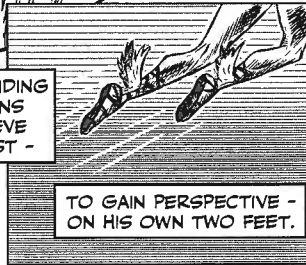
REFLECTING UPON THIS NOW  
BRINGS TO MIND SWIFT HERMES,  
THE MESSENGER, GUIDE AND  
GUARDIAN TO TRAVELERS



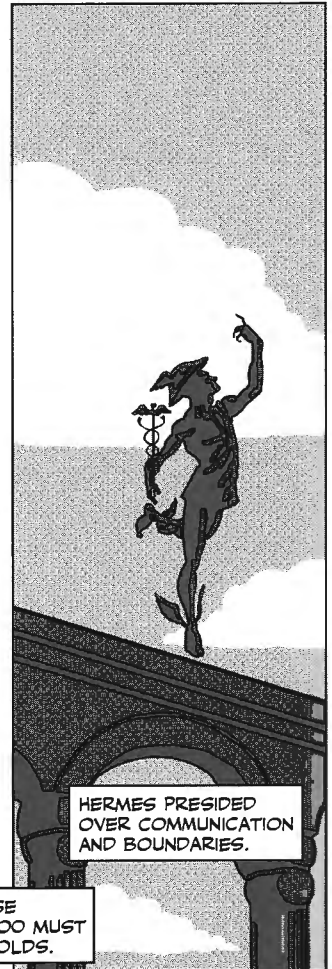
WHO, WE SHOULD  
NOTE, AIDED PERSEUS



BY PROVIDING  
THE MEANS  
TO ACHIEVE  
HIS QUEST -



TO GAIN PERSPECTIVE -  
ON HIS OWN TWO FEET.



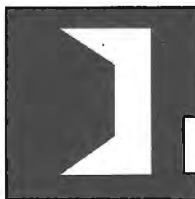
HERMES PRESIDED  
OVER COMMUNICATION  
AND BOUNDARIES.

IN SEEKING TO CONVERSE  
ACROSS BORDERS, WE TOO MUST  
OPERATE IN THE THRESHOLDS.

CONSIDER A DOOR'S DUAL NATURE,  
SIMULTANEOUSLY BARRIER AND BRIDGE



INTENDED TO  
KEEP OUT,



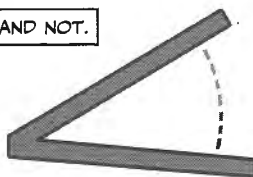
WHILE ALSO SERVING AS  
AN INVITATION TO ENTER.

FROM ABOVE,

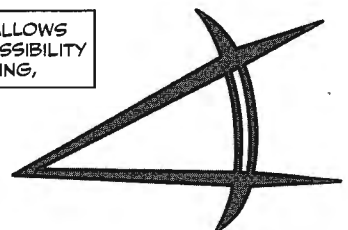
A DOOR CAN BE BOTH FLAT



AND NOT.



ITS HINGE ALLOWS  
FOR THE POSSIBILITY  
OF AN OPENING,



THROUGH WHICH TO PASS AND DISPLACE  
ONE'S EXISTING FRAME OF REFERENCE.

STORIES TOO, ARE A  
KIND OF DOORWAY,

OPENINGS,

VEHICLES TO TRANSPORT US.

AS THE STORIES  
WITHIN STORIES OF  
SCHEHERAZADE SHOW,

STORIES SUSTAIN US AND  
OFFER SPACES OF FREEDOM.

THEY LET US REACH ACROSS  
TIME AND SPACE TO SHARE IN  
ANOTHER'S VIEWPOINT,

TOUCH ANOTHER'S  
THOUGHTS,

AND MAKE THEM  
PART OF OUR  
OWN STORIES.

TO BE CLEAR, BY STORIES, I DON'T MEAN  
ONLY WONDROUS TALES, BUT THAT MOST  
HUMAN OF ACTIVITIES, THE FRAMING OF  
EXPERIENCE TO GIVE IT MEANING.

A TANGENT:

ASTRONOMERS IN  
THE ARAB WORLD  
REFRAMED GREEK  
EXPLANATIONS FOR  
PLANETARY MOTION,



ENABLING COPERNICUS  
TO PIVOT OUR VIEWPOINT.

AS NELSON  
GOODMAN PUT IT,

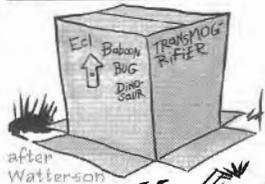
THE SUN MOVES OR  
IS STILL CAN BOTH BE  
TRUE STATEMENTS  
OF THE SAME WORLD,

WHICH TRAVERSED CULTURES,  
LANGUAGES, AND CENTURIES,

ALL DEPENDENT  
ON OUR FRAME  
OF REFERENCE.



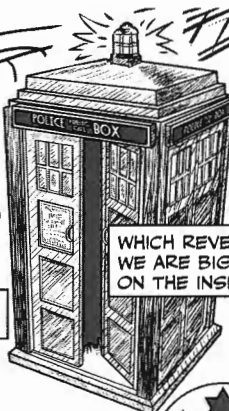
THESE FRAMES  
WE CONSTRUCT,



ARE WORK SPACES  
TO BLEND IDEAS,



SITES FOR  
TRANSFORMATION,



WHICH REVEAL  
WE ARE BIGGER  
ON THE INSIDE.



INHERENTLY  
CRINKLY,

WE POSSESS  
VAST DEPTHS  
WITHIN DEPTHS,

DIMENSIONS CURLED UP  
WITHIN US ACCESSIBLE ONLY  
THROUGH IMAGINATION.



IF WE HAVE A  
SUPERPOWER,

IT'S THE CAPACITY TO  
HOST A MULTIPLICITY  
OF WORLDS INSIDE US,

ALL OF US DO.

FRAMES OF REFERENCE  
FROM WHICH TO SEE THE  
SAME WORLD DIFFERENTLY,

TO MAKE THE FAMILIAR STRANGE.

IN PASSING THROUGH  
THESE THRESHOLDS,



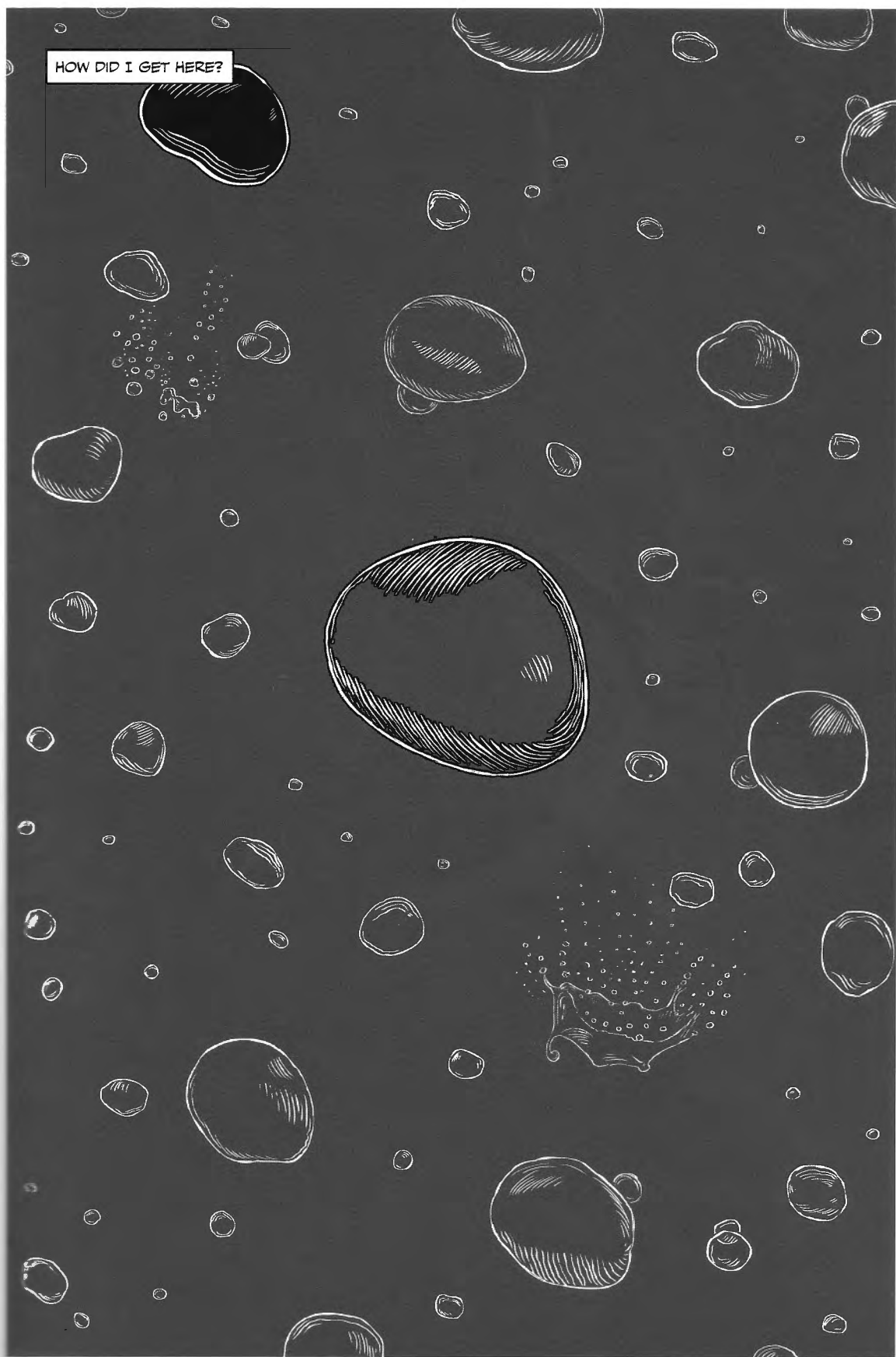
WE EMERGE WITH THE  
POSSIBILITY TO BECOME  
SOMETHING DIFFERENT.

six

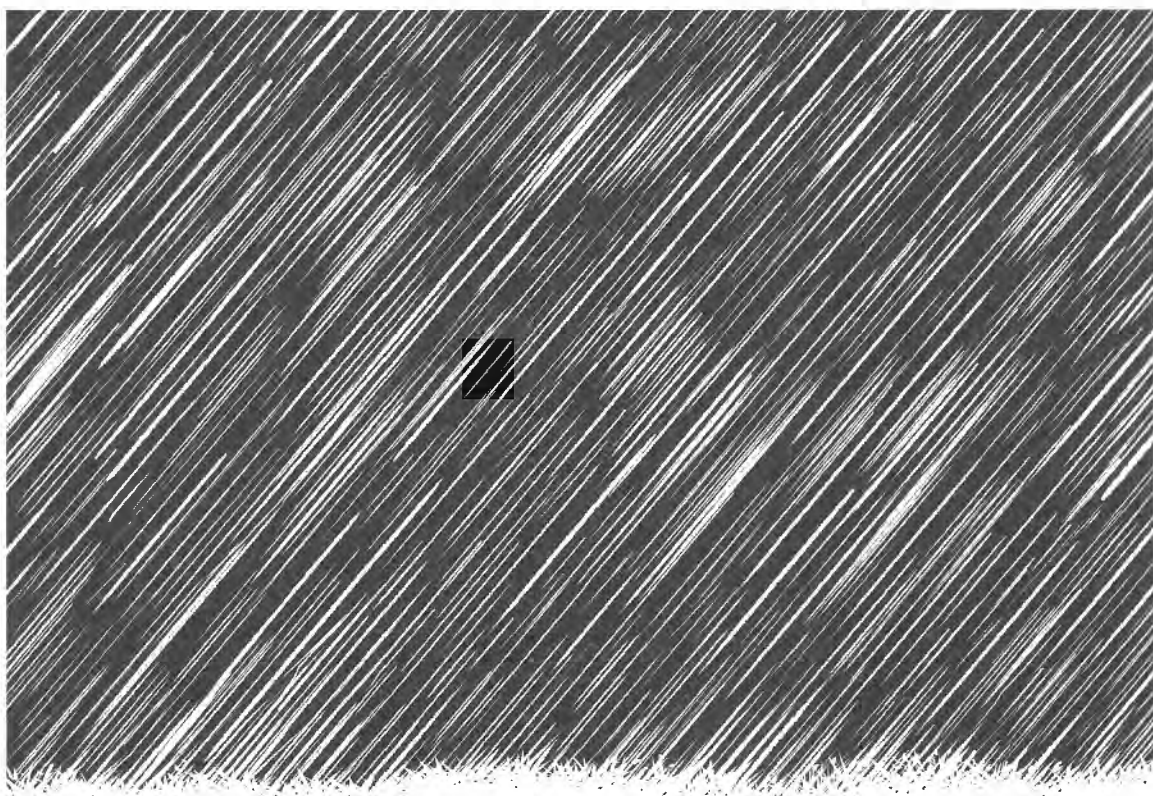
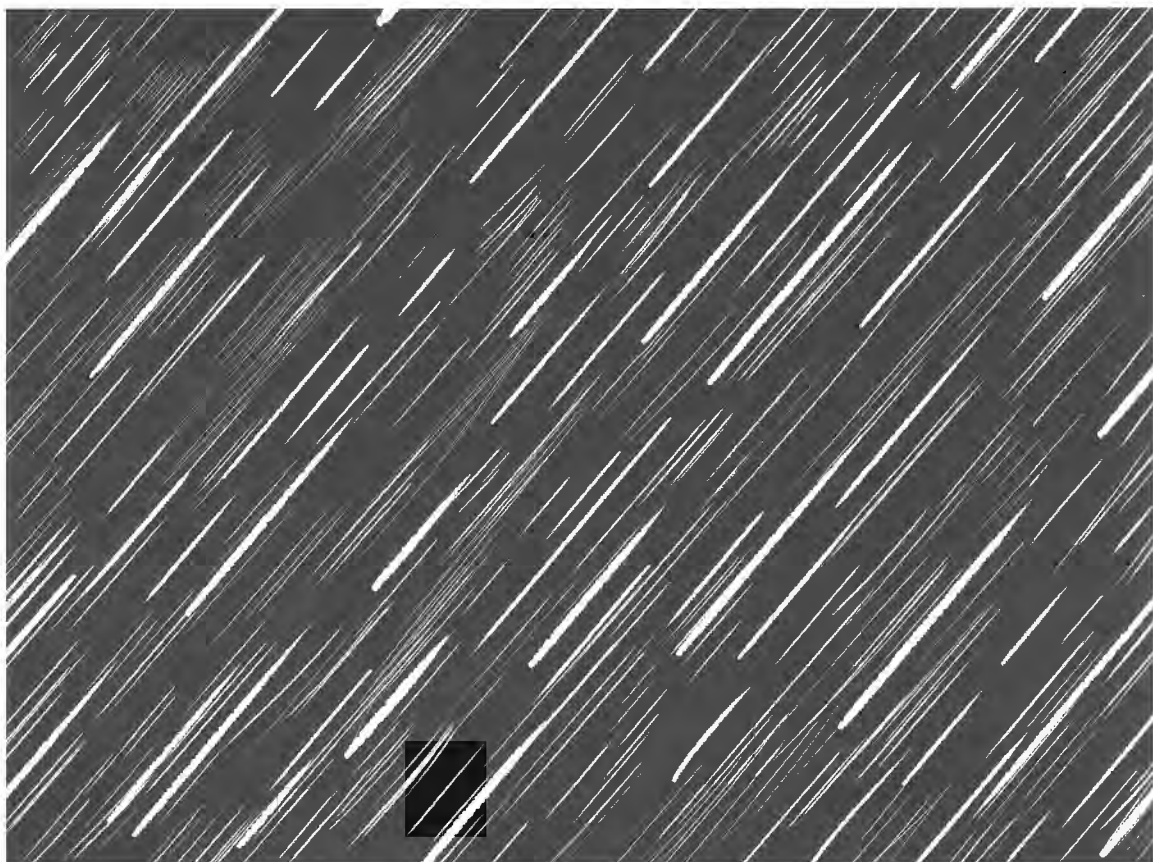
# RUTS

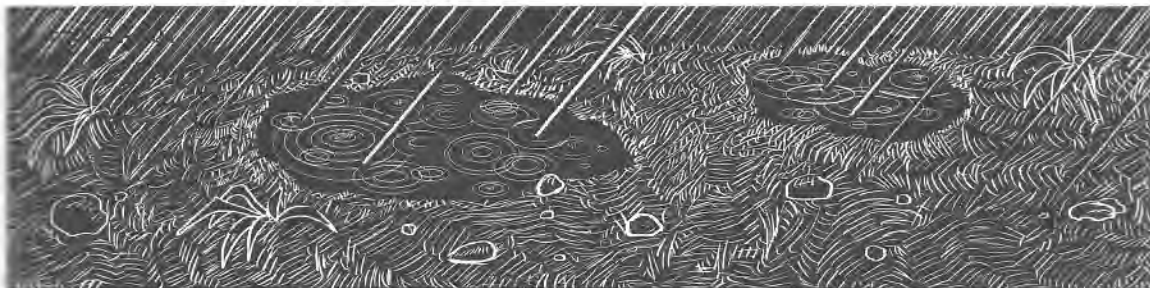


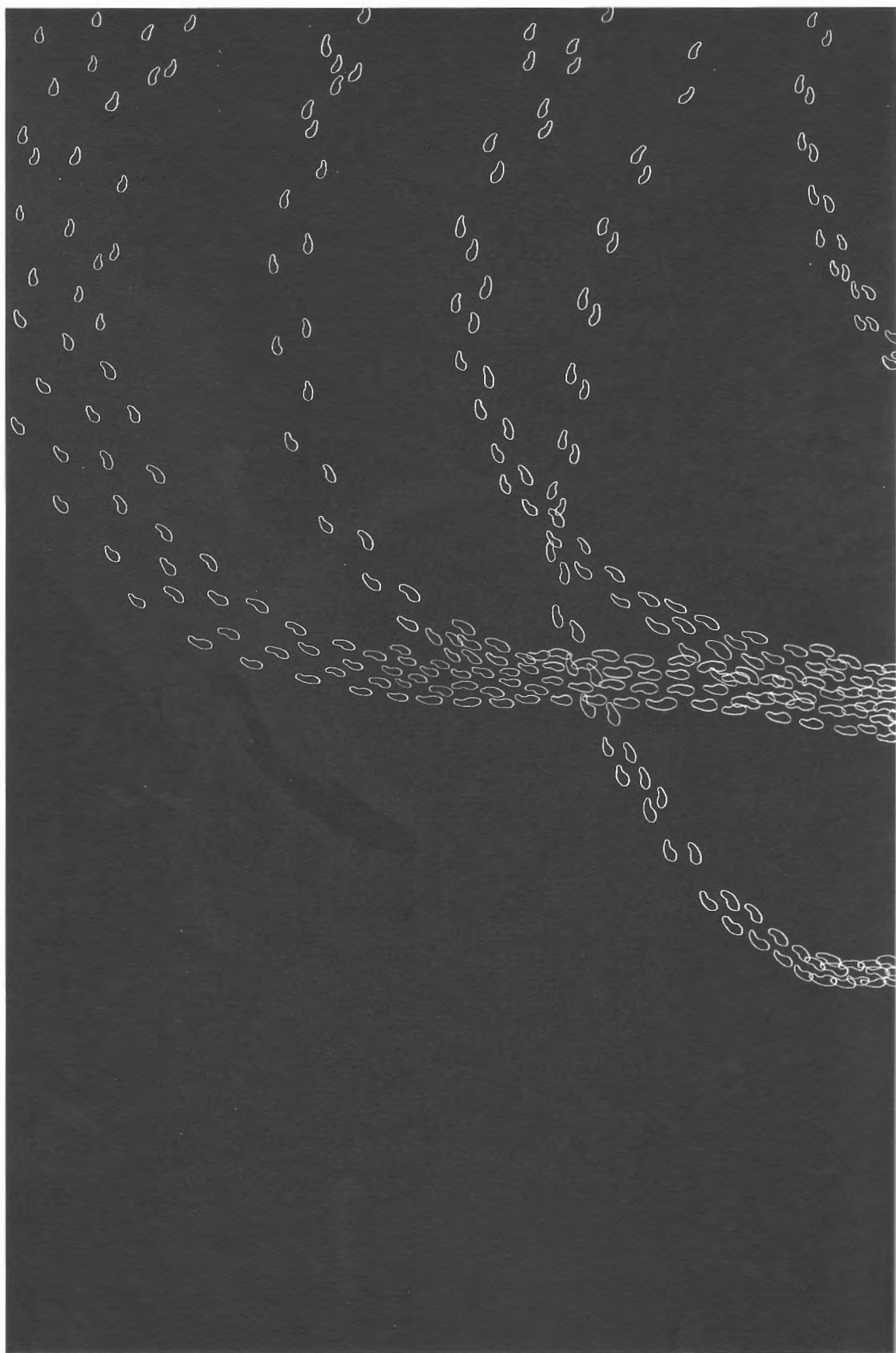
HOW DID I GET HERE?

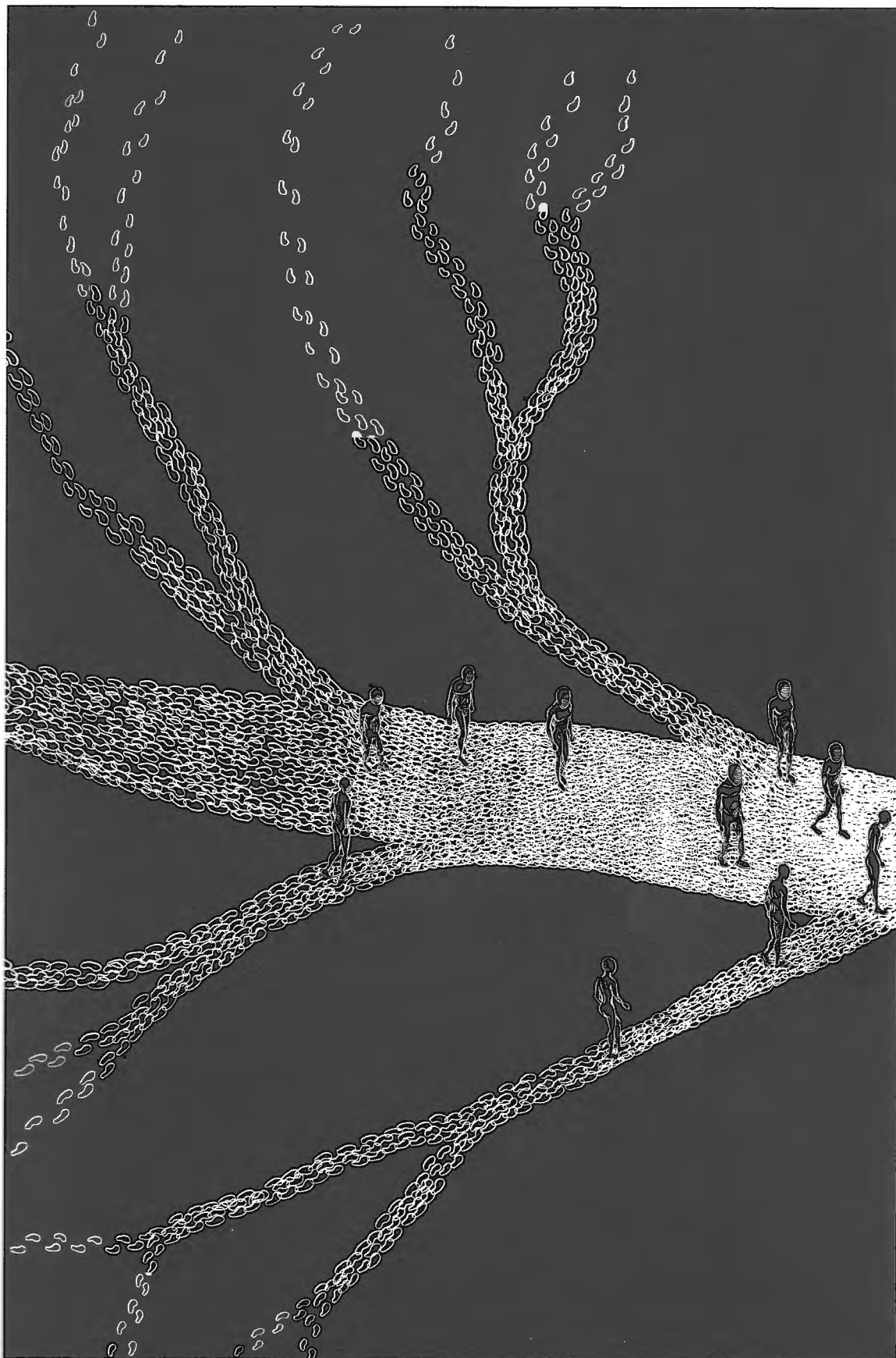










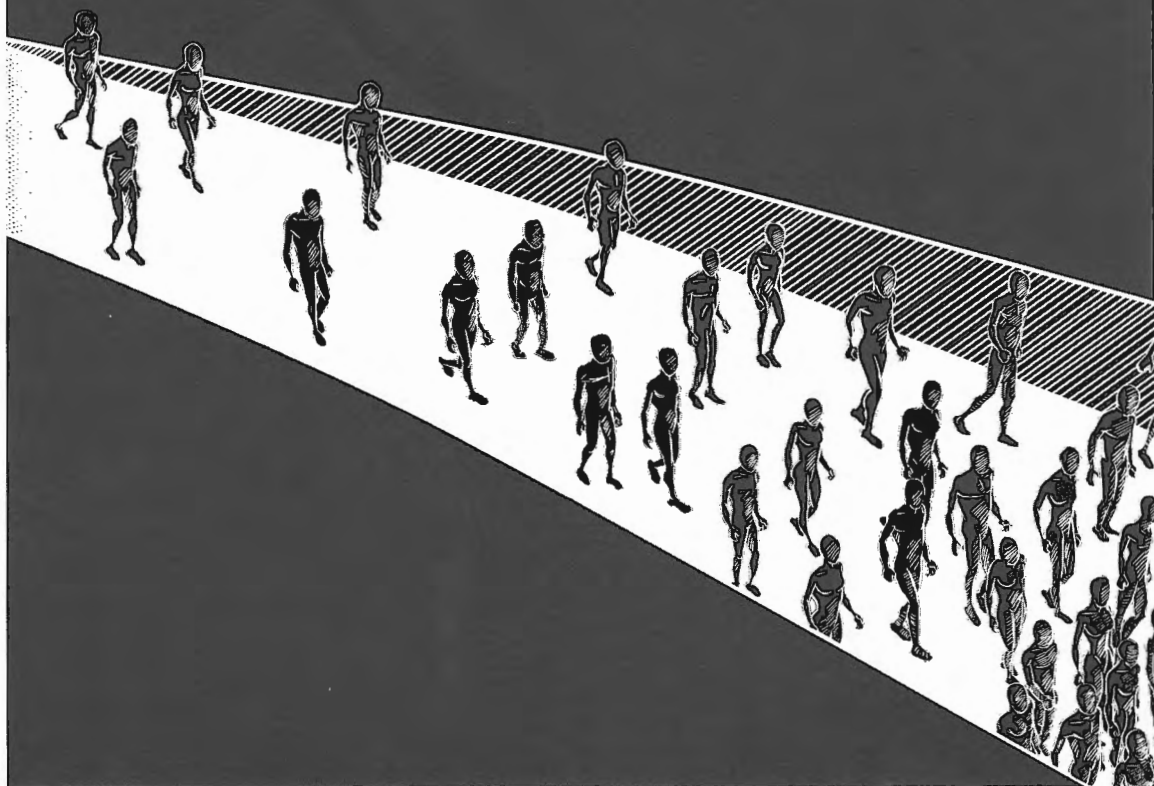


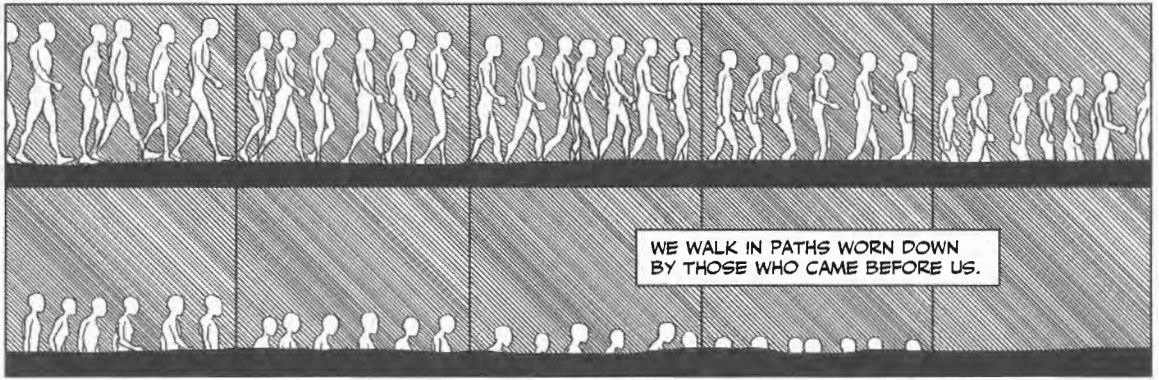


TRICKLE BECOMES STREAM;  
TRIBUTARIES RUN TOGETHER,  
GATHERING FORCE.

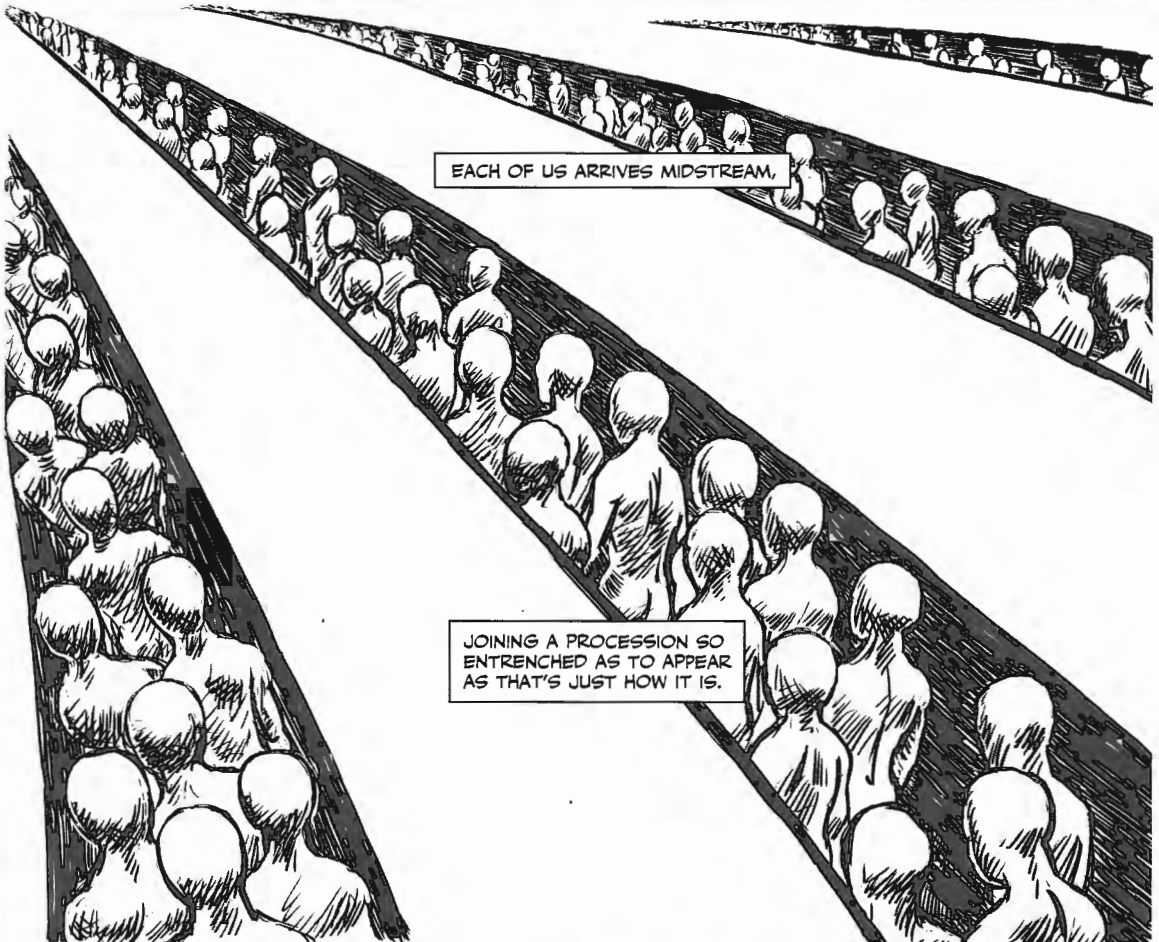
THE MARCH OF IDEAS CARVES  
CHANNELS INTO THE LANDSCAPE -  
IDEAS BORNE BY INDIVIDUALS WHO ARE  
IN TURN SWEEPED AWAY BY ITS CURRENT.

THIS RIVER IS OUR HISTORY.





WE WALK IN PATHS WORN DOWN  
BY THOSE WHO CAME BEFORE US.



EACH OF US ARRIVES MIDSTREAM,

JOINING A PROCESSION SO  
ENTRENCHED AS TO APPEAR  
AS THAT'S JUST HOW IT IS.



FROM DEEP WITHIN  
THESE GROOVES,

IT'S HARD TO IMAGINE  
PEOPLE JUST LIKE US  
SET IT ALL IN MOTION.



TO SURPASS OUR LIMITS, WE  
BUILT STRUCTURES - GIVING  
OUR IDEAS SOLID FORM.

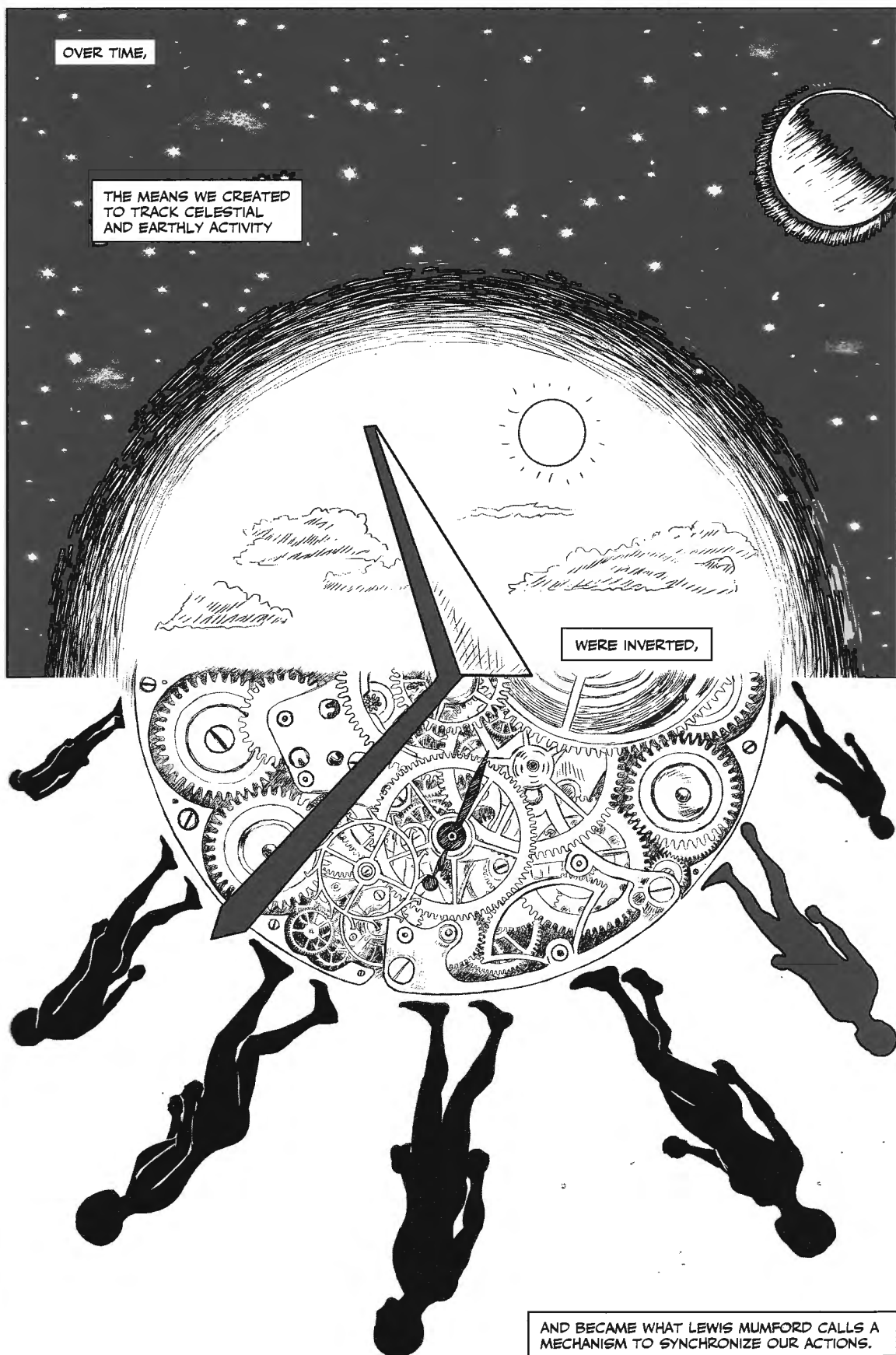
THESE STRUCTURES WE  
BUILT, IN TURN, SHAPED US.

OVER TIME,

THE MEANS WE CREATED  
TO TRACK CELESTIAL  
AND EARTHLY ACTIVITY

WERE INVERTED,

AND BECAME WHAT LEWIS MUMFORD CALLS A  
MECHANISM TO SYNCHRONIZE OUR ACTIONS.





WHEN IDEAS ARE WRITTEN IN  
STONE WITH THE CERTAINTY  
THAT *WE GOT IT RIGHT*,

WE RISK FOLLOWING  
WITHOUT REFLECTION.

UNLIKE PERSEUS, WHO NEVER  
LOST SIGHT OF HIMSELF,

WHEN WE STOP  
QUESTIONING,

WE BECOME TRANSFIXED,  
AS IF BY MEDUSA'S GAZE

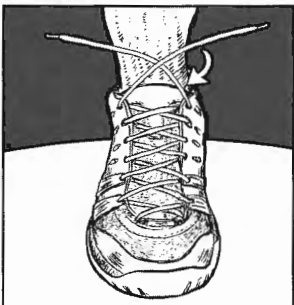
RENDERED INANIMATE,

FLAT.

TO SHED FURTHER LIGHT ON THIS DISCUSSION,  
LET'S SWITCH TO MATTERS MORE MUNDANE.



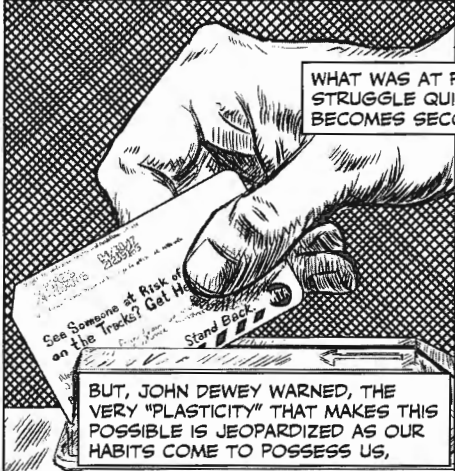
THROUGH REPETITION  
OVER TIME,



WE BECOME  
PROFICIENT.

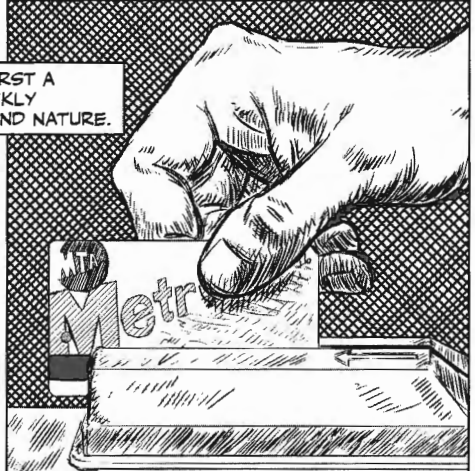


FORMING HABITS IS ESSENTIAL  
SO WE DO NOT HAVE TO RELEARN  
EVERY ACTIVITY CONTINUALLY.



WHAT WAS AT FIRST A  
STRUGGLE QUICKLY  
BECOMES SECOND NATURE.

BUT, JOHN DEWEY WARNED, THE  
VERY "PLASTICITY" THAT MAKES THIS  
POSSIBLE IS JEOPARDIZED AS OUR  
HABITS COME TO POSSESS US,



OBSTRUCTING OUR FLEXIBILITY.



IF A TYPICAL COMMUTE -  
TRAVERSING THE SAME  
PATH TIME AND AGAIN -  
SHRINKS ONE'S WORLD,

CONSIDER INSTEAD:

THE SHIFTING CONFIGURATIONS  
THAT ARE MY WIFE'S DAILY  
COMMUTES HELP EXPAND HER  
AWARENESS.

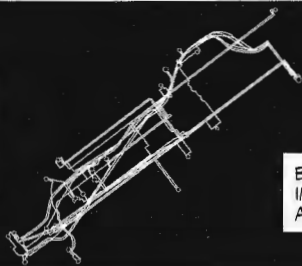
WITH ROUTES ANYTHING BUT  
ROUTINE, SHE CONSTANTLY  
ENCOUNTERS DIFFERENT SIGHTS  
AND MAKES NEW CONNECTIONS,

AKIN TO WHAT THE ARTISTIC MOVEMENT  
KNOWN AS THE SITUATIONIST  
INTERNATIONAL CALLED THE *DÉRIVE* -

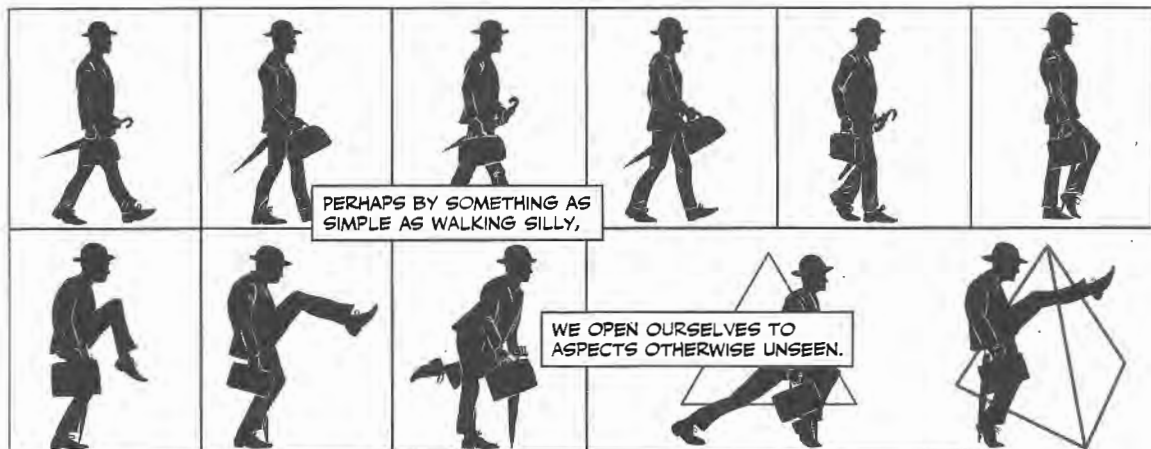
A WALK CONCEIVED OF AS A  
PLAYFUL DRIFTING RATHER THAN  
A GOAL-ORIENTED JOURNEY.



TO ACCESS  
DIMENSIONS BEYOND  
THE FAMILIAR MEANS  
NOT ONLY KEEPING  
OUR EYES OPEN,



BUT KEEPING THAT  
IMAGINATIVE DANCE  
ACTIVE AND ALIVE.



PERHAPS BY SOMETHING AS  
SIMPLE AS WALKING SILLY,

WE OPEN OURSELVES TO  
ASPECTS OTHERWISE UNSEEN.

FOR THE RAIN WILL STILL  
FALL AND RUTS WILL FORM,

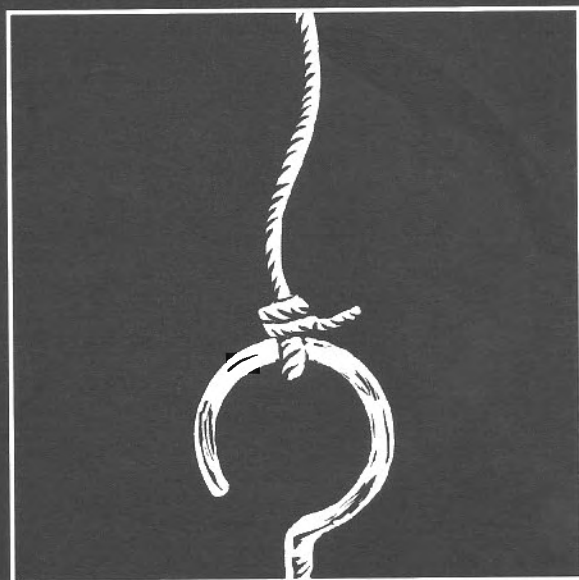


BUT WE MUST SING,  
DANCE, SEEK WAYS  
TO STEP OUT...

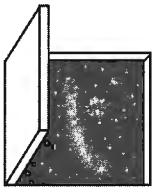
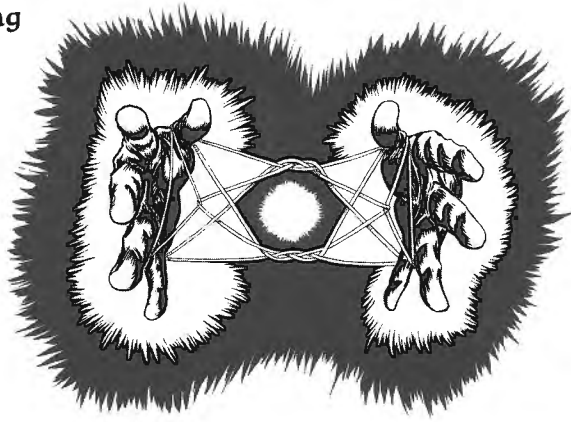


interlude

# STRINGS ATTACHED



**A**s you will recall, through the action of mentally binding and framing separate concepts, we generate new understandings.

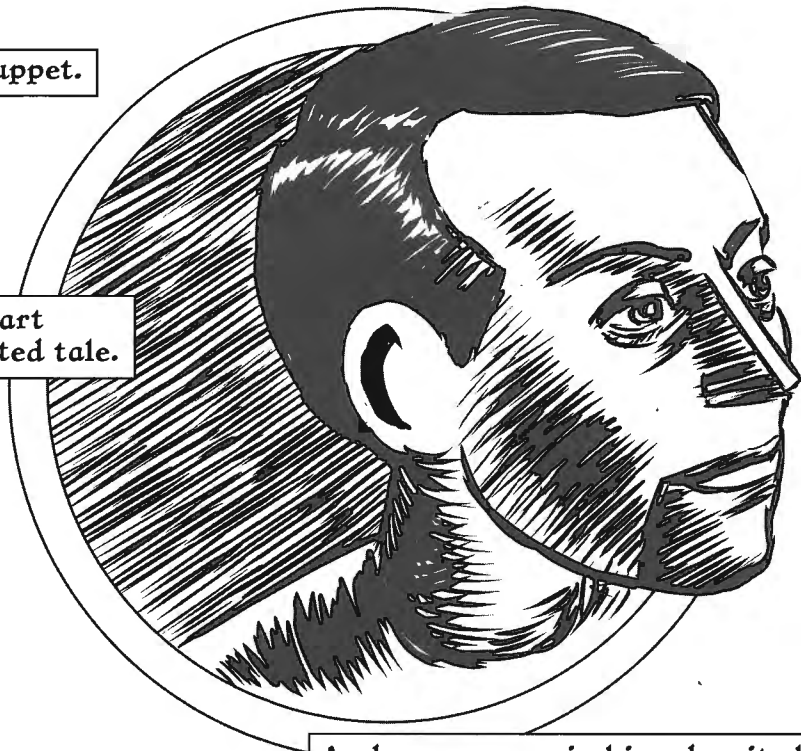


Stories provide us with such frames, opening through which to pass.

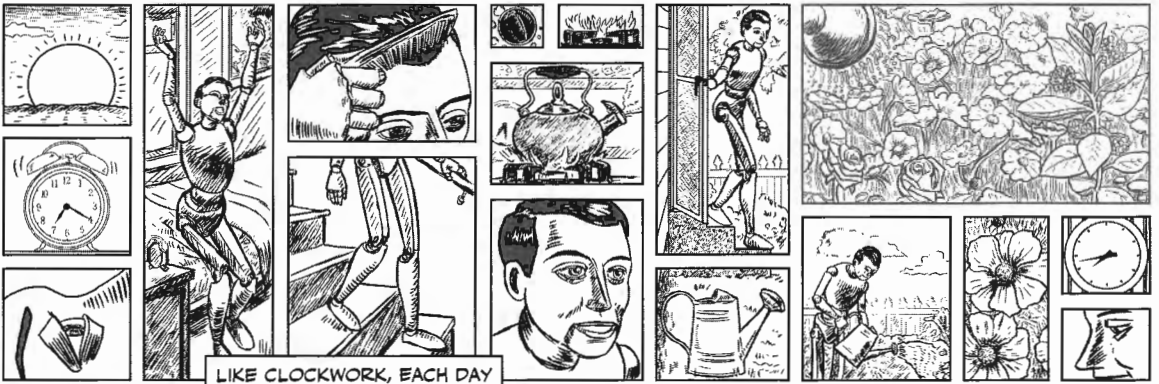
So then, imagine if you will,

a puppet.

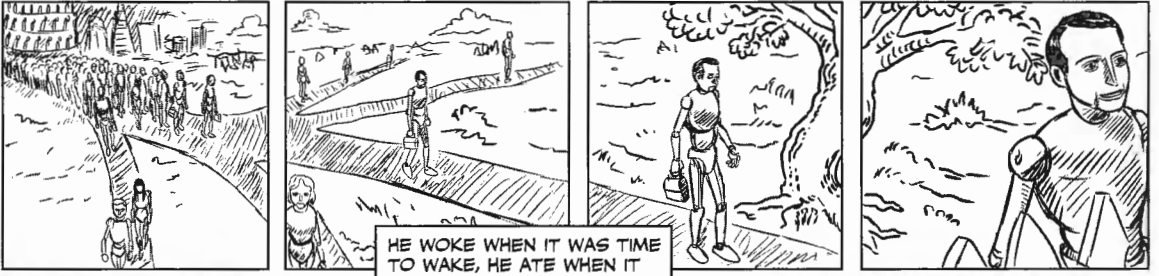
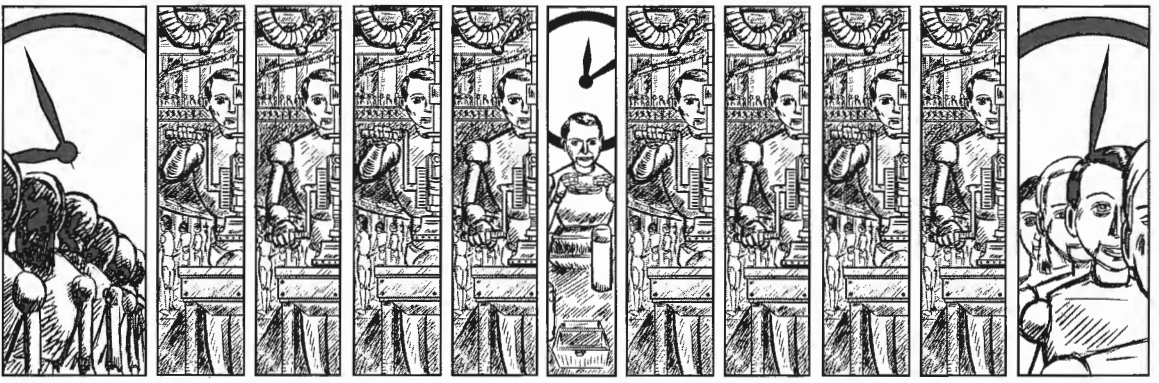
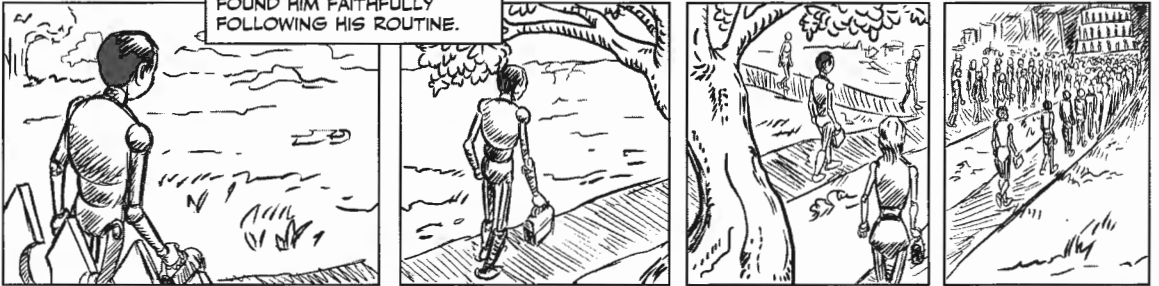
one borrowed in part from an oft-repeated tale.



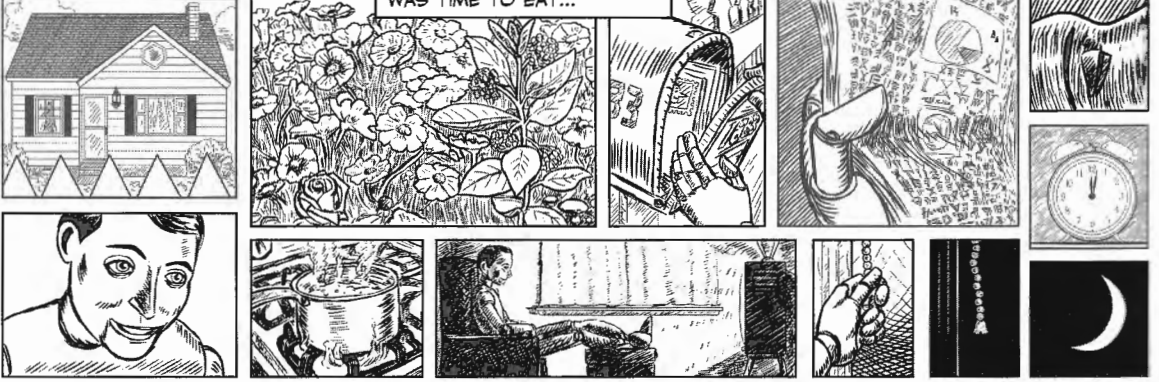
And we may see in him, despite his physical dimensionality, something akin to our flatlanders...

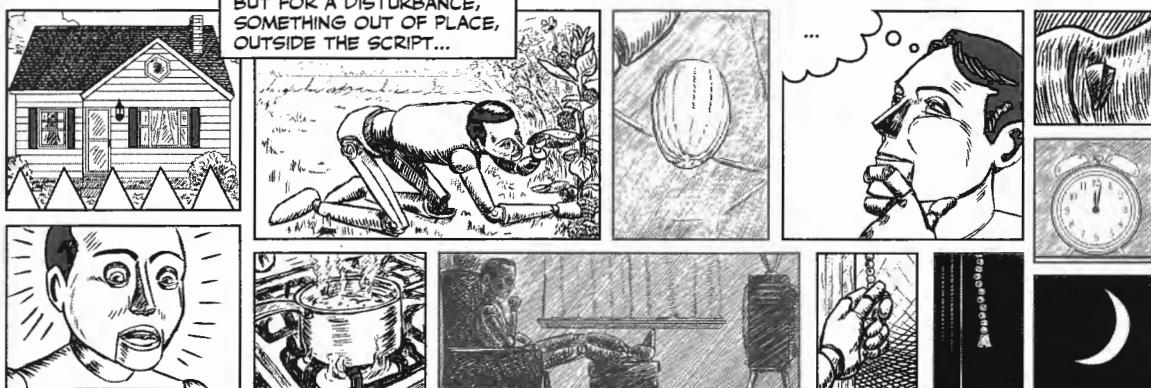
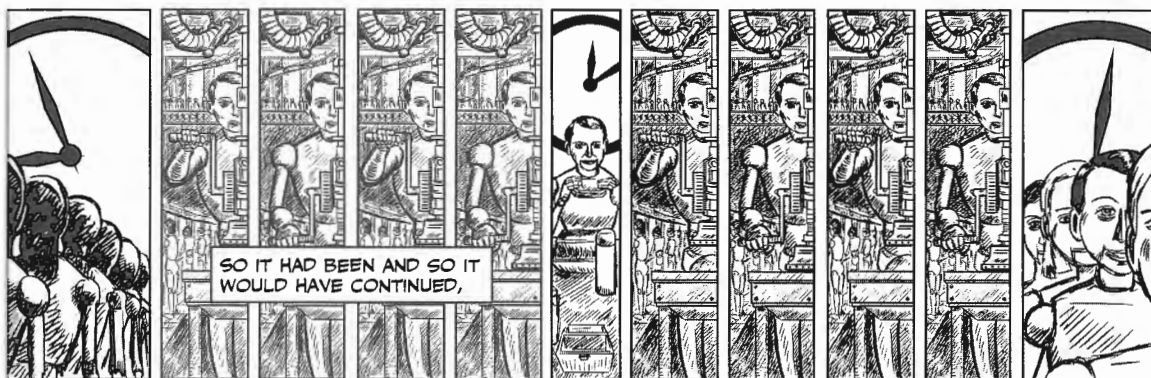
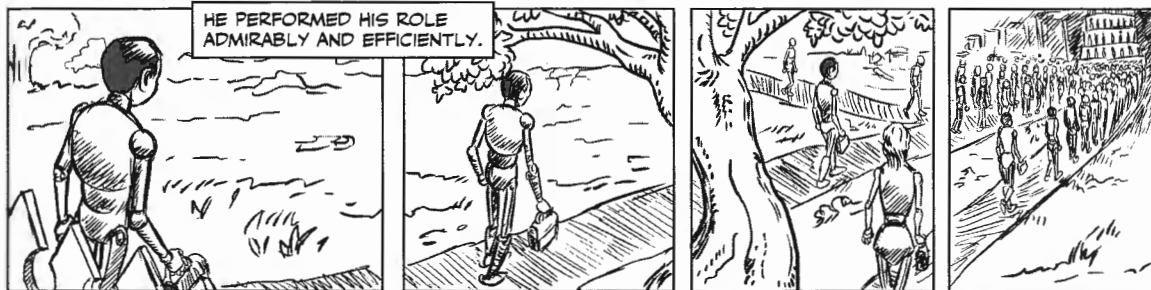
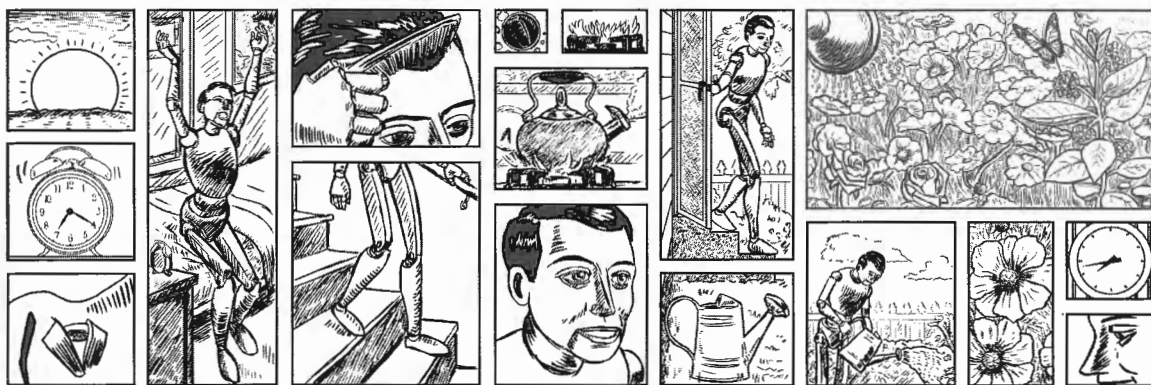


LIKE CLOCKWORK, EACH DAY  
FOUND HIM FAITHFULLY  
FOLLOWING HIS ROUTINE.

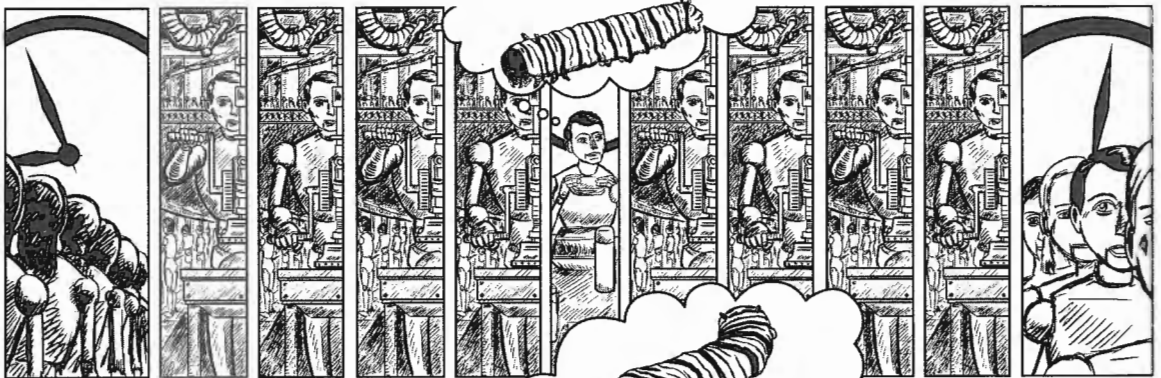
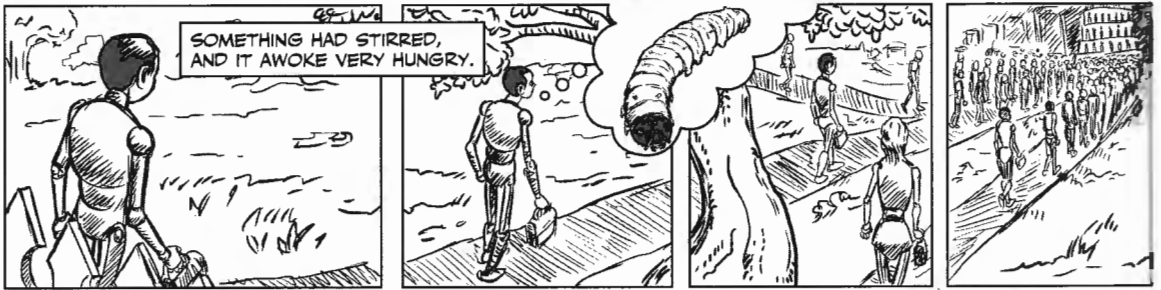
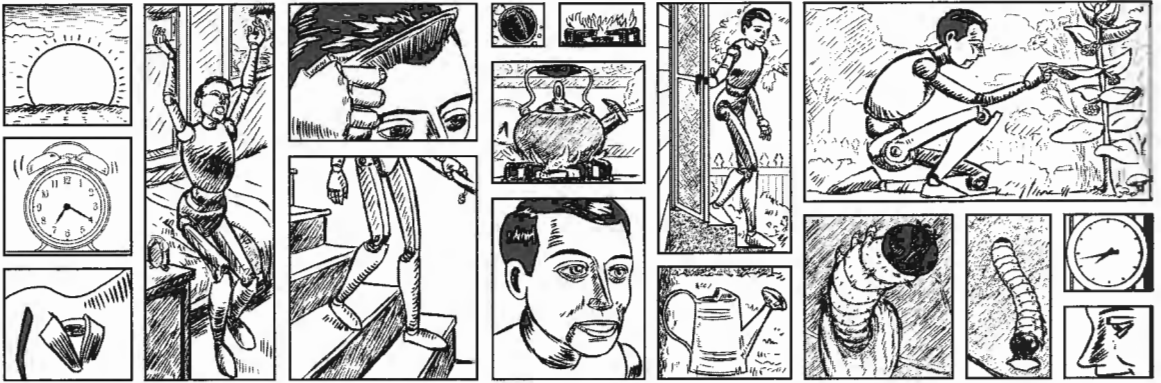


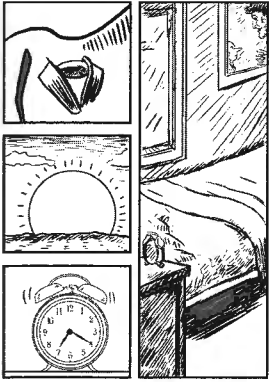
HE WOKE WHEN IT WAS TIME  
TO WAKE, HE ATE WHEN IT  
WAS TIME TO EAT...



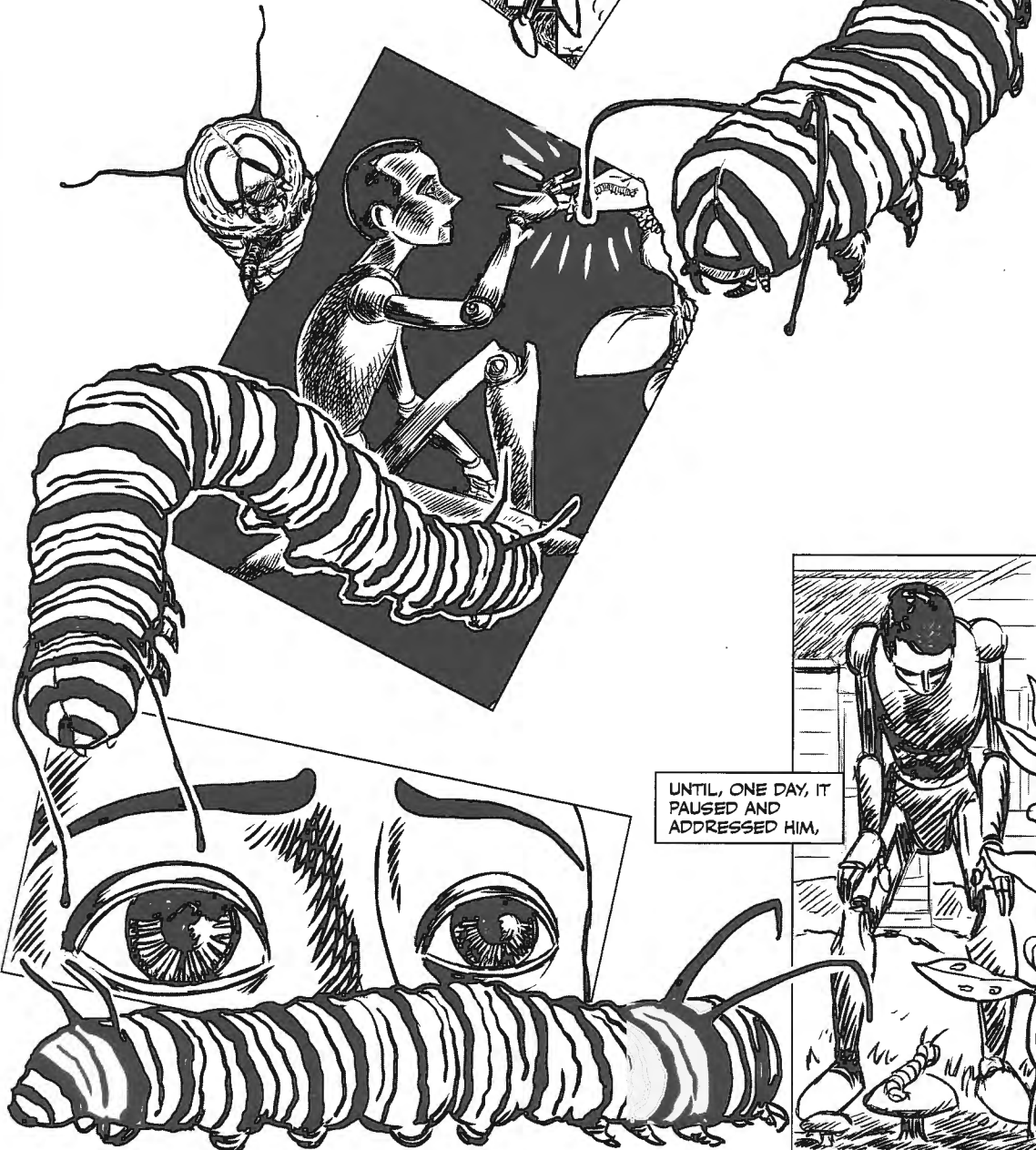
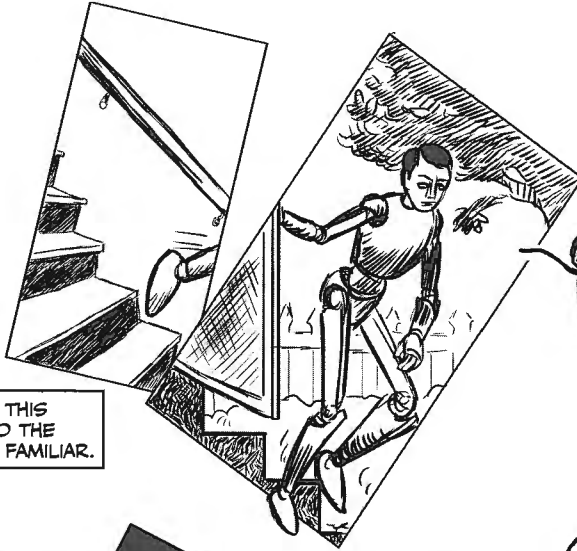








WITHOUT UTTERING A WORD, THIS CURIOUS VISITOR HAD LED TO THE UPHEAVAL OF ALL HE'D HELD FAMILIAR.



UNTIL, ONE DAY, IT PAUSED AND ADDRESSED HIM.





REVEALING THE PRESENCE  
OF STRINGS, THAT HAD  
BEEN THERE ALL ALONG.

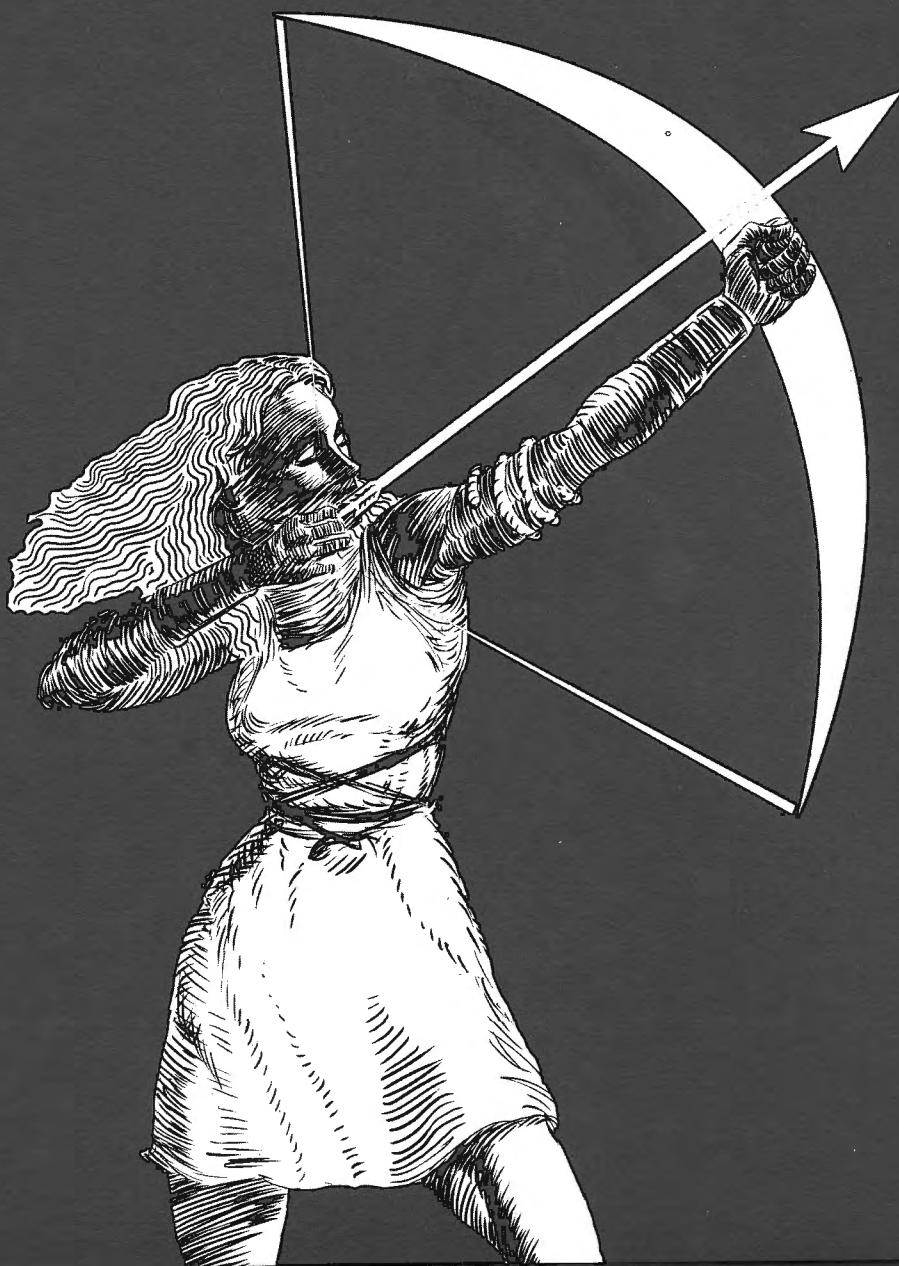


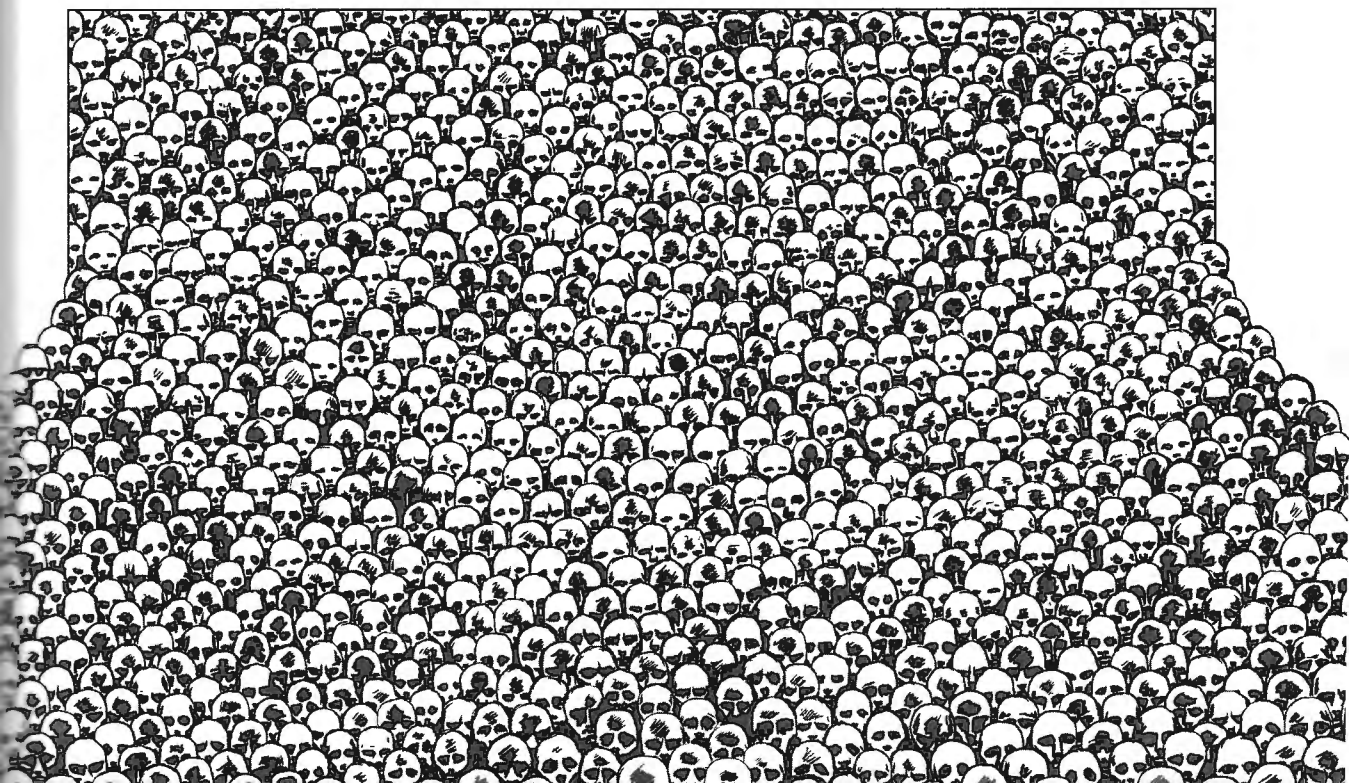
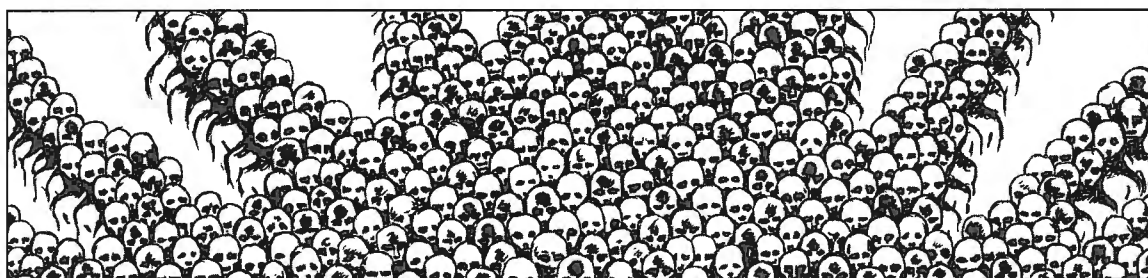
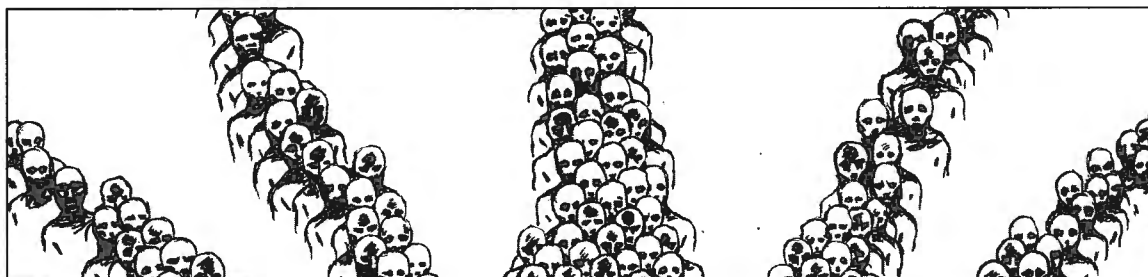
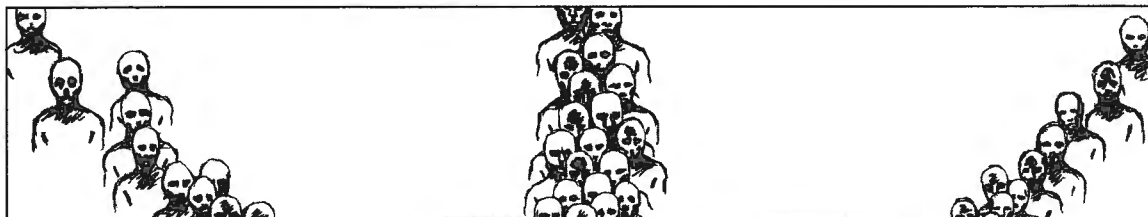
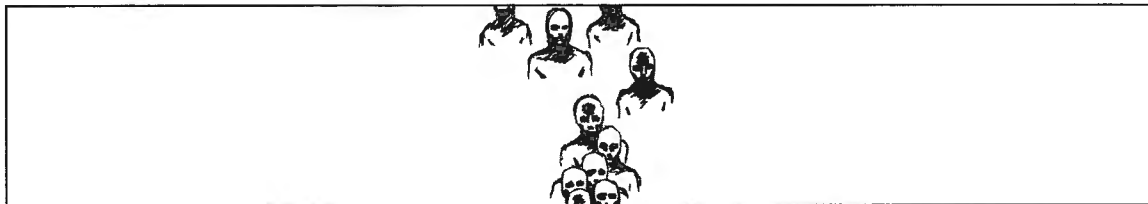
"PHILOSOPHY BEGINS IN WONDER."  
- ALFRED NORTH WHITEHEAD



seven

# VECTORS







THE INANIMATE CHORUS...

MARCHES ON.

7

TO PIERCE THIS STIFLING  
ATMOSPHERE -

A SPARK -

A LIGHTENING  
OF INERTIA,

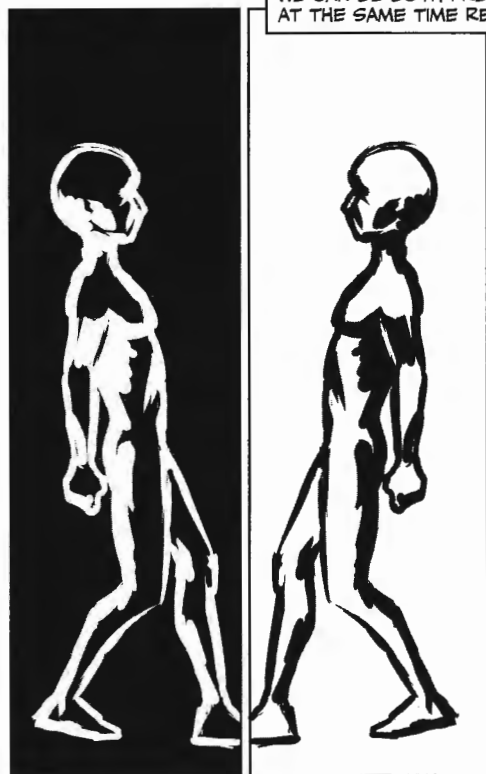
RUPTURING THE SMOOTH,  
UNDIFFERENTIATED  
FACADE OF HOW IT IS,

TO REVEAL THAT WE  
ARE ANYTHING BUT FLAT.

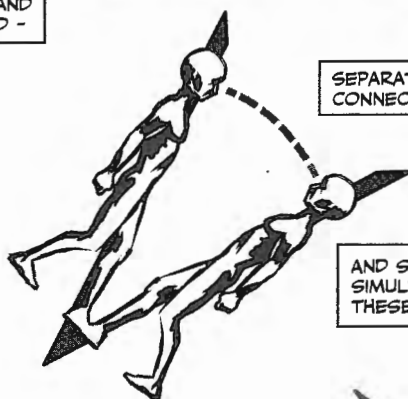




THIS AWARENESS STEMS  
FROM OUR ABILITY TO  
REFLECT ON OURSELVES  
AND ON OUR ENVIRONMENT.

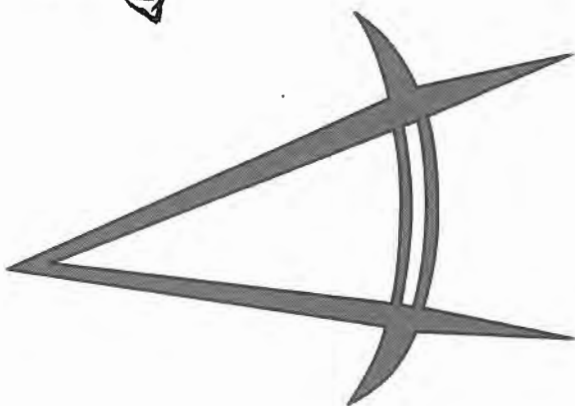


WE CAN BE BOTH PRESENT AND  
AT THE SAME TIME REMOVED -

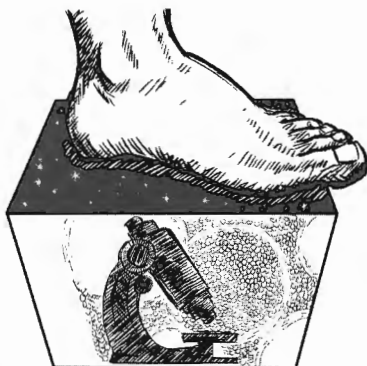


SEPARATE YET  
CONNECTED.

AND SO SEE OURSELVES  
SIMULTANEOUSLY FROM  
THESE VANTAGE POINTS.



THROUGH LENSES BOTH  
CONCEPTUAL AND MECHANICAL,  
WE'VE EXTENDED OUR SIGHT,

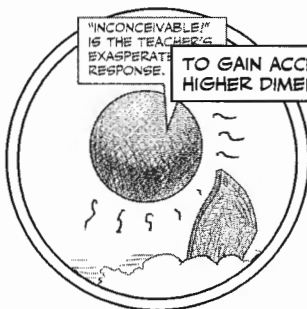


ENABLING US TO STEP  
OUT STILL FARTHER

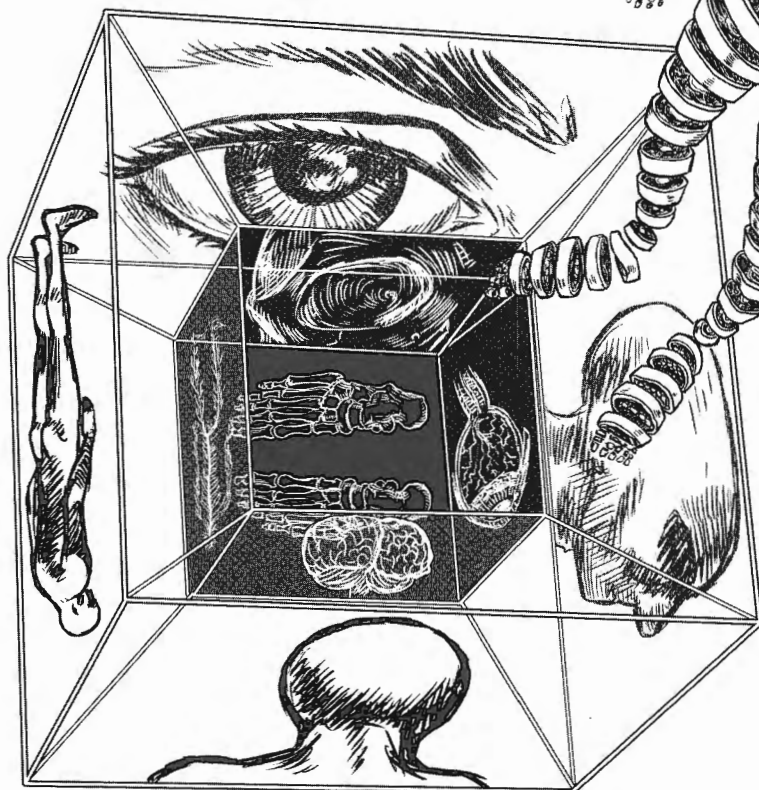


"INCONCEIVABLE!"  
IS THE TEACHER'S  
EXASPERATED  
RESPONSE.

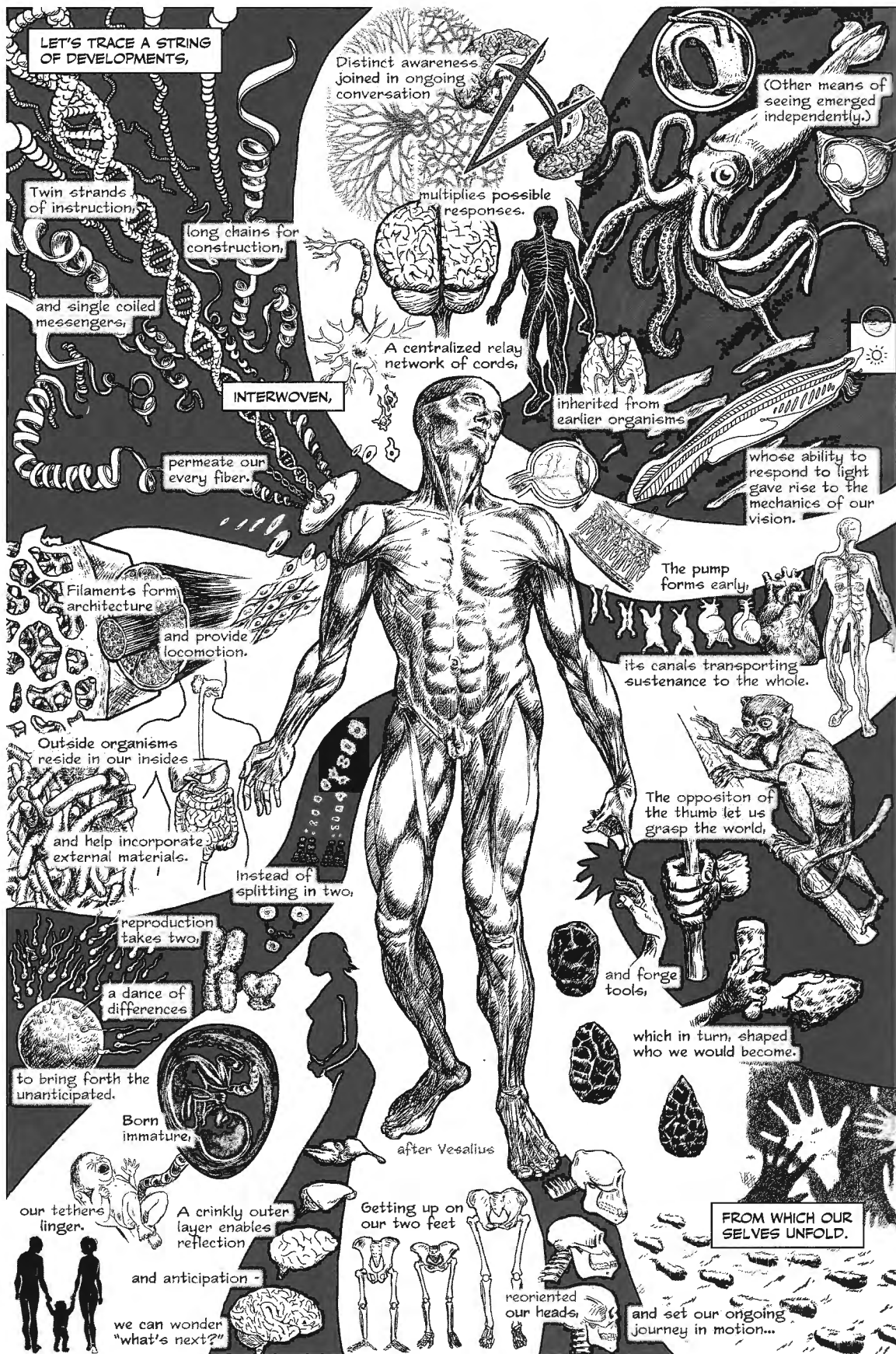
TO GAIN ACCESS TO  
HIGHER DIMENSIONS,



FROM WHICH WE CAN (DESPITE THE  
SPHERE'S DENIAL), SEE OUR INSIDES,



AND BEGIN TO GET  
AT WHAT MAKES US  
WHO WE ARE.



LET'S TRACE A STRING OF DEVELOPMENTS,

Twin strands of instruction,

long chains for construction,

and single coiled messengers;

INTERWOVEN,

permeate our every fiber,

Distinct awareness joined in ongoing conversation

multiplies possible responses.

A centralized relay network of cords,

inherited from earlier organisms

(Other means of seeing emerged independently.)

whose ability to respond to light gave rise to the mechanics of our vision.

The pump forms early,

its canals transporting sustenance to the whole.

Filaments form architecture

and provide locomotion.

Outside organisms reside in our insides

and help incorporate external materials.

reproduction takes two,

a dance of differences

to bring forth the unanticipated.

Born immature,

our tethers linger.

A crinkly outer layer enables reflection

and anticipation -

we can wonder "what's next?"

after Vesalius

Getting up on our two feet

reoriented our heads,

FROM WHICH OUR SELVES UNFOLD.

and set our ongoing journey in motion...

OUR EXPERIENCES  
AND INTERACTIONS,

THIS SOCIAL FABRIC IN  
WHICH WE ARE WOVEN,

ALL SHAPE OUR IDENTITY.

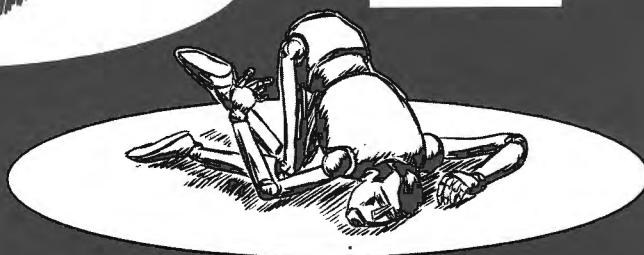




TO SET  
OURSELVES FREE,



WE CAN'T SIMPLY  
CUT OUR BONDS.



FOR TO REMOVE THEM  
(IF WE COULD) WOULD  
ONLY SET US ADrift,



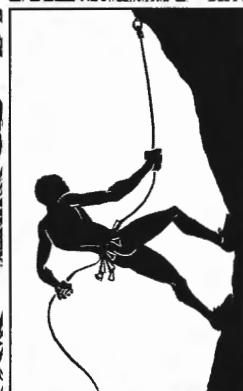
DETACHED FROM THE  
VERY THINGS THAT  
MAKE US WHO WE ARE.



EMANCIPATION, BRUNO LATOUR WRITES, "DOES NOT MEAN 'FREED FROM BONDS' BUT WELL-ATTACHED."



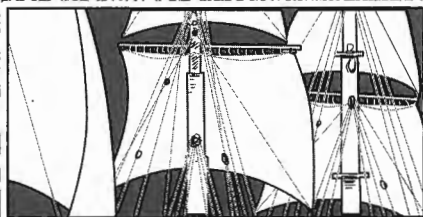
THE STRINGS STAY ON.

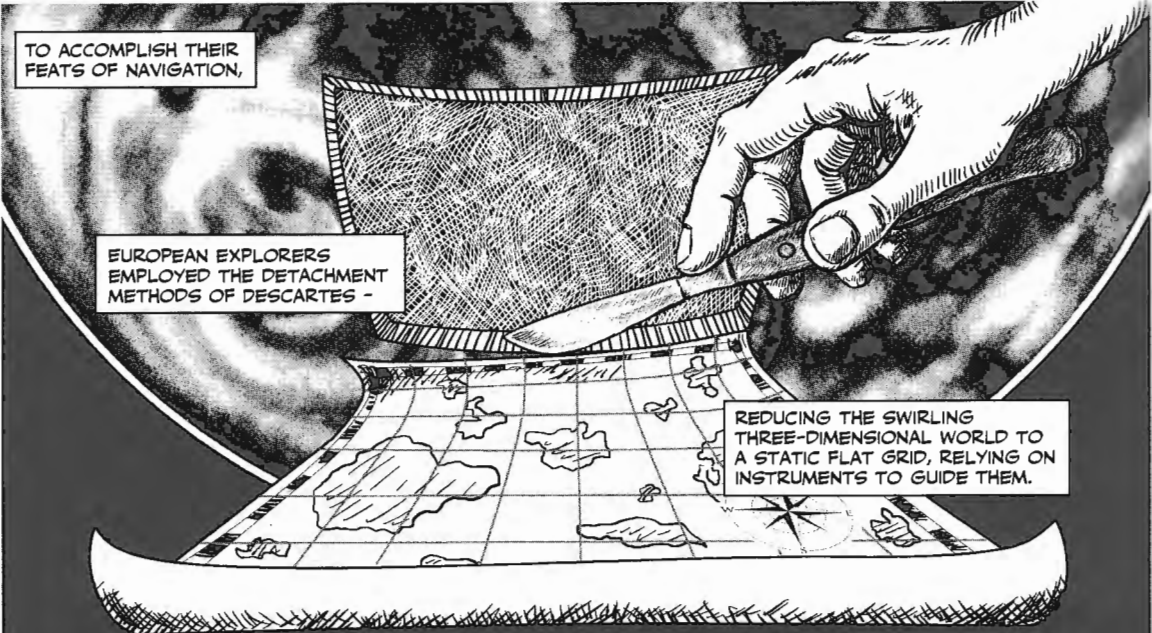


BY IDENTIFYING MORE THREADS OF ASSOCIATION,



WE ARE BETTER ABLE TO SEE THESE ATTACHMENTS NOT AS CONSTRAINTS BUT AS FORCES TO HARNESS.

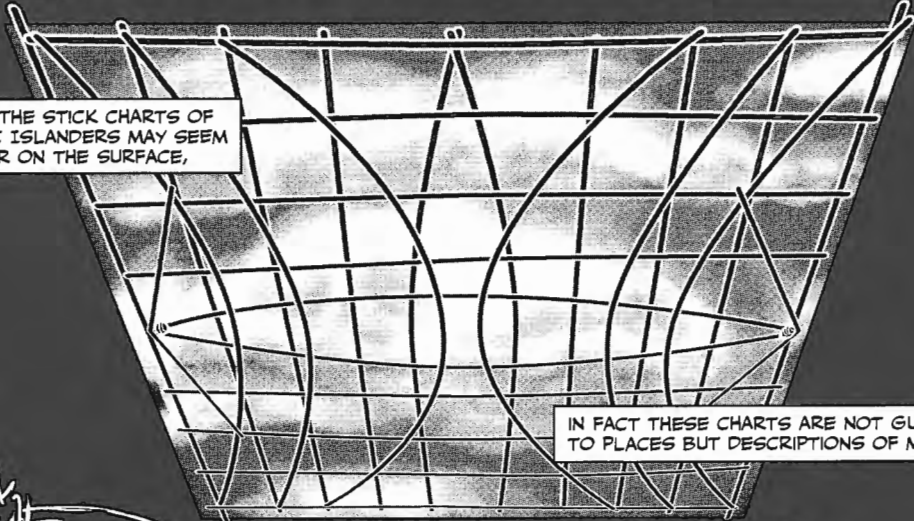




TO ACCOMPLISH THEIR  
FEATS OF NAVIGATION,


EUROPEAN EXPLORERS  
EMPLOYED THE DETACHMENT  
METHODS OF DESCARTES -

REDUCING THE SWIRLING  
THREE-DIMENSIONAL WORLD TO  
A STATIC FLAT GRID, RELYING ON  
INSTRUMENTS TO GUIDE THEM.



WHILE THE STICK CHARTS OF  
PACIFIC ISLANDERS MAY SEEM  
SIMILAR ON THE SURFACE,

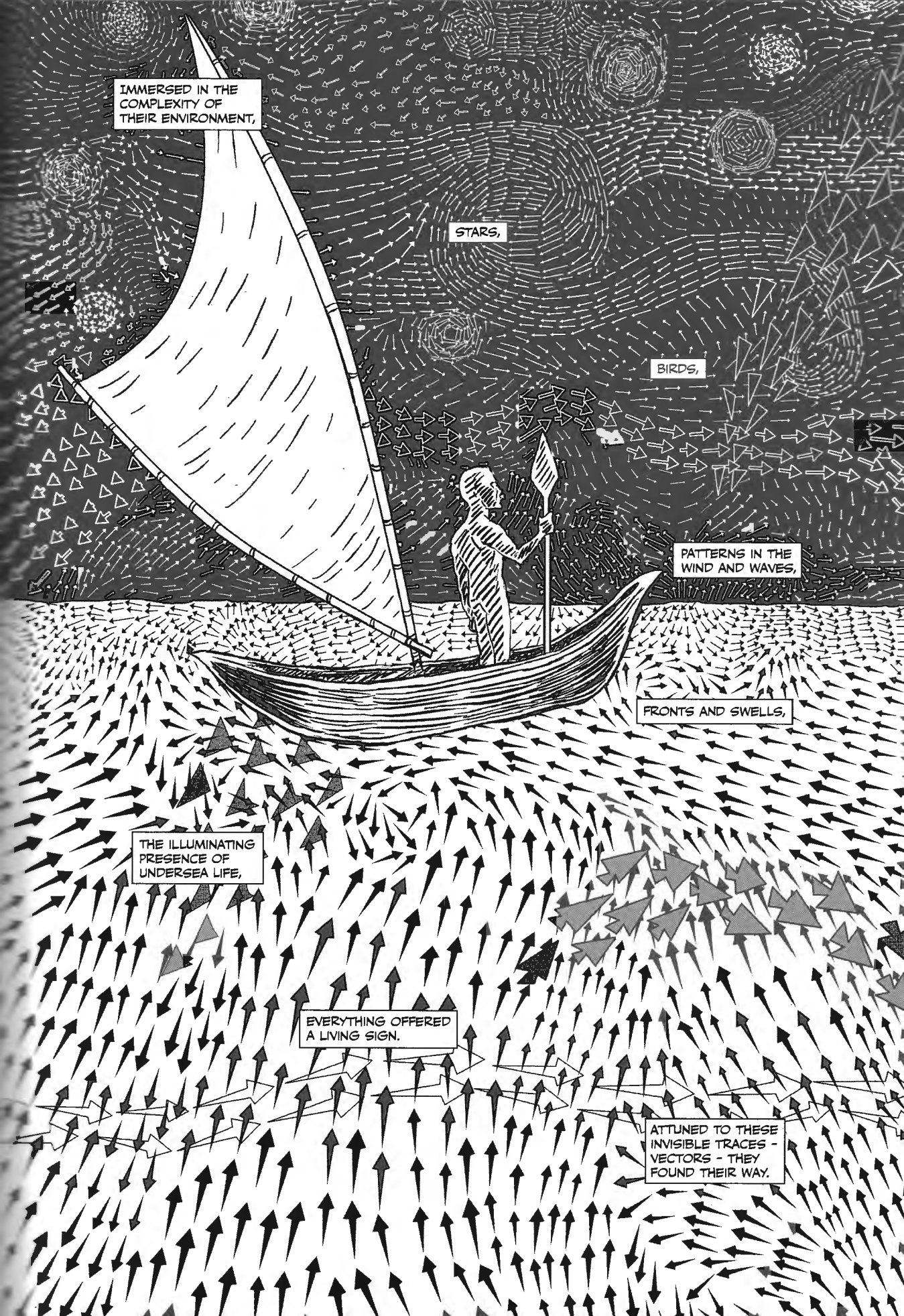
IN FACT THESE CHARTS ARE NOT GUIDES  
TO PLACES BUT DESCRIPTIONS OF MOTION,



AN INTIMATE KNOWLEDGE OF  
THE MEETING OF SEA AND SKY,

PASSED DOWN THROUGH  
THE COLLECTIVE STORIES  
OF THEIR ANCESTORS.





IMMERSED IN THE  
COMPLEXITY OF  
THEIR ENVIRONMENT,

STARS,

BIRDS,

PATTERNS IN THE  
WIND AND WAVES,

FRONTS AND SWELLS,

THE ILLUMINATING  
PRESENCE OF  
UNDERSEA LIFE,

EVERYTHING OFFERED  
A LIVING SIGN.

ATTUNED TO THESE  
INVISIBLE TRACES -  
VECTORS - THEY  
FOUND THEIR WAY.

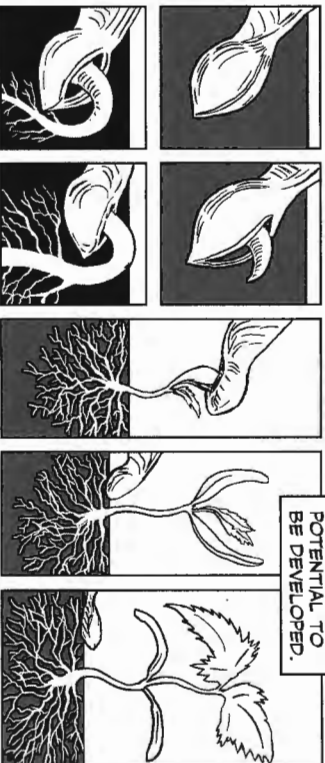


LET'S THEN REFLECT ONCE MORE ON WHAT MAKES US WHO WE ARE. JOHN DEWEY DEFINED CAPACITY NOT AS AN EMPTINESS TO BE FILLED FROM AN OUTSIDE SOURCE,

RATHER AS A "FORCE POSITIVELY PRESENT,"



POTENTIAL TO BE DEVELOPED.

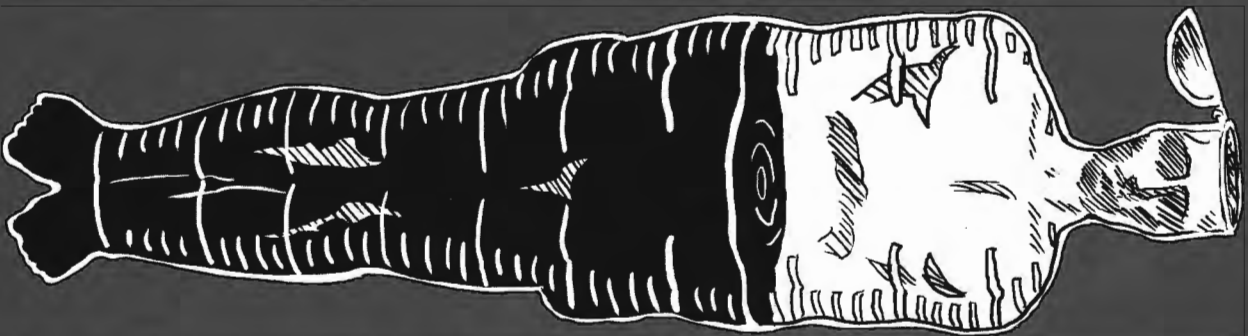
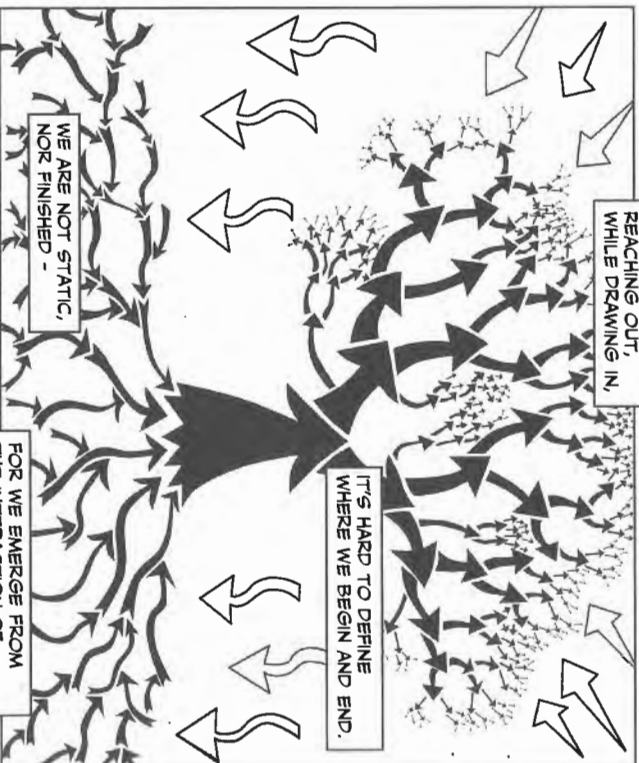


REACHING OUT, WHILE DRAWING IN,

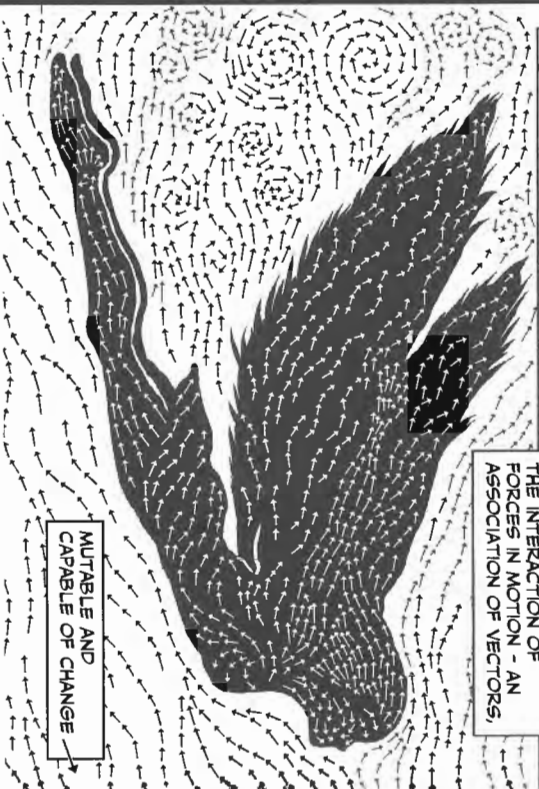
WE ARE NOT STATIC, NOR FINISHED -

IT'S HARD TO DEFINE WHERE WE BEGIN AND END.

FOR WE EMERGE FROM THE INTERACTION OF FORCES IN MOTION - AN ASSOCIATION OF VECTORS.



MUTABLE AND CAPABLE OF CHANGE



*YOUR CHILDREN ARE NOT YOUR CHILDREN.  
THEY ARE THE SONS AND DAUGHTERS OF LIFE'S LONGING FOR ITSELF.*

...

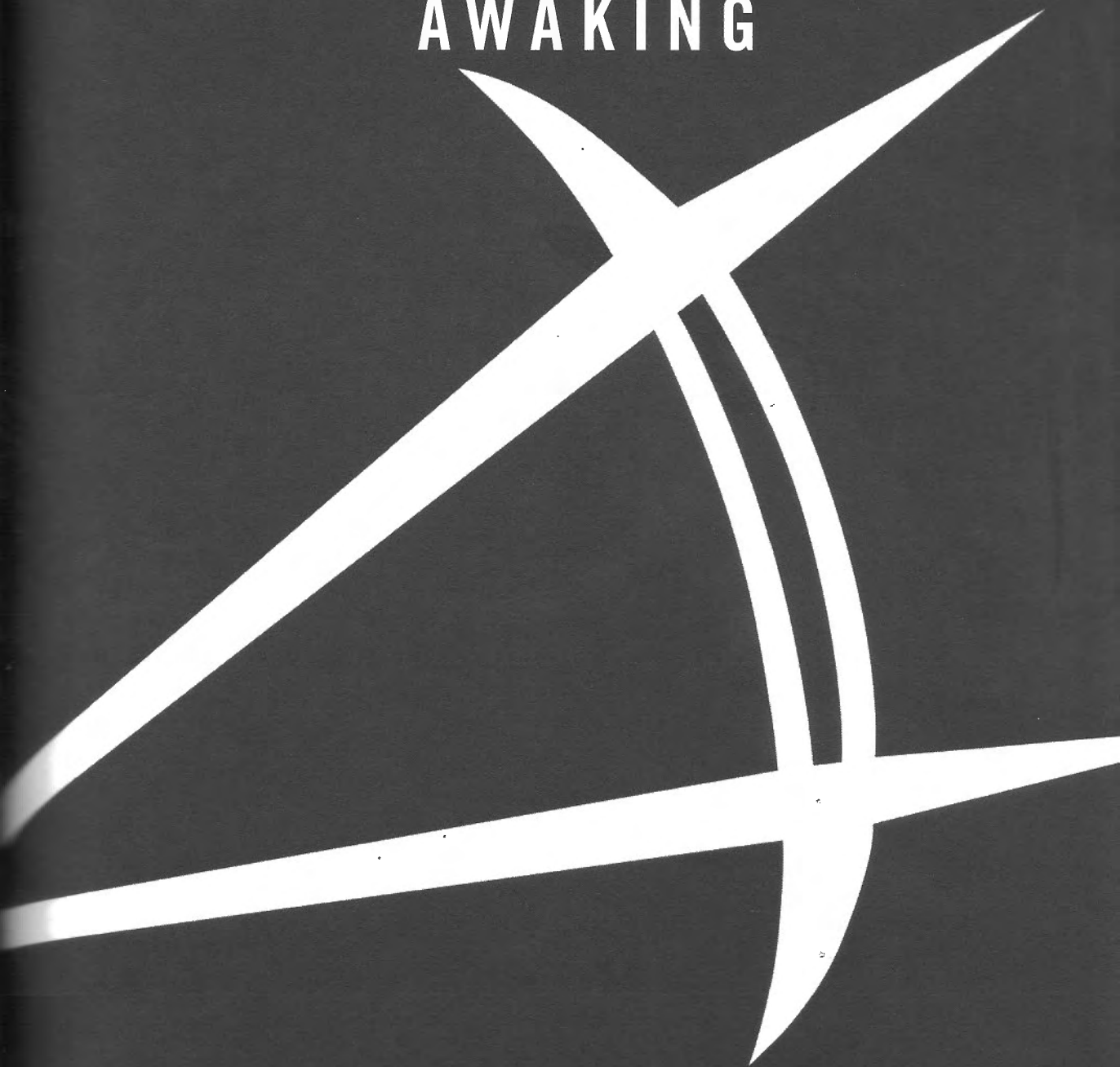


...

*YOU ARE THE BOWS FROM WHICH YOUR CHILDREN  
AS LIVING ARROWS ARE SENT FORTH. - KHLIL GIBRAN*

eight

# AWAKING





WE DON'T KNOW WHO YOU  
ARE UNTIL YOU ARRIVE,

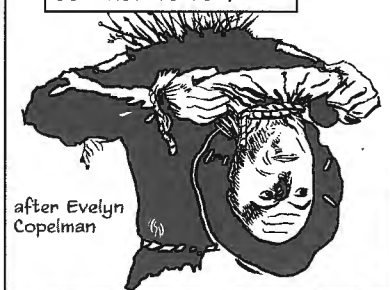
WE DON'T KNOW WHO YOU'LL  
BECOME UNTIL YOU'VE  
EXPLORED THE POSSIBILITIES.



YET TOO OFTEN WE FALL FOR THE DECEPTION THAT THE POWER TO DETERMINE WHO YOU ARE AND YOUR PATH AHEAD ARE NOT IN YOUR HANDS, BUT SUBJECT TO EXTERNAL FORCES.

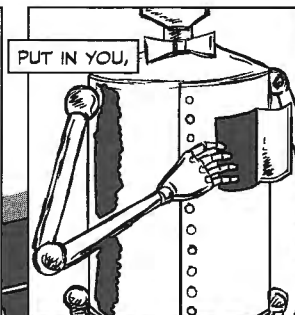


THAT YOUR THINKING IS SOMETHING THAT MUST BE GIVEN TO YOU,



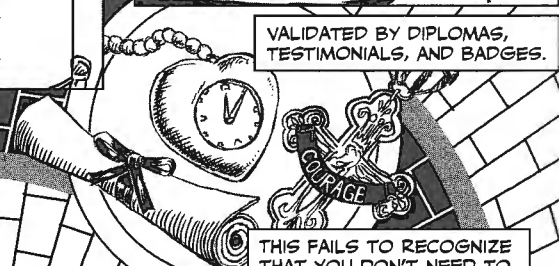
after Evelyn  
Copelman

PUT IN YOU,



A RECIPE TO  
FILL YOU UP,

VALIDATED BY DIPLOMAS,  
TESTIMONIALS, AND BADGES.



THIS FAILS TO RECOGNIZE  
THAT YOU DON'T NEED TO  
BE GIVEN SOMETHING YOU  
HAD IN YOU ALL ALONG.

YOU HAVE TO FIND  
IT FOR YOURSELF,

ON YOUR OWN  
TWO FEET, FROM  
THE BEGINNING.



PERHAPS ACCOMPANIED BY  
A FEISTY DOG (OR TWO),



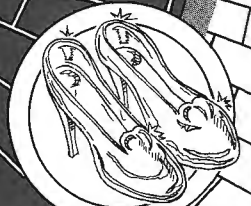
AND OTHER THOUGHTFUL,  
CARING, AND ADVENTUROUS  
COMPANIONS WHO WALK  
ALONGSIDE YOU,



TO LOOK OUT FOR YOU  
AND HELP YOU SEE  
WHAT YOU MIGHT NOT.



AND OF COURSE,  
TO GET WHERE  
YOU'RE GOING,



THAT YOU AREN'T MADE TO  
FIT INTO BUT RATHER ARE  
MADE TO FIT YOU, SO YOU  
CAN WALK YOUR OWN WAY.



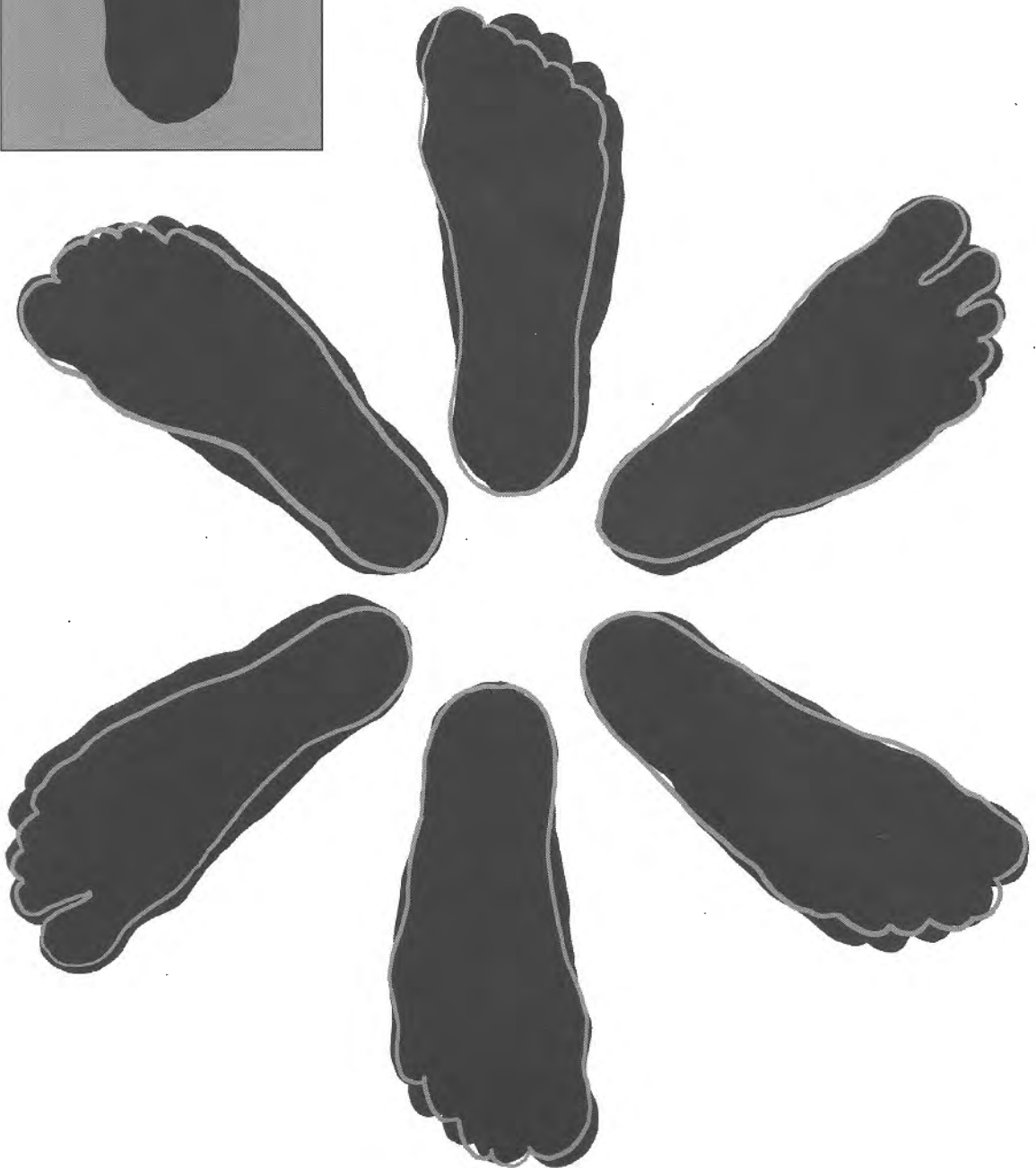
IT'S ESSENTIAL TO HAVE A  
SENSIBLE PAIR OF SHOES,





LET ME OFFER AS EXAMPLE, MY OWN FOOT, ALONGSIDE THE OUTLINES OF OTHERS WHO ALL WEAR THE SAME MEN'S SIZE 10 1/2.

THE GREAT VARIANCE BETWEEN MY FOOT AND THESE (AND BETWEEN ONE ANOTHER), DESPITE ALL BEING CLASSIFIED AS THE SAME SIZE, ILLUMINATES MY DIFFICULTY IN FINDING SHOES THAT FIT.

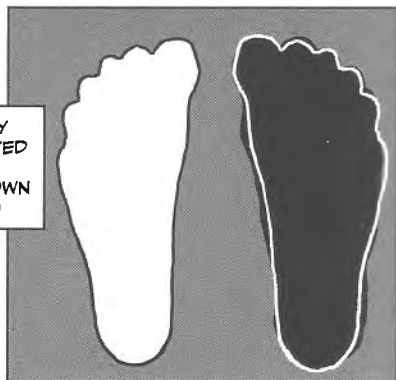




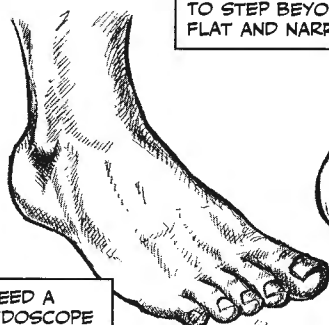
AND THIS TAKES INTO ACCOUNT  
ONLY ONE SINGLE PLANE OF  
MY FOOT IN A STATIC POSITION.



(NOT TO MENTION MY  
LEFT FOOT. REFLECTED  
ONTO MY RIGHT, WE  
SEE HOW EVEN MY OWN  
TWO FEET DIVERGE.)



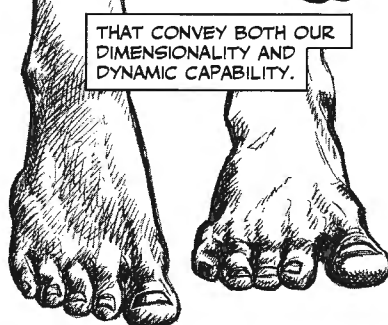
WE NEED A  
KALEIDOSCOPE  
OF VIEWS,



TO STEP BEYOND THE  
FLAT AND NARROW,



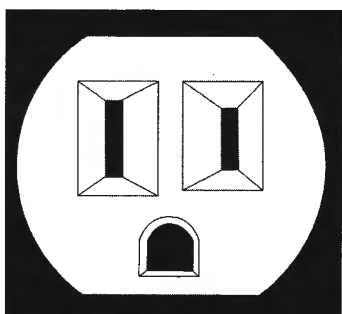
THAT CONVEY BOTH OUR  
DIMENSIONALITY AND  
DYNAMIC CAPABILITY.



CONFORMING TO ANOTHER'S  
EXPECTATIONS IS DETRIMENTAL  
- IF THE SHOE DOESN'T FIT,  
IT'S HARD TO MOVE FREELY.

TO IGNORE OUR DIFFERENCES  
AND THE CONFIGURATION OF  
THREADS FROM WHICH WE ARE  
UNIQUELY COMPOSED ROBS US  
OF OUR INHERENT NIMBLENESS.

WHILE STANDARDIZATION  
HAS ITS USES,





RATHER THAN FUNNELING OUR  
TIME HERE DOWN NARROW PATHS,

FOLLOWING A SERIES  
OF PRESCRIBED STEPS,

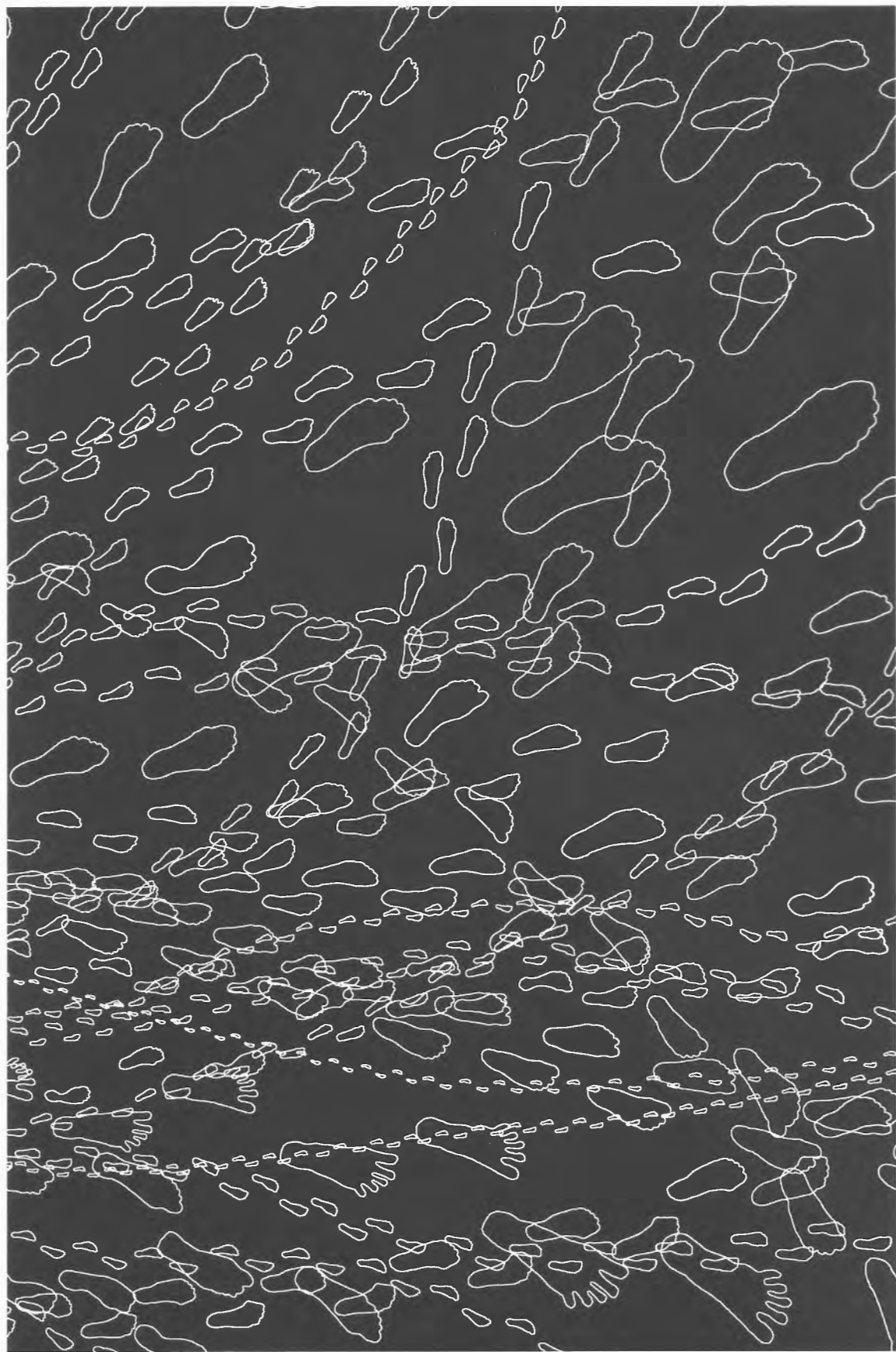
LET US OPEN  
THIS OUT...



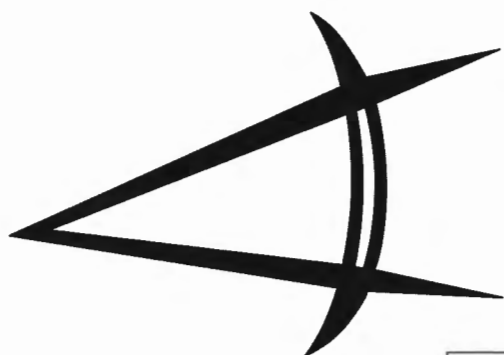


AND SEE WHAT POSSIBILITIES EMERGE  
WHEN WE AUTHOR PATHS AS UNIQUELY  
OUR OWN AS OUR FEET THEMSELVES,

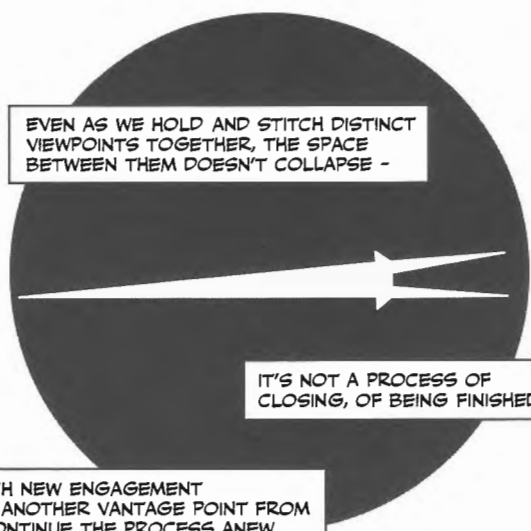
IN SHOE SIZES DETERMINED  
BY THE WEARER.



UNDERSTANDING, LIKE SEEING, IS GRASPING  
THIS ALWAYS IN RELATION TO THAT.

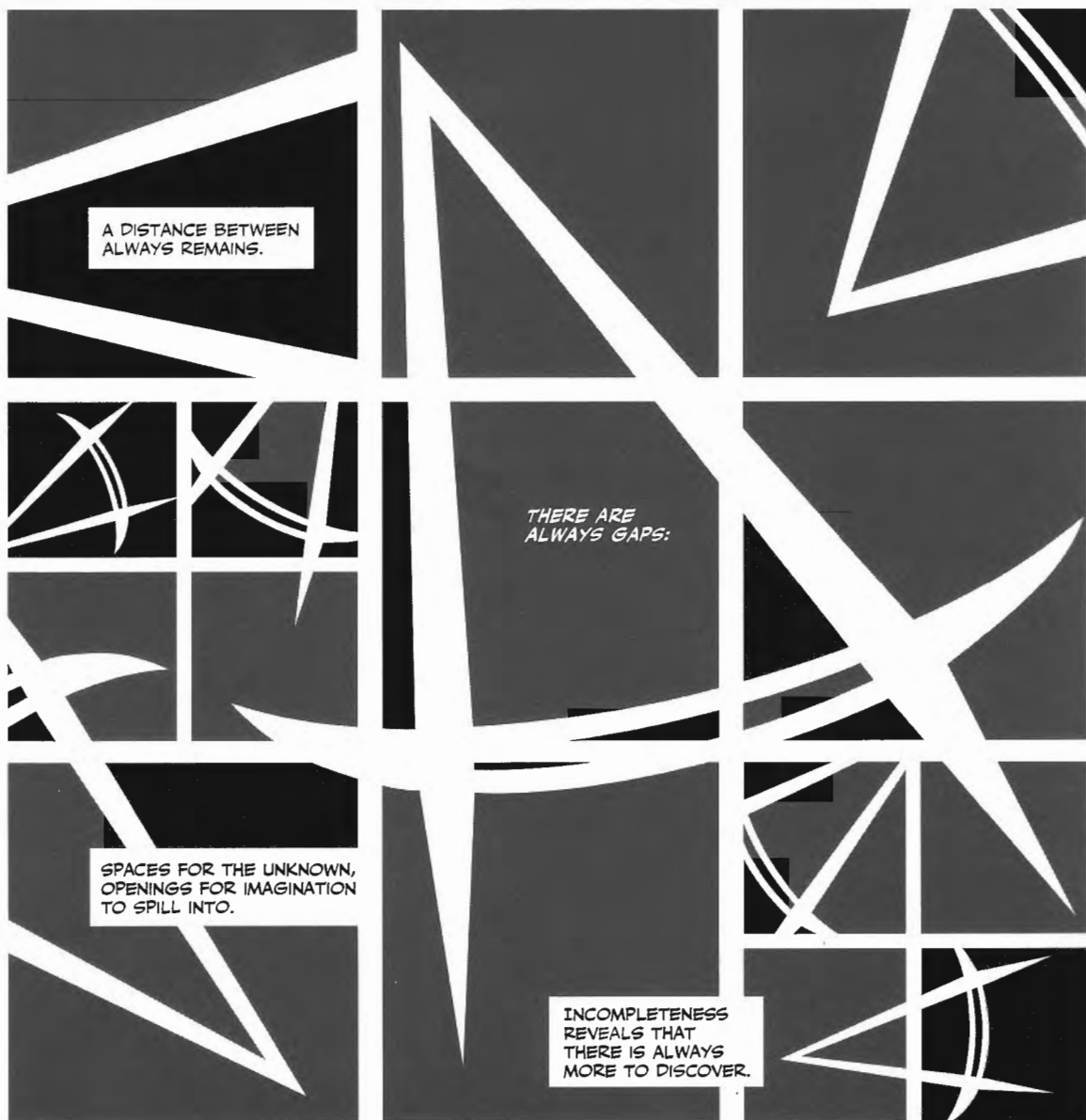


EVEN AS WE HOLD AND STITCH DISTINCT  
VIEWPOINTS TOGETHER, THE SPACE  
BETWEEN THEM DOESN'T COLLAPSE -



IT'S NOT A PROCESS OF  
CLOSING, OF BEING FINISHED.

RATHER, EACH NEW ENGAGEMENT  
GENERATES ANOTHER VANTAGE POINT FROM  
WHICH TO CONTINUE THE PROCESS ANEW.

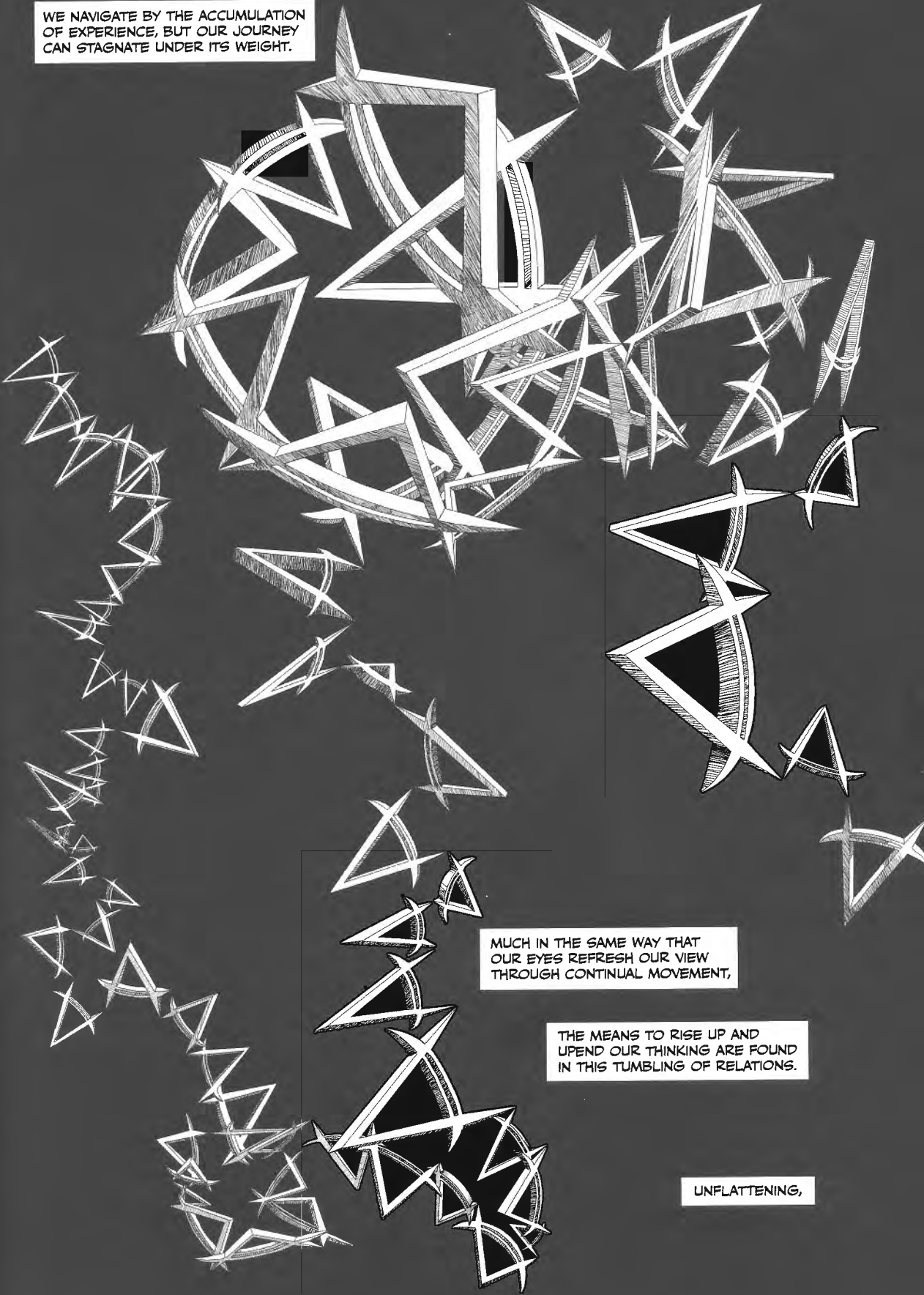


A DISTANCE BETWEEN  
ALWAYS REMAINS.

THERE ARE  
ALWAYS GAPS:

SPACES FOR THE UNKNOWN,  
OPENINGS FOR IMAGINATION  
TO SPILL INTO.

INCOMPLETENESS  
REVEALS THAT  
THERE IS ALWAYS  
MORE TO DISCOVER.



WE NAVIGATE BY THE ACCUMULATION  
OF EXPERIENCE, BUT OUR JOURNEY  
CAN STAGNATE UNDER ITS WEIGHT.

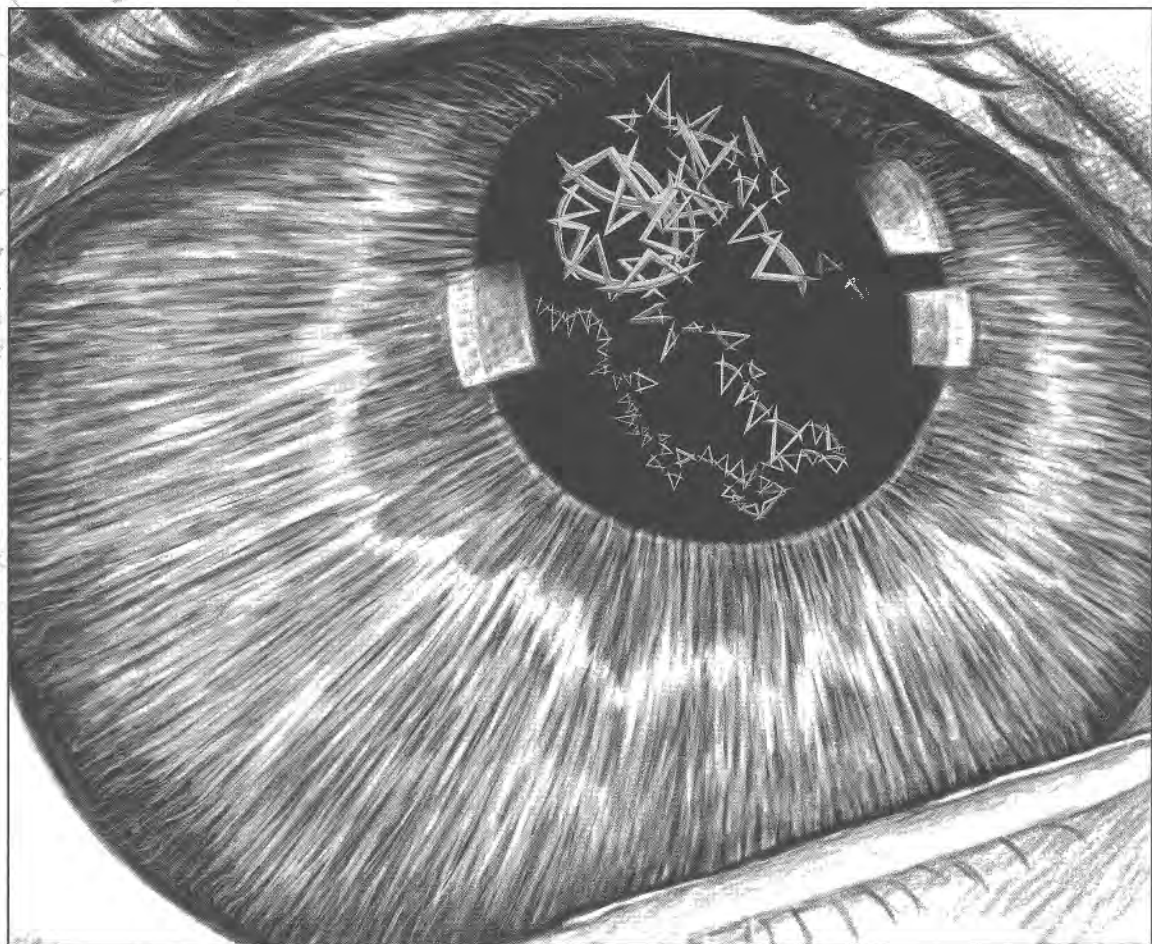
MUCH IN THE SAME WAY THAT  
OUR EYES REFRESH OUR VIEW  
THROUGH CONTINUAL MOVEMENT,

THE MEANS TO RISE UP AND  
UPEND OUR THINKING ARE FOUND  
IN THIS TUMBLING OF RELATIONS.

UNFLATTENING,



WE REMIND OURSELVES OF WHAT  
IT IS TO OPEN OUR EYES TO THE  
WORLD FOR THE FIRST TIME.



notes

bibliography

acknowledgments

early sketches

# NOTES

The following serves as notes to the visual and textual references. You need not read these notes to understand, enjoy, or disagree with *Unflattening*. But some of you may be curious to see the backstory, the hidden influence, behind my words and drawings.

## CHAPTER 1: FLATNESS

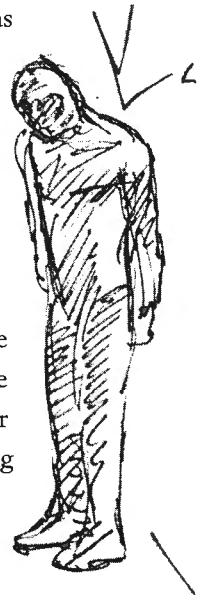
**Pages 3–5:** Piranesi's *Carceri*, Fritz Lang's *Metropolis*, Diego Rivera's industrial mural in Detroit, and Anton Furst's architectural designs for the film version of Gotham City influence the opening pages. The sleepwalking figures themselves reference the Borg from *Star Trek*, shrink-wrapped, stone, or plaster statues (Denise Fanning's Detroit installation of plaster figures came to mind), Munch's *Scream*, Käthe Kollwitz's anguished figures (though I never let mine be anywhere near as expressive), Giacometti's almost alien figures, and Death from *The Seventh Seal*.

The sleepwalking, marching figures first raised—or, rather, lowered—their heads during my time in Detroit and were the centerpiece of the public art billboard I installed along Woodward Avenue in April of 2004. For the project, I sought to address and depict transformation by embedding two images—two concepts—in one piece. The primary image used space as standard, flat billboards do. On a series of equally spaced slats, I encoded a second image, the edges of which faced oncoming traffic such that they were nearly invisible. However, coming alongside it, drivers would witness a fleeting transformation as the slats lined up to reveal the second image.

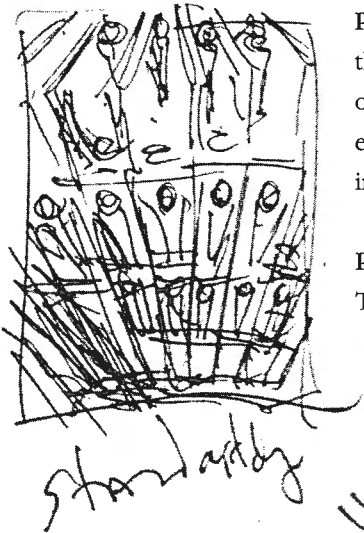


The motorist's own movement brought about the metamorphosis, a conceptual transformation; the two-in-one speaks to what this project is seeking to do as well. As I wrote in my artist statement from that time, "Can art awaken something dormant within us?" I sought to offer a rebuttal and a reminder of our complexity, asking commuters to open their eyes to "a glimmer of possibility often obscured." Imagery and information about the project are online at [http://www.thedetroiter.com/APR04/ns\\_billboard.html](http://www.thedetroiter.com/APR04/ns_billboard.html).

The flatlander's body positioning was influenced by Cathy Davidson's (2011) description of students marched down their hallways with hands kept behind their backs. At the time that I was working on this chapter, my dad, a teacher of physics for over four decades in the sort of experiential way that John Dewey would have liked, had retired and then taken a job mid-year at a different school, filling in for a teacher who'd been using worksheets as his mode of instruction apparently for his entire career. My dad's frustration at trying to push at the boundaries of what students had come to expect served as much of the inspiration for the images more directly referencing school institutions. He reported their being weighed down by having to carry their AP test prep books, and while they were good at taking tests, they couldn't make connections or ask questions. The "great weight" references his accounts, as well as Italo Calvino's (1993) discussion of "heaviness," which will be referenced again in the Flatland Interlude.



**Page 6:** Marcuse (1991, p. 14); the reference to lacking "a critical dimension" comes from the introduction by Kellner (p. xxvii).



**Page 8:** Julie Bosman's (2010) article in the *New York Times* on the declining sale of children's picture books due to pressures on parents to get their kids reading chapter books at earlier and earlier ages to prepare for tests horrified me and inspired the imagery on this page.

**Page 10:** While I do not cite it explicitly, the images draw on Tagore's description of the "education factory" in which students



are put in boxes and become

"lifeless, colorless, dissociated from the context of the universe, within bare white walls staring like eyeballs of the dead. We are born with that God-given gift of taking delight in the world, but such delightful activity is fettered and imprisoned, muted by a force called discipline which kills the sensitiveness of the child mind which is always on the alert, restless and eager to receive first-hand knowledge from mother nature. We sit inert, like dead specimens of some museum, while lessons are pelted at us from on high, like hail stones on flowers" (Tagore, 1966, pp. 213–214).

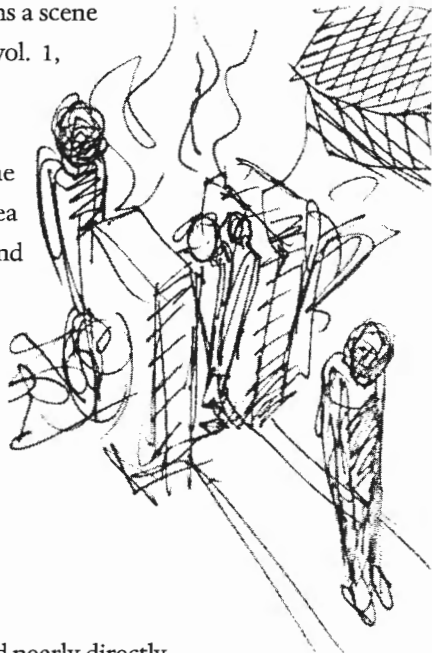


Interlude  
7 (Boxes)

**Page 11:** An allusion to a splash page from a Batman comic I read as a child. I made the sketch first and felt a trace of recognition. I tracked down the image, which turned out to be two different images, one on the cover and the other on the inside splash page, in which Batman's profile also contains a scene within; both images are from Detective Comics 457 vol. 1, published in 1975.

**Page 12:** A visual reference to Illich (1972), "the fundamental approach common to all schools—the idea that one person's judgment should determine what and when another person must learn" (p. 42).

**Pages 16–17:** I first used tops as metaphorical stand-ins for people in my piece for Maxine Greene's class. It appears in the 2010 book *Dear Maxine: Letters from an Unfinished Conversation*, edited by Robert Lake.

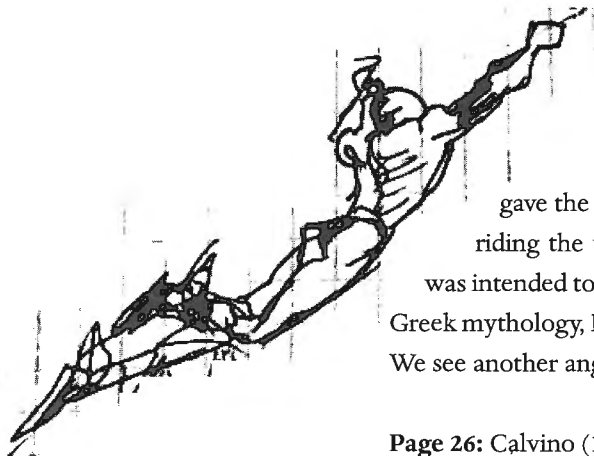


#### INTERLUDE: FLATLAND

**Page 22–23:** Text from the Flatlander sequence is derived nearly directly or paraphrased from Abbott's original 1884 novel.

**Page 25:** Hermes is (among other things) the god of boundaries and



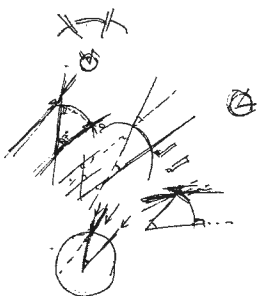


gave the winged sandals to Perseus. Perseus is often depicted riding the winged horse Pegasus. This gift of winged sandals was intended to transport Perseus to Medusa so he could slay her. In Greek mythology, Medusa can render inanimate all who look upon her. We see another angle of this story in Chapter 6.

**Page 26:** Calvino (1993, p. 7) from his chapter on “lightness.”

## CHAPTER 2: THE IMPORTANCE OF SEEING DOUBLE AND THEN SOME

**Page 29:** The spider is an orb-weaving, common garden variety. The jumping spiders often have more exotic eyes, but this spider had to have good-looking eyes and also be a web spinner. I can’t make these up—my mother is a naturalist, and incorrect spiders won’t fly.



**Page 31:** A reworking of a nearly similar page in my piece “Mind the Gaps” (2011). The stars in the original were from the Orion constellation; here they are from the Perseus constellation. I worked out the relative distances for each star.

**Page 32:** I was familiar with Eratosthenes’s method for calculating the circumference of the earth from my dad’s physics class; we used the opportunity of students traveling from Michigan to Florida on spring break to perform a similar calculation. Carl Sagan’s explanation of this from his *Cosmos* TV series was quite helpful—in it, he bends a cardboard mockup of Alexandria to Syene—and a similar bend shows up in my drawing.

**Page 33:** Information on Copernicus (and Kepler, who is hinted at but not mentioned as one of the “others” to expand on Copernicus) is drawn from Koestler (1963), as well as the NOVA documentary *Hunting the Edge of Space: How Telescopes Have Expanded Our View of the Universe* (PBS, originally aired June 4, 2010) and various websites detailing epicycles and other backflips required of the geocentric model.

**Page 34:** Draws on Horkheimer and Adorno (2002), Condorcet (1796), and Wilson (1998),





in which I found the passage attributed to Francis Bacon (p. 24).

**Pages 35–37:** These sequences are informed by the field of interdisciplinarity as delineated by Klein (1990), Repko (2008), and Welch (2011). The dialogue on page 36 is from L. Frank Baum's *The Wonderful Wizard of Oz* (1900), ch. 15.

**Page 38:** Snow (1964/1993, p. 4) and Dreyfuss (2011, p. 74). The dance steps and dance notations are my amalgamation of actual notation.

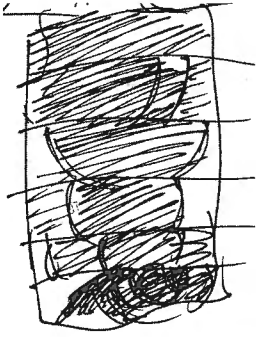
**Page 39:** Bakhtin (1981, p. 29). Oskin's (2009) article on Scott Page's work on the value of divergence and diversity for the creation of new ideas within groups (p. 48) informed some of my thinking here but wasn't directly cited. The composition of many eyes had me thinking back to the cover of Madeleine L'Engle's *A Wind in the Door* and the "drive of dragons" pictured on it. Deleuze and Guattari (1987). (I think their writing really lends itself to being presented in comics form.)

**Page 40:** For more about canine senses, see Bilger (2012) and Williams (2011).

**Page 41:** The ship is my recollection of a carved wooden canoe my parents have.

**Page 42:** Carse (1986) offers a notion of "horizontal vision," and the passage comes from p. 75. James (1907, p. 21), Cavafy (2002, p. 80). The walking figures reference Muybridge's photographic examinations of movement.

**Page 43:** My friend and mentor Fred Goodman suggests that tetrahedrons enclose a single space in such a way that they "beg" to be "turned over in one's mind." For Fred's 80th birthday, I made him a card depicting different turns of a tetrahedron, which I subsequently reworked for this page. Latour (2005, pp. 145–146) suggests that an object's dimensionality allows us to move around it. The page also references sculptor David Barr's globe-spanning "Four Corners Project"—the largest sculpture ever made (with the least amount of material).



**Page 44:** The explanation of fractal coastlines and related concepts is drawn from Peak and Frame (1994), Peitgen, Jürgens, and Saupe (1992), Mandelbrot (1983), Briggs and Peat (1999), and McGuire (1991), from which the passage by Mandelbrot is also drawn. The coastline explored here is that of Ithaca, Greece.

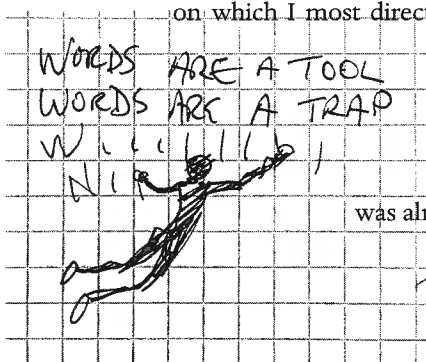
**Page 45:** The passage “Did it flow?” is from James Joyce’s *Ulysses* (1934, p. 655), ch. 17 (Ithaca). A trace of some text from my mom, Anne Sousanis (1987), remains in the text: “Our ecosystems may have visual boundaries but they are not isolated from one another.” And Heraclitus, who needs no citation at this point, “one cannot step into the same waters twice.”

### CHAPTER 3: THE SHAPE OF OUR THOUGHTS

**Page 49:** I had previously used the title of this chapter for an essay in comics form in the journal of *Visual Arts Research* (Sousanis, 2012), and this chapter reworks and greatly expands upon ideas from that previously published piece. Page 62 is most directly drawn from that earlier piece; it’s a new drawing, but with the same composition and scene for the most part, with altered text.

**Page 53:** The terms “anchor” and “relay” are a nod to Roland Barthes’s theory of the interaction of image and text, which is quite applicable to thinking on comics as well.

**Page 54:** I did set fire to several pages in an attempt to get this to look just right. That did not go well and I can’t recommend trying it at home. In the dissertation version of this work, I was required by the Office of Doctoral Studies to include a “List of Figures” at the front of the document to refer solely to the “figure” on this page—the page on which I most directly break the fourth wall as to what academic



scholarship is supposed to look like. Their insistence upon having a list of figures to point to the sole page of text in a work made of figures quite poetically emphasized the point I was already making here.



**Page 56:** Stems from Descartes's *Discourse on Method* (1637/2001): "Of refraction" (pp. 75–83); "Of the eye" (pp. 84–126); and "Of the rainbow" (pp. 332–345). The moon and telescope belong to Galileo, who is never mentioned in the text but has his fingerprints all over it. Adam Gopnik's (2013) article on Galileo helped inform both the imagery and the integration of reason and perception that closes the page—what he called a "fluid mixture of sense impression and strong argument."

**Page 57:** Hayakawa (1944/1995, p. 9). You can learn more about the Dymaxion Map and other projects on the Buckminster Fuller Institute website, [www.bfi.org](http://www.bfi.org).



**Page 58:** Langer (1957, p. 80), Baxandall (1985, p. 1), and Kosslyn et al. (2006) draw an important distinction between verbal and visual in terms of how they function as a means of representation and how they make "different sorts of information explicit and accessible" (Kosslyn et al., p. 12). The sentence diagram was provided by Russell Willerton, who kindly responded to my request for assistance on social media. Everett Maroon came up with an alternative approach of which I incorporated a few elements.

**Page 59:** Langer (1957) claims that due to its linear form, language falls short in conveying feelings and emotions, and thus discursive forms are seen as intelligent, while everything else is relegated to the realm of the irrational (p. 143). My final line references Wallace Stevens, who said of poems, "not ideas about the thing but the thing itself." The Cartesian coordinate planes/walls are made from poems by the following

authors: Sappho, Dorothy Wordsworth, Emily Dickinson, Sylvia Plath, Maya Angelou, Adrienne Rich, Anais Nin, and Georgia Douglas Johnson.



**Page 60:** Various alternative names for comics are listed or integrated into the imagery here (for a list of alternative names for comics, see Duncan and Smith, 2009, p. 18). *Manga*, *bandes dessinées*, and *fumetti* are terms for comics in Japan, France, and Italy (specifically of the photo-comics variety),

respectively. McCloud (1993) and Hogben (1949) connect comics back in time to a lineage that began with the cave paintings at Lascaux. “A rose by any other name would smell as sweet” stems (ha!) from *Romeo and Juliet*.

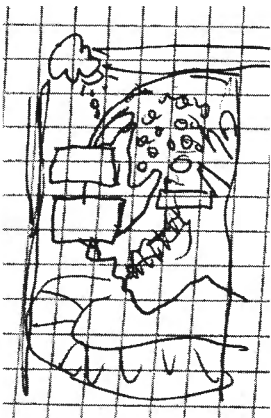
**Page 61:** McCloud (1993, p. 9). The lunar calendar is redrawn from a 30,000-year-old Paleolithic calendar produced at the same time as the cave paintings in Lascaux. While the connection between cave art and comics is often made, I was thrilled to link this calendar to comics—as here, time is literally written in space.



**Page 62:** Groensteen (2007, p. 146). It should also be noted that while I initially happened upon the Banyan tree because of the imagery, it turns out that, like comics themselves, the Banyan, as Thompson (2012) writes, can be seen as “both hierarchical and rhizomatic!”

**Page 63:** McGilchrist (2010). Also, on a related note, Hatfield (2009) discusses comics as an art of tensions. Though I do not mention it explicitly here, Hatfield’s point merits further discussion.

**Page 64:** Harvey (1979), Lewis (2001, p. 69), and Tufte (1990, p. 12). The text, appearing alongside Botticelli’s *The Birth of Venus* in the upper left, is from the opening to Hemingway’s *The Old Man and the Sea* (1952).



**Page 65:** Nodelman (2012, p. 438). The broader discussion of multimodality (though not named as such here) draws on Jewitt and Kress (2003), Kress (2010), Kress and van Leeuwen (1996), and Kress, Jewitt, Ogborn, and Tsatsarelis (2001).

**Page 66:** The Spiegelman quote is from Witek (2007, pp. 276–277), and Ware from Ball and Kuhlman (2010, p. 182). My composition on the lower left borrows from Frank Quitely’s wonderful perspectival panels in *W.E.3*, and in the lower right, his collaged compositions from *Flex Mentallo*. The imagery also plays with “you’re nothing but a pack of cards” from *Alice’s Adventures in Wonderland* to go along with giant Alice in the house.

**Page 67:** Langer (1957, p. 81).

#### CHAPTER 4: OUR BODIES IN MOTION

**Page 69:** The dancers are alighting across an image drawn from a cloud chamber—a machine made for detecting particles invisible to our eyes.

**Page 72:** Arnheim (1969, p. 54). Though not cited, Merleau-Ponty is worth remembering here: “Vision is a palpation by means of the gaze.”

**Page 73:** Noë (2004, p. 164).

**Page 74:** Rosand (2002, p. 1). Gombrich (1960) discusses recognition, “Making comes before matching” (pp. 105–106). He also discusses recognizing something in marks, connecting to a resemblance (p. 38). Lakoff and Núñez (2000) discuss the visual system as linked to the motor system; this allows one to trace out a structure with our hands (p. 34). The tracks come from various field guides to animal tracks supplied by my mom and the web, and include mouse in the snow, turtle in sand, bear claw swipe, turkey wing impressions, earthworm trails, rolling rocks (on Mars!), rivers, and more.

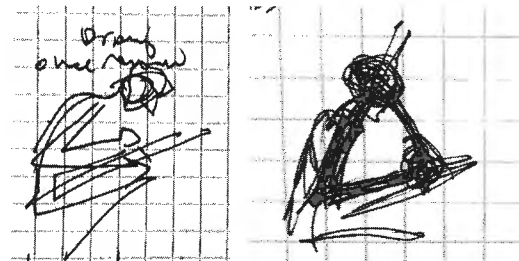
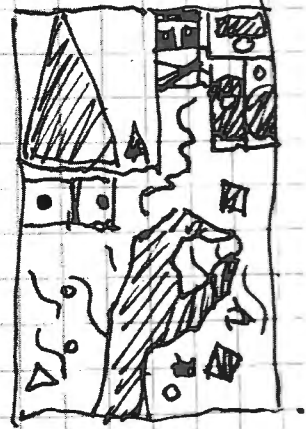
**Page 75:** Arnheim (1965, p. 259). The images visually reference Bang (2000)—an absolutely wonderful enactment of Arnheim’s theories.

**Page 76:** Lakoff and Johnson (1980, 1999), Lakoff and Núñez (2000). The formation of our most basic concepts (what they call conceptual metaphors) is grounded in our seeing and being in the world, ideas shaped, as Lakoff and Núñez (2000) suggest, “by our bodily experiences” (p. xiv). They use the term “image schemas” (which I chose not to include). Image schemas are both perceptual and conceptual, and bridge “language, reasoning, and vision” (p. 31), from which we derive conceptual metaphors.

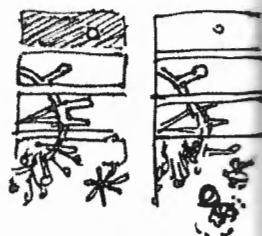
**Page 79:** Suwa and Tversky (1997, pp. 385–386).

**Page 80:** Moffett (2011, p. 137). The page also gestures toward Crockett Johnson’s *Harold and the Purple Crayon*.

**Page 81:** Stafford (1999, p. 29), Root-Bernstein (1985), and also



draws on Burton, Horowitz, and Abeles's (1999) work on the importance of the arts in curriculum.



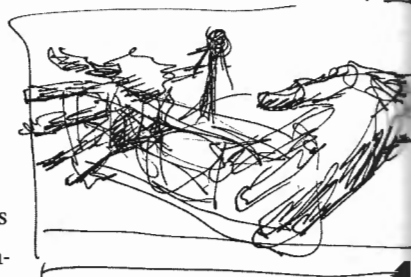
## CHAPTER 5: THE FIFTH DIMENSION

**Page 85:** The title references Rod Serling from the *Twilight Zone* equating imagination with the fifth dimension. I picked it up from a Grant Morrison-written Batman comic.

**Page 87:** As with prior instances, the text here hews closely to Abbott's original.

**Page 89:** Greene (1995, p. 37).

**Page 90:** Pelaprat and Cole (2011); the diagram of eye movement (saccadic motion) is based on Yarbus (1967) mapped onto da Vinci's *Mona Lisa*.



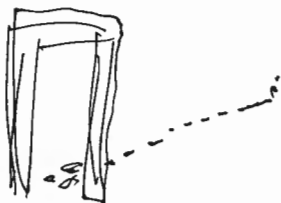
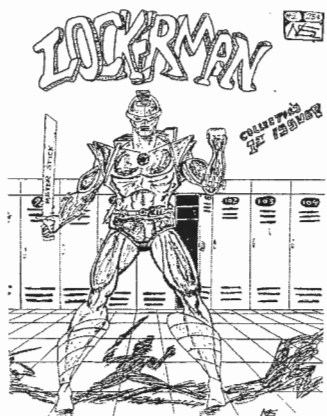
**Page 91:** The reference to gap-spanning is drawn partially from Johnson (1987). For more on "conceptual blending," see Fauconnier and Turner (1998, 2002).

**Page 92:** Lockerman first appeared in print in 1986 and was distributed courtesy of the Almont High School copy machines.

**Page 93:** My brother takes issue with my use of "tall tales" here.

**Page 95:** The opening depicts scenes from *The 1001 Arabian Nights*. The turn to science here draws on Saliba's (1999) description of the works of Nasir al-Din al-Tusi, whose works aided Copernicus's discoveries. Goodman (1978, p. 2).

**Page 96:** After Bill Watterson's *Calvin and Hobbes*, Superman changing in a phone booth, and the Tardis from *Dr. Who*. Bachelard (1964/1994, p. 134). String theorists surmise that dimensions we can't experience are curled up tightly within those we can.





## CHAPTER 6: RUTS

**Page 107:** The handprints are my redrawing of Paleolithic prints made on cave walls.

**Page 109:** Mumford (1967, p. 286).

**Page 110:** The column and upper panel backdrop are both redrawn from the stele upon which the Code of Hammurabi was written.

**Page 111:** Dewey (1916/1966, p. 49). For the record, it took me a long time to go slowly enough to consciously break down the steps of how I tie my shoes. I consulted the web and was relieved that my method was a proper and effective one.

**Page 112:** My wife mapped six of her actual daily commutes. Regarding the *dérive*, see Debord (1957–1961/1992).

**Page 113:** The walking man is from John Cleese's classic Monty Python "Ministry of Silly Walks" sketch. The last two figures are inspired by *Singin' in the Rain* (1952).

## INTERLUDE: STRINGS ATTACHED

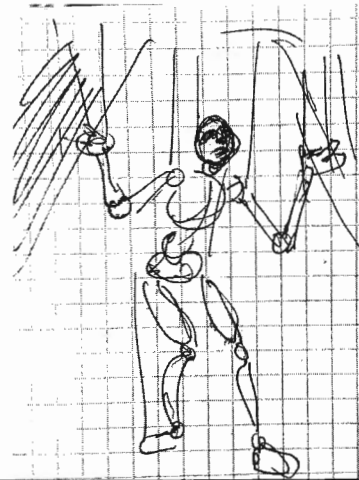
**Page 120:** An allusion to Eric Carle's *The Very Hungry Caterpillar*.

**Page 122:** "Who are you?" is the first line the caterpillar says to Alice in *Alice's Adventures in Wonderland* (1865). Monarch caterpillars do turn over into an upside-down question mark.

## CHAPTER 7: VECTORS

**Page 125:** Artemis is not only the goddess of the hunt and the moon, but also a midwife.

**Page 129:** Besides looping back to the opening pages, the text also references the Calvino (1993) passage from the Flatland Interlude that comes from his chapter on "lightness"—to work against forces of heaviness and inertia.



see what they are like



**Page 131:** The box within a box, this higher dimension, is a three-dimensional representation of a four-dimensional hypercube or tesseract.

**Page 132:** Elements on this page are drawn from a wide variety of sources, including Zimmer (2006): eye development, squid eye, lancelet; Davies (2014): DNA proteins, heart development; Shlain (1991): grasping hand; Pilcher (2013): grasping hand, eyes; Lisieska (2010): squid eye; Robson (2014): stone tools and evolution. The central figure is from Vesalius's "On the Fabric of Human Body."

**Page 133:** Building on Latour (2005) and his notion of "trace of associations" as part of Actor-Network-Theory.



**Pages 134–135:** For more on description of actors as puppets, see Latour (2005, pp. 59–60). Also see Latour (pp. 215–218) for further discussion of emancipation not as being free from bonds but as being well attached.

**Pages 136–137:** Draws on Strongman's (2008) wonderful breakdown of the differences between European and Pacific Islander navigation methods.

**Page 138:** Dewey (1916/1966, p. 41).

**Page 139:** Gibran's poem "On Children" (1923, pp. 21–22).

## CHAPTER 8: AWAKING

**Page 144:** Illich (1972) considered the "fundamental approach common to all schools—the idea that one person's judgment should determine what and when another person must learn" (p. 42). Also references Freire's (2000) "banking model" of education.

**Pages 145, 147–149:** Attributions for the feet depicted here are listed in the acknowledgments. People sent me feet from at least three continents based on a call I broadcast on social media. The call read as follows:



Trace the outline of each one of your feet and then label it *right/left*, *male/female* (what shoe you wear, not your gender), and *US shoe size*. In my case, this looks like *R, M, 10.5*, and *L, M, 10.5*. Then scan or take a digital photo of the tracing, low-resolution is fine (and preferred), as all I need is a clear outline. Label the picture/scan as above without any additional identifying information. Send it to me at [nsousanis@gmail.com](mailto:nsousanis@gmail.com) with subject heading "foot project" (or some clever pun if you'd prefer).

I will not identify your feet in any way in the work, and will save all the image files in a folder without retaining the sender's information. I'll be redrawing the outlines, for visual clarity and consistency as well.

**Pages 150–151:** Draws on the following discussions—on the semiotics of Charles Peirce: Kockelman (2006), Liszka (1996), Daniel (1984), and Whipple (2005); on the importance of diversity in dialogue: Oskin (2009), Freire (2000), and Greene (1995); on cell destruction being the key to renewal: Zimmer (2009); on "creative destruction": Schumpeter (1942/1976).







## BIBLIOGRAPHY

In the process of making this book I read and was influenced by many books and images. Some of them are named in the preceding pages; others have left an invisible, yet no less important, imprint on my words and drawings. Traditional bibliographies are partial to the written word and list mostly books and articles. Images of all sorts have been just as important to me as I made this book. If you wish to learn more about these images and their influence on *Unflattening*, please turn to the section titled Notes.

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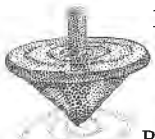
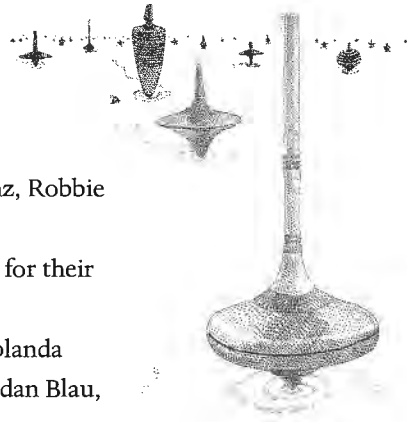
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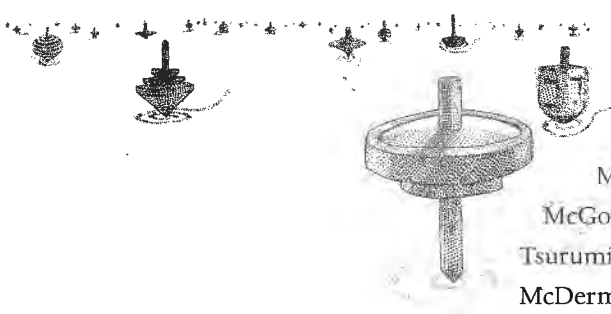
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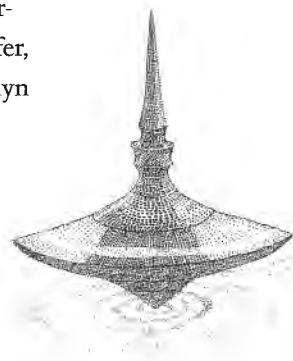
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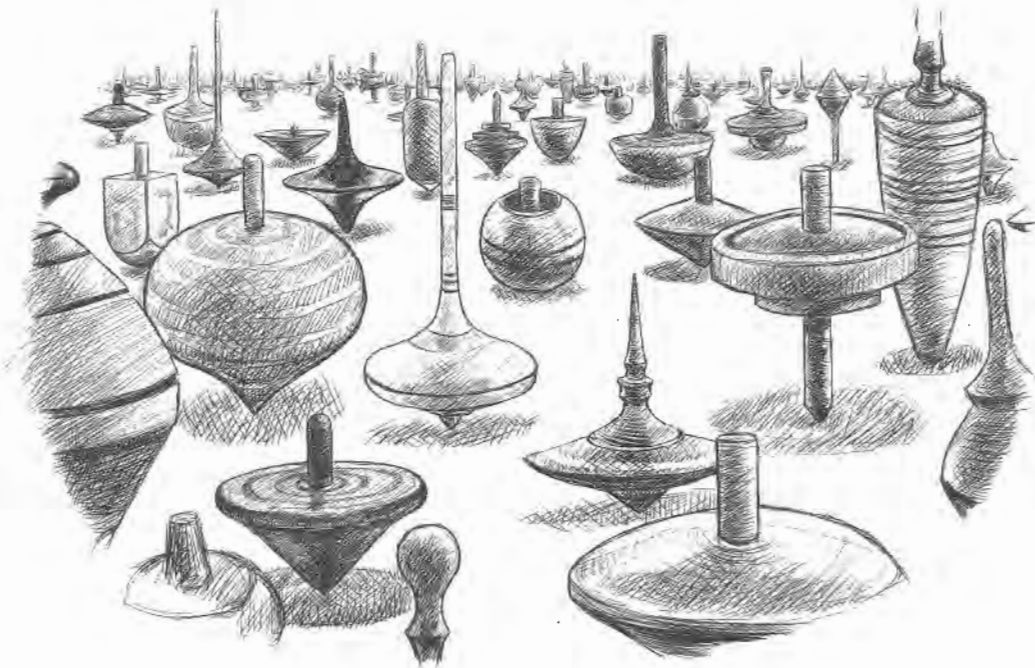
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their growing family.

To my parents, Anne and Dean, educators in the best sense of the  
word.

And to my wife, Leah.



UNFLATTENING  
 from many dimensions  
 meditation

ALWAYS: WAYS OF SEEING  
 when community seems confused  
 light from different perspective

INDIVIDUALS  
 OASIS OF  
 all ways of seeing  
 all ways of seeing  
 all ways of seeing

A Dream of Progress

not literal, contemplative - will not be true  
 from a different perspective

Progressive  
 from a different perspective  
 from a different perspective  
 from a different perspective

A COMPUTER  
 from a different perspective  
 from a different perspective  
 from a different perspective

all ways of seeing  
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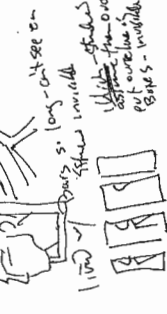
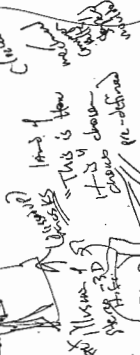
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along: days of science

Flat areas in

conform there is flatness



Not them (exceptions)  
lots of possibilities  
more complex  
behavior



10012  
along: days of science



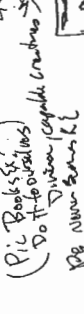
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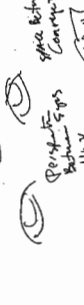


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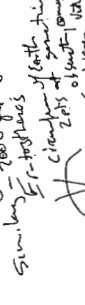
Calvin - 1000 - 1000 - 1000



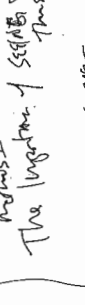
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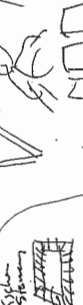
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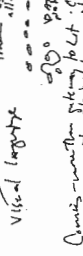
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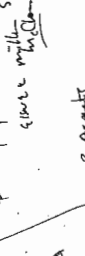
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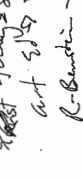
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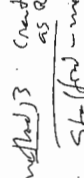
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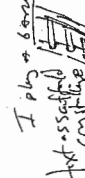
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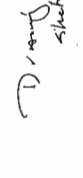
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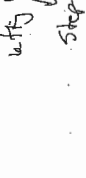
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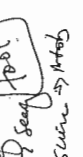
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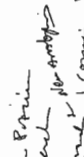
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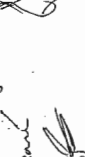
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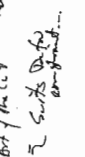
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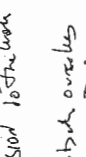
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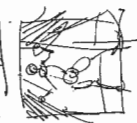


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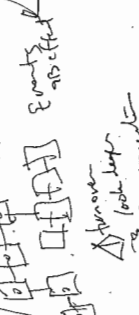


1/21/12 London (12) Home: work / day

# Ships Attached



What's wrong with you?  
 Biology, anatomy, physics - related  
 (Biology, anatomy, physics - related)  
 (Biology, anatomy, physics - related)  
 (Biology, anatomy, physics - related)



You are involved  
 A VSCD  
 Capable of change  
 movement...



100 years old  
 in 1914  
 in 1914  
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 in 1914

Ships Attached  
 100 years old  
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Ships Attached  
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Ships Attached  
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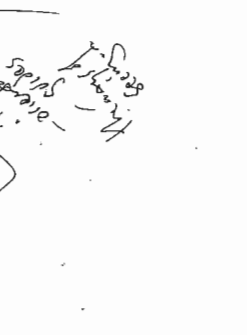


Ships Attached  
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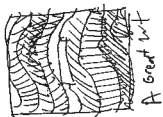
Ships Attached  
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Ships Attached  
 100 years old  
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Ships Attached  
 100 years old  
 in 1914  
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 in 1914



3.19.12



A road with



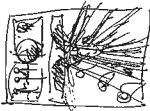
Shifting  
(couching)



Ossifying



Planned  
permanence



Flattened  
is a 1/2



Hemorrhage



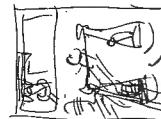
Steps  
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Dispersed  
Boxes 8



Interlocking  
7 boxes



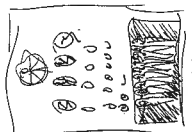
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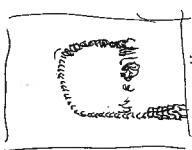
Use sets for  
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Dynamic Body, height 11m



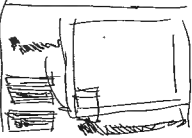
Jobs



Walk the line



Shrinking Site



Shrinking Site



Shrinking Site



Shrinking Site

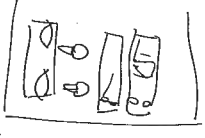


Shrinking Site

Find itself  
Closed 100%



Not working  
the  
system  
is  
broken



Flatland comes  
with 100%  
coverage  
only when not in 3-space  
pieces of space for  
pieces of space

Flatland comes  
with 100%  
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only when not in 3-space  
pieces of space for  
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10

11/23/14

\$22.95 USA

## THE PRIMACY OF WORDS OVER IMAGES

**T**he primacy of words over images has deep roots in Western culture. But what if the two are inextricably linked, equal partners in meaning-making? Written and drawn entirely as comics, *Unflattening* is an experiment in visual thinking. Nick Sousanis defies conventional forms of scholarly discourse to offer readers both a stunning work of graphic art and a serious inquiry into the ways humans construct knowledge.

*Unflattening* is an insurrection against the fixed viewpoint. Weaving together diverse ways of seeing drawn from science, philosophy, art, literature, and mythology, it uses the collage-like capacity of comics to show that perception is always an active process of incorporating and reevaluating different vantage points. While its vibrant, constantly morphing images occasionally serve as illustrations of text, they more often connect in nonlinear fashion to other visual references throughout the book. They become allusions, allegories, and motifs, pitting realism against abstraction and making us aware that more meets the eye than is presented on the page.

In its graphic innovations and restless shape-shifting, *Unflattening* is meant to counteract the type of narrow, rigid thinking that Sousanis calls "flatness." Just as the two-dimensional inhabitants of Edwin A. Abbott's novella *Flatland* could not fathom the concept of "upwards," Sousanis says, we are often unable to see past the boundaries of our current frame of mind. Fusing words and images to produce new forms of knowledge, *Unflattening* teaches us how to access modes of understanding beyond what we normally apprehend.



**N**ICK SOUSANIS is a comics artist and an educator. He is a Postdoctoral Fellow in Comics Studies at the University of Calgary.

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"Nick Sousanis's *Unflattening* is a complex, beautiful, delirious meditation on just about everything under the sun; a unique and bracing read."

—**SCOTT McCLOUD**, author of *Understanding Comics* and  
*Making Comics*

"An important book, *Unflattening* is consistently innovative, using abstraction alongside realism, using framing and the (dis)organization of the page to represent different modes of thought. The words and images speak for themselves and succeed on their own terms. I couldn't stop reading it."

—**HENRY JENKINS**, author of *Spreadable Media*

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