Evolution of the Pragmatic Paradigm: The Agency of Graphic Media in Cognitive Development

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ABSTRACT

The author speculates that both cultures and individuals mature in relation to a still-evolving cognitive ground of ordinary reality that he terms the *pragmatic paradigm*. Various modes of the paradigm are available in cognition, expressed through a hierarchic, dialectic repertoire of attentional states. Paying attention to events construes them in a presumed spatial sense of context, some of which are invested through graphic media in common-sense models of social transactions. In terms of the pragmatic paradigm, Cartesian dualism is rendered as a consequence of attentional behaviors tutored in a cultural milieu dominated by print graphics. Electronic and photonic technologies radically revise familiar attentional modes, inducing a new and more complex pragmatic of imaginal being. In a telecommunications environment, art is less about making valuable objects and more a matter of attentional curiosity.

It is pictures rather than propositions, metaphors rather than statements, which determine most of our philosophical convictions.

—Richard Rorty [1]

COMMON SENSE IS SYNOPTIC

Within the sensory welter informing individual consciousness, intentional priorities are formed and enacted through active attention given to factors of interest. The term *common sense* implies a folk idiom of core consciousness inherent in practical matters that people tend to agree about and to which most attend in like manner.

Social communication is frustrated in an absence of a common core of shared presumptions, because the inferential force of ordinary meanings and interpretive tendencies cannot be taken for granted. Where common sense is held in abeyance, as in empirical reasoning, individuals spend a great part of their effort in simply preparing the ground for communication.

A behavioral repertoire of common-sense attentional modes liberates the mind from a social drudgery of having to re-invent and re-invest the fundamentals of exchanging information. It brings into play a synoptic [2] core of meaningfulness that is in part organically determined and in part learned from a cultural milieu.

Both *attention* and *intention* derive from "stretching out, applying one's mind to," the former implying a fix upon an outer world; the latter, toward an inner domain. At any given moment, either attitude is necessarily grounded in the way attention has been paid to things in the past, synoptically pressing ambient detail into the service of active concerns. This attentional/intentional character of sentience tends toward a bifurcation of events into world-self domains by garnering aspects in which it has some control and disregarding the rest.

"Dealing with events in such a manner as to show their interconnection" defines *pragmatic* [3]. This sense of the word was elaborated into a philosophic view by Charles Sanders Peirce (1839–1914) and expanded into "a branch of semiotics that deals with the relation between signs or linguistic expressions and their users—distinguished from *semantics* and *syntactics*" [4].

Despite common sense, individuals may differ widely in their respective elaborations upon almost any topic. Such divergence may be despised as caprice or wanton vagaries of sensory impression and intuitive construction, but it is such tentative construction among shared presumptions that makes thinking such a fluently powerful factor in the world. The wayward homing of the mind, eventually arriving at workable resolution of crucial matters, radically distinguishes sentient thought from the rigid predispositions of artificial reasoning devices.

Evident in this dependable fluency of mind are two related dilemmas that troubled Peirce: the indexing problem and the frame problem. In seeking an explanation for a phenomenon, Peirce noted, there are indefinitely many hypotheses that might be explored. Yet inevitably we are rescued from a numbing cacophony of irrelevancies by some hidden agency that filters and promotes only a few promising intuitions for consideration [5].

The Peircian filter is not available for direct inspection. Any direct attempt to pay attention to "paying attention" finds a recursive dilemma of self imagining self imagining self imagining. . . . While this most intimately crucial aspect of consciousness seems the least amenable to immediate consideration, semiotic features of communications media can indirectly provide clues to the agencies at work in consciousness.

Common sense is the socially founded presumptive context of all conscious transactions among individuals. Its models of behavior constitute a latent *pragmatic paradigm*, considered here as an unfolding hierarchic repertoire of ever more adequate attentional modes, each preselecting some pattern of action. (Attentional adequacy is evaluated in practical concerns by success of a presumptive mode in resolving tension induced by perceived anomaly. Where common-sense modes fail, an individual's only options are avoidance, distress or creative innovation of new patterns of action. The latter option, where anomaly resolution succeeds, can [if the innovations can be communicated] enter into and expand the socially borne paradigm. Available technical potentials thus constrain a cultural epoch to those attentional modes likely to be encountered in common graphic renderings) [6].

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Each attentional mode synoptically expresses its *sense of context,* elaborated as a chiefly spatial prospect of a presumed ground of occurrence. Technical characters of available graphic media communicate some prospective features more readily than others. Those features repeatedly given in media experience come to dominate social transactions and tinge the cultural milieu with their latent spatial residue, thereby characterizing the pragmatic paradigm of a given culture. "Following Wittgenstein, we shall treat the intentional as merely a subspecies of the functional, and the functional as merely the sort of property whose attribution depends upon a knowledge of context rather than being observable right off the bat" [7].

Graphic Media and Common Sense

How I believe the world behaves severely limits what I am prepared to pay attention to. As Howard Gardner expresses it in his discussion of Richard Rorty's deconstruction of philosophical traditions, "justification is a social process, an extended conversation, whereby we try to convince others of what we believe. We understand the nature of knowledge when we understand that knowledge amounts to the justification of our belief, and not to an increasingly accurate representation of reality" [8].

Cognition as social process relies upon communications technology. In all major domains of human activity, graphic communication supports and furthers reliance upon spatial and textual renderings of information. The technology of such communication socially supports an individual's practical ability to deal with complex aggregates of information, to keep track of decisions and to structure new proposals. However, note that in thinking of information *one tends to recall how it was communicated as well as what was conveyed.*

Presumably, imaginal contents cannot be shared directly with others. One must externalize their representations in some medium mutually perceptible and amenable to the depiction intended [9]. The viewer (recipient) works backward from such depiction, deciphering its visible marks to infer an internalized, envisioned interpretation of his or her own derivative imagining.

Agreement between implication and inference regarding some mutually visible image may vary widely. If attentional repertoires of sender and recipient are incompatible (due to developmental deficiency or to cultural differences), much ancillary explanation is necessary to assist in guiding and filling out the inference.

Human culture has evolved largely in proportion to its ability for providing ever more powerful means of communicating visible information. Even text, whether handwritten or printed, is a graphic representation of phonetic signs. Drawing is the most basic means of rendering envisioned form. It is the medium of choice for directly conveying succinct representation of a complex concept. Drawing is the original graphic technique; line is its chief syntactic device [10].

"Civilization," said Oliver Wendell Holmes, "is the art of drawing lines." Communication of visual ideas and representation of appearances occupy a vast portion of cultural enterprise, from the utilitarian to the aesthetic. Graphic media make visible information public via distributive technologies, some working through replication and distribution of physical items, such as printed matter or videodiscs, others operating through network or broadcast signals.

The peculiar traits of a graphic medium uniquely affect the information transmitted. Each medium casts information into a distributive form that usurps the original authority of its implication, sometimes subtly, sometimes radically. Lithographed magazine photographs, for instance, impose a bland and flattened slickness on every image, regardless of the original tactility of the subject depicted. Video ruthlessly exaggerates facial cues and vocal eccentricities by coercing the attention of the viewer into a narrow frame of reference, that of the camera.

For an individual within a specific culture, image concepts mature in a complex interplay of social environment and bio-psychic developmental tendencies. Seeing and imagining are tutored daily in available graphic forms. Each graphic medium avails a specific technical syntax supportive of certain image features peculiar to it. All of the graphic technologies available within a culture synergistically foster a peculiar set of common imaginal tendencies by reiterating these traits across all instances of image communication. The range of imaginal tendencies promotes a pragmatic paradigm manifested in attentional biases toward certain common-sense renderings of practical experience induced by graphic media active within the culture.

Its pragmatic paradigm is embodied canonically in the total means of communication available to a culture. It is sustained in both available media and their artifacts. The paradigm itself is the result of a complex matrix of imaginal potentials comprising sets and subsets of media traits that uniquely affect the manner in which people tend to regard their own sentient context, the attentive interface of self and world. The paradigm is expressed in the attentional behavior of individual persons as assimilated from perceptual experience within the social environment.

In *Prints and Visual Communication,* William Ivins discusses the tendency of graphic media to impose their own qualitative signatures on the thought of entire epochs. He attributes the derivation of some of the most salient of eighteenth-century philosophical themes to the pervasive influence of representational conventions devised earlier by such engravers as Marc Antonio. These artisans had innovated a technical repertoire of linear treatments for rendering visual form that obscured idiosyncratic detail and resolved all subjects into a sameness of linear webbing.

> As it was, a blighting common sense descended on the vision of the educated world. . . . The eighteenth century talked about harmony, proportion, dignity, nobility, grandeur, sublimity, and many other common-sense abstract verbal notions based upon the gross generalities of the subject matter that came through into the engraved reproductions [11].

In our own era, graphic technology has been at first augmented, then revolutionized by electronic and photonic methods of disseminating visual information. These innovations enable the linking of information into dynamic cybernetic matrices that radically alter the relationship between self and world. They demonstrate propensities vastly different from the static space and linear logic of print and standardized type. Their technical peculiarities interact within society to radically renovate the pragmatic paradigm in terms of which we reify experience into meaningfulness.

The archetypal graphic device is the *map.* By ordering relationships among relevant details and providing links to other such aids, graphic devices express an appropriate *sense of context* in which to interpret the needs of the moment.

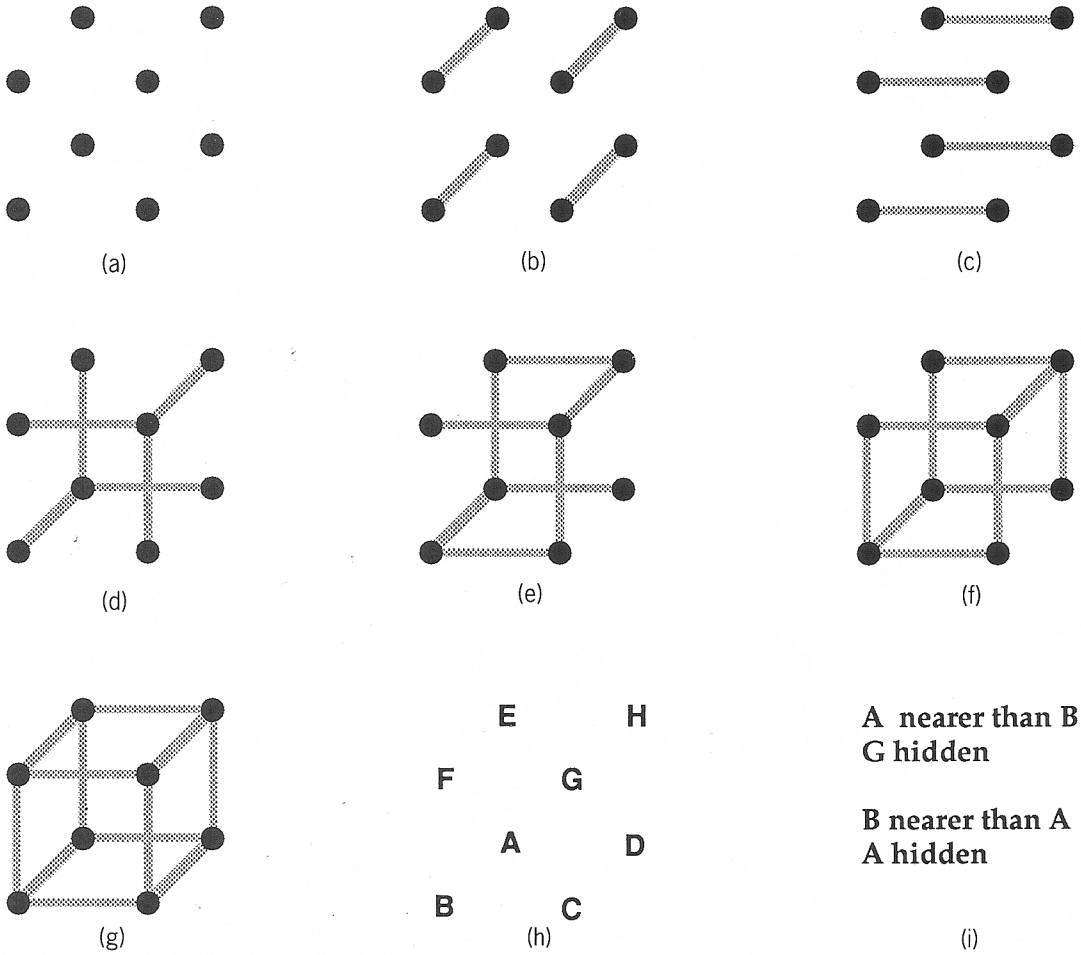

Fig. 1. Paying attention to information about a Necker Cube. Attention construes its spatial sense of context by resolving perceptual anomaly into a gradient of virtual dimension. (a) This positioning of dots is ambiguous, but tends toward the planar. (b,c) These are stable planar views. (d,e,f) These present incomplete (irregular) anomalies that tend toward an unstable volumetric. (g) This perceptual gradient of slant lines induces the familiar volumetric of the Necker Cube. (h) This image dissolves into a spatially ambiguous reading (decoding) zone. (i) Verbal statements describe but do not construe spatial relations.

Only later, after the sense of context is evident, do details of a diagram become useful. In Fig. 1, a Necker Cube is disassembled into several patterns of detail that strongly bias the sense of its spatial context.

One hesitates to trust the good intentions of a carpenter who cannot read a blueprint or the efforts of a surgeon who has not mastered the intricate process diagrams of biochemistry and physiology. Just as tourists need maps in strange cities, the mind needs graphic assistance in complex cognitive milieus. To the extent that civilization develops beyond oral culture, the pragmatic paradigm is supported and fostered by graphic artifacts.

Each graphic medium employs some set of technical features, a technical syntax, to render its specific pictorial syntax. Relief printing, for instance, removes portions of the print matrix, leaving raised lands that can receive ink and repeatedly impress the carved configuration onto any suitably flat and receptive medium—usually paper or fabric. Intaglio incises a metal plate with grooves and pits that carry ink to be impressed into resilient paper. Photography exploits the chemistry of light-sensitive materials. Video draws with electron beams onto electroluminescent phosphors. Each medium has a unique technical syntax that is correlated with some subset of pictorial (imaginal) syntax.

The technical characteristics of each medium constrain and characterize the qualities by which any semiotic construction is formed and interpreted. Again, the nature of the medium infects and conditions the messages it carries because, in thinking of information, one tends to recall how it was communicated as well as what was conveyed.

Memory Pays Attention

There are many difficulties in assessing specifically what memory might be in individual experience, whether it comprises one or many agencies. But the nature and functional description of memory are not the issues here. It suffices to recognize that remembered moments condition and predispose attentional focus even as specific recollections are inductively summoned into the present (attentional) moment [12].

As important as any given focus of consciousness is the attentive sense of context that embraces it within its memoried web. Sense of context in an attentional moment is at its root both dimensional and synoptic—dimensional, because one typically envisions relationships rather than merely listing them, and synoptic, because remembered moments inductively gather out of the sense of the immediate moment and into anticipation of the next.

A maturing individual must deal with an accumulating store of scenarios, constructions and narrative complications. Cognitive development proceeds through ever more complex and thereby more prolifically powerful rules of structuring information organized into *schemas* [13]. These spatialised rules of accounting place and link imaginal iterants across their grounds of relation. A specific ground may be posited as a particular within some larger

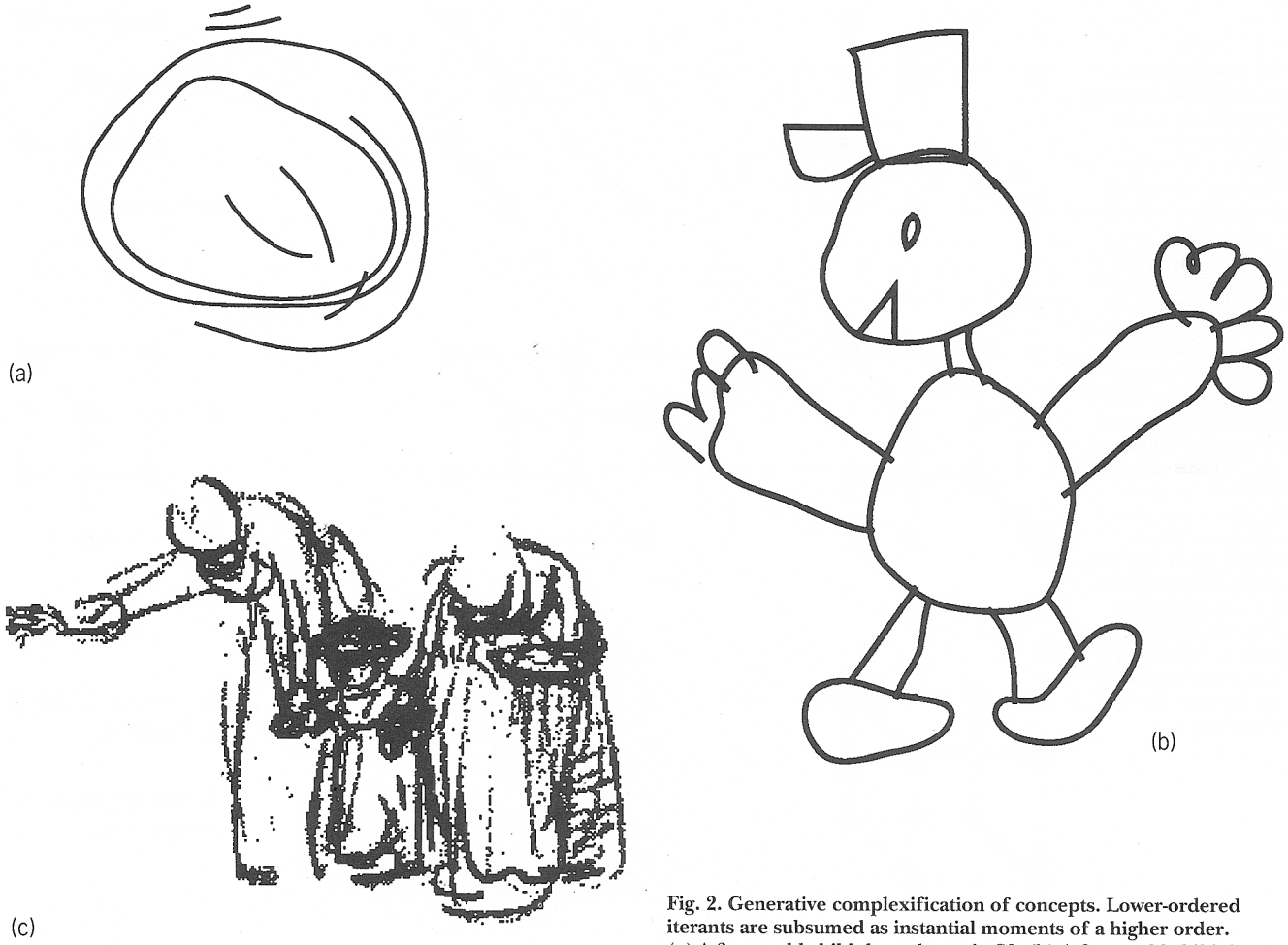

Fig. 2. Generative complexification of concepts. Lower-ordered iterants are subsumed as instantial moments of a higher order. (a) A 3-year-old child draws loops in S0. (b) A 6-year-old child draws with loops in S1. (c) Rembrandt draws with loops in S4.

encompassing ground, which may yet be imbedded in a greater domain and so on. (Visual perception continually construes such ensconced layers of detail out of light reflecting and refracting within the environment and perhaps is the prototypic agent inciting nested spatial construction.)

Each lower-ordered detail is imbedded within a more complex dimension, such as a spot (point) on a vein (line) in a leaf (plane) attached to a twig (volume) waving in the wind (space-time)which is perceived (imaginal). Such hierarchic reification is both fluid and fluent, construing nested embracings of dimensional entities, of observables holding observables holding observables. . . . [14]

Attentional Orders in Individual Cognitive Development

Following the pioneering investigations of Jean Piaget, much research by individuals such as Viktor Lowenfeld [15] and Rhoda Kellogg [16] has emphasized the crucial character of typical stages of image manipulation in the cognitive development of children. These stages are well-defined age-specific plateaus in mental progress, and point toward general implications for human sentience as an evolving feature of bio-psychic prowess.

Personal development can be seen in a child making the transition from circular markings (Lowenfeld's stage of "organized scribbling") through "naming the scribble" (associating imaged context with narrative content) and into the synthesis of ever more complex forms by building human figures out of concatenated circular loops. The schema of a figure is articulated in repeated instances of the loops as the less complex schema of the circle is subsumed within the more complex schema of the human figure. Later, such linked loops are built into still more complex articulations of frontal or lateral silhouettes [17].

This assumptive dialectic moves from dimensional primitives to higher spatial orders (e.g. point to line to plane as well as loop to chain to articulated silhouette) in a *generative complexification of concept:* repeated iteration of a lower-order schema is ultimately displaced by a more complex order of which the earlier schema is an instantial moment, an articulating primitive (Fig. 2). The new, more complex modality provides a stable arena for construing a greater range of pictorial variation (information). What are seen as anomalies at a lower order become regular schematic features at the higher, as when slanted lines of a diagram are construed as receding parallel orthogonals depicting the sides of a box (see Fig. 1).

Each phase of the pragmatic paradigm is expressed in a common attentional modality that successfully enables individuals to deal with ordinary experience. Successful habits are not usually discarded in evolution, even in the face of emergent anomalies tossed up by changed circumstances. Rather, habits tend to be innovatively combined as

agglomerate macro-behaviors, variant combinations of familiar methods generating new, more complex methods of dealing with challenge or exploiting opportunities. Hence, each successive phase of the paradigm incorporates all of the preceding less-complex phases as subsumed moments (see Table 1).

Despite the abstractness of terms in the following litany of spatial orders, the paradigmatic modes themselves are to be understood as *intuitive and immediate* moments of sentience. Each spatial mode (S0, S1, . . .) encapsulates and expresses in its symbolic geometry the contextual matrix of a particular common-sense mode of synoptic attention. Each mode is herein characterized through a metaphoric rendering of its attentional impetus, alluding both to a phase in the psychology of individuation and to a corresponding social milieu in which such an attentional mode is common-sensical.

Individuation is specifically promoted and conditioned by recurring cultural forms, borne in available graphic media, that reflect and transmit social transactions among individuals. To the extent that it has been mastered and rendered habitual (common sensical), an attentional mode is available within a personal repertoire of imaginal matrices, each available to construe the contextual sense of any given moment. At each plateau of this attentional canon, a prototypical order of spatial complexity enables a Peircian filter. Attentive selection is made among all possible hypotheses by induction of the spatial metaphor governing a particular circumstance. Since each higher mode assumptively comprises all of the lesser

Table 1. Summary of Paradigmatic Tendencies.

Paradigmatic Mode	Spatial Image of Pragmatic Context	Attentional Phase	Emergent Cultural Issues	Graphic Media Traits	Related Historical Epochs
S0:	point: location	preconscious self	——	——	Prehistory
S1:	line: trajectory	self in surround of desirable objects	animism, totemic identity within tribal society	drawing, incising, tattooing, scarification, glyphic signs	Paleolithic through Neolithic
S2:	plane: categorical simultaneity of relations of a kind	self in dynastic society	temple domain, monolithic social order, world plane inferior to heavenly plane (Use of wax, clay,)	all earlier methods plus pictographic or hieroglyphic writing, archival record, sacred scriptures. parchment and papyrus	Bronze Age
S3:	volumetric object: syllogistic relations among iterants with persistence and consistency, taxonomy	critical awareness within ethical environment, valiant self guards soul	rhetoric of reason, proportion, measure, truth, justice, virtue (honor), free will within divine sanction	all earlier plus phonetic alphabet, stylized ornament in ceramics and architecture, block printing with ink and paper	Hellenistic and Medieval
S4:	historical space-time: rational event continuum, secular progress, biography	ego motives within social allegiances, individual enterprise, exploration, testing of fortune, control of self within rationalized territories	enlightened self interest (power & status), rise of nation-states, mercantile systems, corporate strategies	all earlier plus engraving, etching, movable type, bound books, lithography, serigraphy, photography, telegraphy, typography, rotary press, half tone, motion pictures	Renaissance, Enlightenment, Modern Industrial
S5:	iconic matrix: primacy of individual affective disposition (psychogenesis of imperatives), indifference to "norm," schizo-tribal affiliation within media fantasies, imaginal junction of self/world	ego defers to metaphoric intersection of matter and psyche	global economy supersedes national imperatives, admixture of Eastern and Western philosophical artifacts	telemedia, cybernetic electronic and photonic multisensory hypermedia nets	Post-Industrial

modes beneath it (i.e. each lower order is nested within the next highest), the paradigmatic dynamic is one of expansive recursion that fosters ever more complex articulation: features established in lower orders become elemental nodes of higher configurations that express new, previously ineffable relationships. In terms of the pragmatic paradigm, each order can be understood as either (1) a dominating phase in which individual biosocial practicalities are attended to or (2) as an ambient cultural milieu in which aspects of such personal experience are taken for granted in transactions among groups of individuals.

Moving along an imagined chronology of this canon of attentional modes, we encounter paradigmatic phases expressed in the "phylogeny" of maturing cultures as well as in the "ontogeny" of their individual members. Being mindful that the "early" modes remain available as nodes within the "later" ones, imagine that we zoom from the beginnings (social or personal) up to the present day (our narrative uses only the present tense for simplicity).

S0: The original mode is the atomistic self/world that has not yet created the image of its separated world surround. It lives in the undifferentiated here and now. It is the fetus in the womb; the psyche asleep in its own musings. It is its own context. Meditation seeks to collapse all later modes back into this original plenum of awareness—-attention attending attendance.

S1: Original differentiation, birth, generates the first dimension of sentient context as a polarized, primal attentiveness. Evidence of its ubiquity is found in images of the world-bond between child and mother. Later, when this mode is subsumed within a more complex canon of highly articulate orders, it is available wherever there is a polar relationship, whether in the emotionally charged milieu with some other self (such as a spouse) or perhaps only in the trivial testing of an object, such as the temperature of a hot iron. S1 is the linear differentiation between here and there, this and that, you and me, me and it. S1 is the core of the earliest social units existing in a mythic continuum sprouting out of polar totemistic bonds projected onto images found in animals, plants and features of landscape.

S2: As events unfold, the linear schema of context is quickly revealed as being far too simple. The reaching, grasping self of S1 is overwhelmed in the plethora of things to be accounted for. Repeatedly interacting with others or targeting across distances, the selves eventually intuit their collective expression: a ground plane, S2, a unifying net of all possible linear extensions determined at S1. The planar attentional focus of S2 enormously improves the personal potential for interaction by organizing into a common ground the context of all possible linear extensions formed and habituated in S1. Through body experience, S2 is first explored personally, then taken for granted as the ground of action.

In children's art, appearance of a baseline signifies unfolding of this new comprehension that the self is in a world surround. Its advent is a major hallmark of the beginning of social interaction. In children's art, the planar character of the world implicitly extends into all sorts of experiences. Houses and cars are flat and transparent to the child's probing "X-ray" vision of the flat-world self, seeking overlays of information that often collide with adult sensibilities [18].

The planar child is not yet concerned with optical appearances but is busily exploring ways of understanding orders of events and possible roles within his or her domain. At this stage children project their imaginal world onto the flatness of a sheet of paper, often moving about its edges, drawing at each edge as if it were the baseline. Adults are easily confused if they have forgotten or, worse, rejected their own comparable level of visual awareness. Children at this age (4–8 years old) are psychic architects, each building ground plans of the way events transpire and the places where they happen.

Personal understanding is communicated in images, words, gestures and sounds. Where adequate means of communication do not yet exist, either new means are discovered in intuited potentials of metaphoric construction or an individual insight fails to pass into the social milieu and dies with the passing of the person. Tribal creation stories about the beginnings of the world tend to reflect recurring narratives of personal birth—-as I am born, so is the world. Echoes of ancient implication still reverberate in the etymology of our conversations.

Epochs culturally formed in such animistic constructions bring us from the unconsciousness of our origins into the caves and out onto the plains. Beyond them we move into the social dynamic at S2, the great planar cultures of Egypt and Mesopotamia and Ancient China, as well as those of the Incas and the Mayans. Societies formed as the domain of the temple, the seat of significance, act outward through a priest(ess)hood onto the plane of actual experience. If personhood is noted at all in such societies, it is tokenised into generalized graphic icons, such as those recounting the triumphs of Pharaoh. Where breakthroughs of more modern concerns for the individual person occur, they usually flourish as brief anticipations of later modalities and then fall back into the planar ubiquity of a temple context, unable to marshall graphic resources to sustain them in the face of conservative inertia and communication means incapable of promoting their tentative insights into common sense.

S3: Eventually, as writing becomes more pervasive and efficient, the world does express its order in homeostatic notions of measure, proportion and consistency of relations. The rational is that which exhibits symmetry (common measure). The world becomes concrete; objects constitute its being. Moira—-individual destiny, the principle binding even the gods—is gradually transmuted into Reason among the Ancient Greeks. Surviving onslaughts of invaders and seductive regressions back into the planar ubiquity of animism, these more powerful ordering principles at S3 are combined and extended into an idea of Perfection in an "other" world. The individual gets a unique soul, innovating the valiant (both powerful and valued) self. The Middle Ages creates in S3 an imaginary realm of infinite perfection and hones the razors of Occam and other Disputants who argue its constituent graces and boundaries.

S4: Epochal upheavals of the Reformation and Enlightenment periods articulate and make global an upstart Renaissance bravado. Recalling antique precedent into a rationalized notion of time at S4, history becomes a procedure of systematic accounting—abandoning its tradition in poetic narrative—and blesses the notion of Progress. Science is summoned into empirical innovation and the arts form into ranks of an avant-garde, reconnoitering uncertain horizons ahead. Repeated catastrophes among nation-states and perplexing developments in mathematical physics and biology coincide with profound changes in cultural communications media. S4 images of secular humanity are probed in psychiatric and sociological revelations of ordinary roots in

extraordinary behaviors. The modern self, unable to shoehorn metaphysical concerns of S3 into revised temporal potentials, seeks to renew its valiance in political musings and social projects.

S5: Imaginal man, says James Hillman in *Re-Visioning Psychology*, finds community of self within an oceanic wash of media images and uncommon narrative threads [19]. In *Who Am I This Time?*, Jay Martin argues that culture in the United States has especially been rendered schizoid in a population of identities increasingly dependent upon frail fictions of the popular media. Commercial television, in particular, seems to evoke a potential dormant since S1 of fictive, totemic relationships with fragmented media images—a kind of schizo-tribalism. Discussing the sporadic and discontinuous emotive effect of media experience, repeated witnessing of episodic synthetic violence and blatant pandering in television, video games, pulp literature and countless other media encounters, Jay Martin writes

> What does this mean for modern men and women? First and foremost, actual social groupings have been overshadowed by social relations that are fictions. As a corollary, personal emotions become attached more strongly to fictions than to people. Participation in the lives of others is replaced more and more by fantasies of others' lives. And finally, since fantasies and constellations of fictional identifications are individual, the perspectives we share with others become more and more limited and narrow. Contemporary men and women, then, are less able to distinguish between fictions and actual social relations. Instead, we see people leading lives as if they were characters in romance, adventure, mystery, drama, comedy, tragedy, myth, novels, and advertising [20].

Martin further points toward the psychic fulcrum upon which such media products seem to act in the individual. "Nearly all of us have three sorts of social groups to which we feel an intimate relationship: (1) those whom we see and know; (2) those who are not seen but are part of traditional belief systems, including gods and ancestors; and (3) *those who are never seen and about whom belief is created by various media*" [italics mine] [21].

The pragmatic paradigm is uniquely immanent in the particulars of an epoch, inhering in the attentional modalities fostered by media within its specific cultural milieu. It derives from features of graphic technologies available and the manner in which their characteristics are exploited by the economics and politics of communication. In the recent emergence of electronic and photonic media, narrative potentials evolved in print traditions and image expression have combined within the provocative atmosphere of optical scanning, thereby engaging our intuitive and emotive responses to token body language and sensory fantasy. These new potentials are shaping our images of being and the ways in which we pay attention to matters of import, for good or ill, at a level prior to conscious determination. Unlike print, which tends to distance itself from the immediate sensorium and hence seems of "an *other* time," these new media condition the flavor and character of the context in which we imagine the world happening! S5 is in part the imaginal context of narrative and it is in this modality that consciousness itself functions.

Beyond the Cartesian Mirage

Adapting Jean Piaget's conceptual frame of cognitive development, Suzy Gablik's *Progress in Art* develops a general theory of art history depicting art as cognitive evolution of styles derived of transformations in modes of thinking [22]. Ancient and medieval epochs are seen paralleling Piaget's pre-operational stage of figurative thinking. The Renaissance is construed in terms of Piaget's concrete-operational stage wherein appearances are understood as expressing and being linked by logical relations. The Modern era is depicted by Gablik as exemplifying the formal-deductive stage in which abstract concepts are manipulated apart from concrete objects. Throughout the progression, the chief determinant in forming clearly identifiable cognitive stages (either in individuals or for entire cultures) is relative stability of the schematic repertoire.

> On the one hand, Piaget shows that knowledge of the world involves an *assimilation* of reality to existing cognitive schemata and, on the other, that it is an *accommodation* of these schemata to the actual situation, a transformation of an already existing structure in response to the environment. Once a dynamic equilibrium has been struck between assimilation and accommodation, it persists for a time and is called a stage of intellectual development. Schemata accommodate to things by adapting and changing their structure to fit reality: "It is by adapting to things," according to Piaget, "that thought organizes itself and it is by organizing itself that it structures things." The objectivity of experience is thus an achievement of assimilation and accommodation combined. It is through this interactive process of assimilation and accommodation between the physical world and cognitive structures that schemata are modified and that development occurs [23].

Consciousness at any stage assimilates and extends its heritage, but not in a mechanical or linearly predictable fashion. Nor does consciousness easily succumb to the clinical ambition of its reification into object(s). Piaget's theoretical views were evolved within the Cartesian tradition that radically divorces subjective intent from objective fact. Gablik, too, by building within Piaget's constructs, accepts and elaborates the Cartesian rift, promoting the Modern Era in art as a culminating epoch in which the self, liberated (divorced) from the world, is free to muse in its own abstract concepts, undistracted by any need to respond to (or even notice) actual circumstances.

A view countering the Cartesian reel of self and world can be discerned evolving dialectically in the work and pronouncements of a whole host of artists during the Modern period and since—a radical restructuring of assumptions that asserts *reunion* of self and world. Evidence of such holistic intention ranges from Klee's notion of an art functioning as "a metaphor for the totality of the whole" through the psychic improvisations of Abstract Expressionism and Josef Beuys's peregrinations in spirituality [24,25]. The difficulty lies in the disconcerting proposition that both the past Enlightenment-era separation of subject from object and the latter-day psychogenesis of personal context seem to be supported in experience, depending upon how one pays attention to the moment.

Answering the slow oscillations of social concerns, art helps to condition the modalities of attention active within cultural ferment. It promotes new modes of paying attention, of expressing variants on a theme of "common sense." Such attentional curiosity, as much as representation of values in objects of art per se, funds the cultural impetus for making art. It is not so much that styles and forms of valued objects "trickle down" into the rest of society, but that new attentional behaviors are transmitted out of provocative curiosity into ordinary communication.

New technologies render graphic media increasingly interactive and partic-

ipatory, echoing long latent features of oral cultures in the ease with which their contents are varied and mythically transposed into hybrid forms (as in oral histories of preliterate peoples). Images of our events iterate into cybernetic archives that begin to mimic conscious life. Artificial intelligence layers networks of potential links among momentary iterants wedding fact and metaphor (mythmatics?). In our era the still-evolving paradigm arrives at a mode that tugs at science-fiction notions that now seem but imaginative anticipations of the next pragmatic plateau. Hypermedia and virtual-reality technologies promise to make the complex inner life of imagination susceptible to communication more directly than ever before in any human endeavor.

As a new global culture assimilates and accommodates to the startling schematic potentials opened in this era, old issues of art for art's sake seem stultifying. In the imaginal immediacy of this new vista, art cannot be "about" arcane and esoteric issues, simply because images are becoming the chief currency of all that we individually and collectively are. One can hope that art will come out from the galleries and museums, from the corporate collections and institutional networks and find direct moment in actual and immediate sentience. Such direct interaction with the factors of everyday concerns becomes possible as virtual-reality technologies subvert, displace and subsume old attentional modes into direct, imaginal intercourse. We beckon to new significances rendered in our time, but we are able to do so only to the extent that we learn to give them our attention.

References and Notes

1. Richard Rorty, *Philosophy and the Mirror of Nature* (Princeton, NJ: Princeton Univ. Press, 1979) p. 12.

2. See *Webster's Third New International Dictionary* (Springfield, MA: G. & C. Merriam, 1971) p. 2321, for this definition: "synoptic adj. fr. Gk. *synopsesthai* to be going to have a general view, to be going to comprehend [fr. *syn* + *opsesthai* to be going to see]: affording a general view of a whole: affording, presenting, or taking the same or common view . . . as being distinguished by many agreements in subject, order and language."

3. *Webster's Third New International Dictionary* [2] p. 1781.

4. *Webster's Third New International Dictionary* [2] p. 1781.

5. Patricia Smith Churchland, *Neurophilosophy* (Cambridge, MA: MIT Press, 1989) p. 250.

6. The author is indebted to Professor Jack Dempsey of the Art Department, University of Alabama at Birmingham, for an unpublished lecture presenting a concept of sentient creativity as the "resolution of anomaly."

7. Rorty [1] p. 32.

8. Howard Gardner, *The Mind's New Science* (New York: Basic Books: 1987) p. 73.

9. Howard S. Hoffman, *Vision and the Art of Drawing* (Englewood Cliffs, NJ: Prentice Hall, 1989) pp. 73–84.

10. William M. Ivins, Jr., *Prints and Visual Communication* (Cambridge: Harvard Univ. Press, 1953) p. 1.

11. Ivins [10] pp. 173–74.

12. Churchland [5] pp. 306–307.

13. Gardner [8] p. 116.

14. Lawrence LeShan and Henry Margenau, *Einstein's Space and Van Gogh's Sky* (New York: Macmillan, 1982) pp. 14–21.

15. Viktor Lowenfeld, *Your Child and His Art* (New York: Macmillan, 1954).

16. Rhoda Kellogg, *Analyzing Children's Art* (Palo Alto, CA: Mayfield, 1969).

17. Kellogg [16] pp. 94–113.

18. Viktor Lowenfeld and W. Lambert Brittain, *Creative and Mental Growth,* 5th Ed. (New York: Macmillan, 1970) pp. 145–88.

19. James Hillman, *Re-Visioning Psychology* (New York: Harper & Row, 1975) pp. 218–228.

20. Jay Martin, *Who Am I This Time?: Uncovering the Fictive Personality* (New York: Norton, 1988) p. 220.

21. Martin [20] p. 219.

22. Suzy Gablik, *Progress in Art* (New York: Rizzoli, 1977).

23. Gablik [22] p. 41.

24. Werner Haftmann, *Painting in the Twentieth Century* (New York: Praeger, 1965) Vol. 1, p. 242.

25. Haftmann [24] pp. 347–358.