



The mind cannot be understood as a single entity. It is more like a community; an assembly of intercommunicating parts. Where then, you might ask, does the “self” reside? Is it simply one of those parts, undistinguished and no better than any of its fellows?

andrew crumey

screening information

HOW THIS BOOK IS BEING WRITTEN

“The river is in torrent, because the rains which have fallen upon the city, and on the hills far upstream for days without end. . . . In these last days the river has become brown and swollen—yellow where the water is shallowest; like the color of parchment, or old skin. As I watch it run below me, I see the static ridges and folds which form as it passes beneath the arches, like hair intricately tressed and knotted; an unchanging pattern of flowing water.”

I am not the author of these words. I, Vincenzo Spontiniam, am a colony of writers; a city of ideas. My work (which shall forever re-

main unwritten) is an amalgam of the various tastes, styles and interests of those whose ideas would seek to flow into the space which my literary identity is to occupy.¹

I, Mark C. Taylor, am not writing this book. Yet the book is being written. It is as if I were the screen through which the words of others flow and on which they are displayed. Words, thoughts, ideas are never precisely my own; they are always borrowed rather than possessed. I am, as it were, their vehicle. Though seeming to use language, symbols, and images, they use me to promote their circulation and extend their lives. The flux of information rushing through my mind as well as my body (I am not sure where one ends and the other begins) existed before me and will continue to flow long after I am gone. "My" thought—indeed "my" self—appears to be a transient eddy in a river whose banks are difficult to discern.

As boundaries become permeable, it is impossible to know when or where this book began or when and where it will end. Since origins as well as conclusions forever recede, beginnings are inevitably arbitrary and endings repeatedly deferred. One of the few things that is clear even if not obvious is that all writing is ghostwriting. This work, like all others, is haunted by countless specters. Some I know, others I do not; some I name, others remain unnamed. The unknown and unnamed are not, of course, absent—nor are they present. Their silence speaks through my words in ways that remain cryptic to author as well as the reader. The silent noise of ghosts clamoring for attention transforms me into a "colony of writers." My work forever remains unwritten because the text that is woven from borrowed threads is always "an amalgam of various tastes, styles and interests of those whose ideas would seek to flow into the space which my literary identity is to occupy." My identity—literary as well as otherwise—is parasitic upon the ghosts that haunt me. Just as my search is always a re-search, so my writing is always a re-writing. Rewriting does not merely repeat but also transforms in a way that complicates the parasite/host relationship. As the work takes shape, it becomes the host for ghosts now appearing as parasites. While I cannot write without the words of others, the Word of the other cannot survive if it is not resurrected in writing that appears to be my own. My words remain ghostly because they are haunted by others who have gone before and will haunt others yet to come. Writing always involves the screening of this spectral interplay of parasites and hosts.

If this is what writing involves, why write? Why engage in this spectral interplay? There are no clear answers to such questions. The best writers find it

impossible *not* to write even though they do not really know *why* they write. Writing, it seems, is the obsession of the possessed. For the possessed, writing is a search for *je ne sais quoi*. Far from original, this search that is a re-search always retraces the paths of others. The slate with which re-search begins is not blank, for it is always already inscribed with memorable patterns whose function is to screen experience. These patterns, which are neither fixed nor static but are always in formation, form a collective memory that both inhabits and surpasses the minds of individuals. Morphing screens simultaneously facilitate and inhibit my search in ways that transform all research into a long, slow, and often painful process. As "material" gradually accumulates, ideas and images, concepts and systems jostle with each other in a struggle for recognition. Why I am attracted to some thoughts and not to others—why I am repulsed by this writer rather than that one—remains mysterious to me. Even though I do not understand the draw, I know it is not merely intellectual—nothing ever is; something else is at work in this interplay. Eventually, the mix swirling in my mind becomes dense and diverse, like some primal soup slowly heating to the boiling point. As the temperature rises, matters become critical; ideas collide and combine to create noisy insights as well as insightful noise. Though seemingly arbitrary, associations are not totally free and interactions not completely random. Chance and constraint are braided in such a way that each creates the condition of the possibility of the other. The faster the motion, the greater the turbulence, and the more volatile the mix. All of this takes time; thinking has rhythms of its own—it must simmer and cannot be rushed. It is impossible to know just how much time is required for thought to gel because I am not in control of this process—nor is anyone else. Thought thinks through me in ways I can never fathom. Much—perhaps most—of what is important in the dynamics of thinking eludes consciousness.

When change occurs, it becomes obvious that the "combinatorial play" through which thought forms and transforms is not limited to ghosts from the past but extends to everyone with whom I am currently engaged. Thinking is impossible without implicit or explicit conversations with the living as well as the dead. Conversation reveals that thinking is not just taking but also giving. The give-and-take of thought stages a struggle for survival in which only the fittest images, concepts, ideas, and schemata survive. Rather than a matter of strength, fitness is measured by the capacity to connect and interrelate effectively and creatively. Thinking appears to be a constantly shifting puzzle in which forms, shapes, and patterns emerge from pieces that often are irregular. What makes this puzzle so complex is the way in which its pieces change in order to

adapt to other pieces, which, in turn, are adapting to them. The interactivity of thinking complicates the moment of writing. The time of writing does not follow the popular figure of a line because present, past, and future are caught in strange loops governed by nonlinear dynamics. Past and future are knotted in the present in such a way that each simultaneously conditions and transforms the other. Neither complete nor finished, the past is repeatedly recast by a future that can never be anticipated in a present that cannot be fixed. Anticipation refigures recollection as much as recollection shapes expectation. The present, therefore, is doubly haunted by specters that approach by withdrawing and withdraw by approaching. As a result of this interplay of present, past, and future, the writing occurring through me recreates those whom it resurrects. The very identity of my ghosts changes with what I write. The child, after all, creates the parents as much as the parents give birth to the child.

Though the pieces of the puzzle never fit perfectly, gradual modifications can lead to major changes. Since thinking is a complex process in which images, concepts, and schemata are always struggling to adapt to each other, the pieces of the puzzle form networks of relations in which changes in a particular time or place ripple throughout the web. As ripples become waves, webs become less and less stable. When a growing number of experiences and ideas can no longer be adequately processed, thought is pushed far from equilibrium and approaches the tipping point. In this moment, danger and opportunity intersect. Driven to the edge of chaos and sunk in confusion, thinking either dissolves in madness or transforms in unexpected ways. The tipping point is the boiling point, which occurs when simmering ideas reach maximum turbulence. *If* change occurs, new patterns emerge and organize themselves spontaneously. In this moment when thinking happens, I do not so much write as I am written; creativity and destruction collide in the passion of writing. Though destruction is not always creative, creation is inevitably destructive.

The moment of writing is a moment of complexity in which multiple networks are cultured. If writing does not push limits to the tipping point, it is simply not worth the effort. The writing that matters disturbs more than it reassures; it drives authors as well as readers to the edge of chaos and abandons them. Writers realize that the pleasure of the text is not the satisfaction it provides but the dissatisfaction it engenders. The equilibrium of satisfaction is a symptom of death; the turbulence of dissatisfaction is the pulse of life. *If* writing has a point, it is to leave everyone and everything forever unsettled. But, of course, these are not my words but are the words of another who, like a stream rushing through me, refreshes but allows me no rest.

Far from mere opposites, simplicity and complexity, we have discovered, are braided "like hair intricately tressed and knotted." Such knots create binds and double binds that transform seemingly simple questions into exceedingly complex puzzles. The patterns we have been tracing are not only natural but also cultural, not only objective but also subjective, not only biological but also mental. As we become ever more deeply enmeshed in the logic of networks, the lines dividing such opposites become porous screens. But what exactly is a screen? And what precisely is screening? These questions are deceptive in their simplicity.

Screen, which, of course, can be either a noun or a verb, is a strange word in which multiple meanings pass through each other without losing definition. It derives from the stem (*s*)*kreu*, meaning to divide, cut, bite, scrape, or pluck. (*S*)*kreu* is also the root of the Latin *carnis* (flesh, cut off) and, by extension, *carnage*, *carnal*, *carnival*, and *incarnation*, as well as *cortex* (bark, cut off). The many meanings of *screen* include, as a noun,

- A moveable device, especially a framed construction, designed to divide, conceal, or protect, as a hinged or sliding room divider.
- Something that serves to divide, conceal, or protect.
- A coarse sieve used for sifting out fine particles as of sand, gravel, or coal.
- A system for appraising and selecting personnel.
- A window insertion of framed wire or plastic mesh used to keep out insects.
- The phosphorescent surface upon which the image is formed in a cathode-ray tube.
- A forged banknote.

And as a verb,

- To conceal from view.
- To protect, guard, or shield.
- To separate or sift out by means of a sieve or screen.
- To examine systematically in order to determine suitability.
- To show on a screen as a motion picture.²

A screen, then, is more like a permeable membrane than an impenetrable wall; it does not simply divide but also joins by simultaneously keeping out and letting through. As such, a screen is something like a mesh or net forming the site of

passage through which elusive differences slip and slide by crossing and criss-crossing. But a screen is also a surface on which images, words, and things can be displayed. Every surface is actually a screen that hides while showing and shows while hiding. This duplicity of the screen is captured in the verb: to screen means both to conceal and to show. Enacting what it designates, screen implies that concealing is showing and showing is concealing.³ Screen, screening, screenings: noun/verb, hide/show, conceal/reveal, absence/ presence, pollution/purity, darkness/light. . . . Forever oscillating between differences it joins without uniting, *the meaning of screen remains undecidable*. Far from a limitation, this undecidability is the source of rich insight for understanding what we are and how we know. In network culture, *subjects are screens and knowing is screening*.

Since the beginning of Western philosophy, knowledge and self have been inseparably related. When Plato argues that knowing is recollecting, he binds cognition to human memory. Though the forms through which reality is constituted, experience is filtered, and knowledge is structured are, according to Plato and his followers, eternal and as such surpass every individual, they nonetheless inhabit the soul and form the condition of the possibility of experience. As we have seen, from the divine Logos of early Christian apologists and medieval theologians, through the innate ideas of Descartes and a priori forms of Kant, to the psychosocial structures of Lévi-Strauss, generative grammar of Chomsky, and extended phenotype of Dawkins, Platonic forms repeatedly return in unexpected ways. While there obviously can be consciousness without self-consciousness, it is not clear whether there can be knowledge without self-knowledge. If knowledge in the strictest sense involves not only awareness but also awareness that we are aware, then knowledge presupposes self-consciousness. Self-consciousness, of course, can never be complete, for, as we have discovered, when reflection turns back on itself to become reflexive, it creates strange loops that cannot be closed. Rather than complete self-knowledge, adequate self-consciousness issues in the knowledge of what we can and cannot know about ourselves as well as the world. No one has seen this more clearly than Augustine.

Augustine's *Confessions* (381) is commonly acknowledged to be the first autobiography ever written. For Augustine, self-reflection is not an end in itself but, in the words of his medieval follower Bonaventura, the *itinerarium mentis in deum*. After beginning his search for God in the world of outer appearances, Augustine turns inward to contemplate his own mind. As a student of Plato and the neo-Platonists, he acknowledges an intimate relation between knowing and

recollecting or remembering. In the remarkable tenth book of the *Confessions*, he develops an account of memory that still bears careful scrutiny. Following a lengthy exploration of what he vividly describes as the vast "fields and spacious palaces of memory, where lie the treasures of innumerable images of all kinds of things that have been brought in by senses," Augustine finally concludes that *cogito* (to think, reflect) is, in effect, *cogo* (to bring together, collect):

By the act of thought we are, as it were, collecting together things which the memory did contain, though in a disorganized and scattered way, and by giving them our close attention we are arranging for them to be as it were stored up ready to hand in the same memory where previously they lay hidden, neglected, and dispersed, so that now they will come forward to the mind that has become familiar with them. . . . In fact what one is doing is collecting them from their dispersal. Hence the derivation of the word "to think." For cogo (to collect) and cogito (to think) are in the same relation to each other as ago and agito, facio and factito. But the mind has appropriated to itself this word (thinking), so that it is only correct to say "think" of things which are "re-collected" in the mind, not things re-collected elsewhere.⁴

Thinking, then, involves sorting, selecting, and processing the data of experience stored in "the belly of the mind." The patterns and programs through which this processing occurs are not, according to Augustine, derived from experience but are universal traces of the divine Logos in the human mind. Paradoxically, as his self-consciousness grows, he becomes less and less comprehensible to himself. Through images that are as provocative as they are evocative, Augustine restlessly probes what he cannot comprehend. In the endless "caverns and abysses" of his memory, he discovers "secret, numberless, and indefinable recesses." Awestruck by his own incomprehensibility, he calls out to God:

How great, my God, is this force of memory, how exceedingly great! Like a vast and boundless subterranean shrine. Who has ever reached the bottom of it? Yet this is a faculty of my mind and belongs to my nature; nor can I myself grasp all that I am. Therefore, the mind is not large enough to contain itself. But where can that uncontained part of it be? Is it outside itself and not inside? In that case, how can it fail to contain itself? At this thought great wonder comes over me; I am struck dumb with astonishment.⁵

Long before Freud, Jung, and Lacan, Augustine recognizes the force of unconscious *thinking*. Since "the mind is not large enough to contain itself," thinking

can exceed consciousness as well as self-consciousness. This awareness only deepens the mystery of subjectivity. "Great indeed is the power of memory!" exclaims Augustine. "It is something terrifying, my God, a profound and infinite multiplicity; and this thing is the mind, and this thing is I myself. What then am I, my God? What is my nature? A life various, manifold, and quite immeasurable."⁶ This is not, of course, the end of Augustine's journey. Eventually he passes beyond the "huge court of memory" to the throne of God, where every mystery disappears. When the last screen is lifted, knowledge and self-knowledge form a perfect union.

Initially, the clarity of Augustine's vision and direction of his journey seem alien to the contemporary world. Yet the notion of subjectivity and account of knowledge he so deftly develops sheds surprising light on the paradoxes of subjectivity and the dilemmas of thinking in emerging network culture. In his comprehensive and informative book, *The User Illusion: Cutting Consciousness Down to Size*, Danish science writer Tor Nørretranders echoes Augustine when he declares: "I realize that I am more than my *I*."⁷ For Nørretranders, as for Augustine, the self *exceeds* itself; the mind, in Augustine's words, "is not large enough to contain itself." While this condition is not new, the circumstances of network culture are creating changes that are transforming the processes of thinking and knowing as well as the structures and patterns of subjectivity. As the networks passing through us become more complex and the relations at every level of experience become more extensive and intensive, the speed of change accelerates until equilibrium disappears and turbulence becomes a more or less permanent condition. While occasioning confusion, uncertainty, and sometimes despair, this inescapable turbulence harbors creative possibilities for people and institutions able to adapt quickly, creatively, and effectively. Those who are too rigid to fit into rapidly changing worlds become obsolete or are driven beyond the edge of chaos to destruction.

Though there are multiple sources of turbulence, one of the most important factors creating unrest in today's world is the unprecedented noise generated by proliferating networks whose reach extends from the local to the global. As networks relentlessly expand, the mix of worlds, words, sounds, images, and ideas becomes much more dense and diverse. When this media-mix approaches the boiling point, multiple cognitive and cultural changes become inevitable. The intricate dynamics of information processing and complex adaptive systems, which we have been exploring, can help us to understand how these changes in thinking subjectivity are occurring and what their implications are for life in the twenty-first century.

Noise, we have discovered, is never absolute; rather, noise and information are bound in a relation in which each is simultaneously parasite and host for the other. What is noise in one context, at one level, or at one time, is information in another context, at another level, or at another time, and vice versa. One of the distinguishing characteristics of contemporary experience is that the excess of information creates noise. Swelling rivers of information and streams of data ceaselessly flow through us. Since most of these data remain unprocessed, we are unconscious, though not necessarily unaware, of much of the information coursing through our bodies and minds. The very streams circulating through consciousness and the unconsciousness, creating psychological, social, and cultural turbulence, also form the reservoirs from which knowledge can be fashioned and meaning emerge. Knowledge and meaning assume form when the flux of information is effectively channeled through processes of multiple screenings.

I have noted that etymology suggests that screening entails a process of sculpting or cutting away. Such sculpting is, in effect, an editing in which excess information is filtered. Far from exclusive opposites, noise is both information waiting to be screened and the remainder, refuse, or debris left over after screening occurs. There can no more be noise without information than there can be information without noise. Nørretranders explains this interplay between information and noise by drawing a distinction between information and what he describes as "exformation":

Exformation is perpendicular to information. Exformation is what is rejected en route, before expression. Exformation is about the mental work we do in order to make what we want to say sayable. Exformation is the discarded information, everything we do not actually say but have in our heads when or before we say anything at all. Information is the measurable, demonstrable utterances as we actually come out with it. The number of bits or characters in what is actually said.⁸

Exformation, in other words, is what is left out as information is formed from noise. As such, exformation is not simply absent but is something like a penumbral field from which information is formed. Since information is constituted by what it excludes, it inevitably harbors traces of noise. Noise, we have noted, is always in-formation in at least two ways. First, noise is always forming into information and being formed by the processes of exclusion from information; and second, noise does not simply disappear but remains *in* information as a haunting specter. There is, undeniably, a certain destructive dimension to the processing of information. Computer scientist and inventor Ray Kurzweil goes so far as

to insist that the “destruction of information” is “the key to intelligence.” “The value of computation,” he argues, “is precisely in its ability to destroy information *selectively*. For example, in a pattern-recognition task such as recognizing faces or speech sounds, preserving the information-bearing features of a pattern while ‘destroying’ the enormous flow of data in the original image or sound is essential to the process. Intelligence is precisely this process of selecting relevant information carefully so that it can skillfully and purposefully destroy the rest.”⁹ Whether information is actually destroyed, as Kurzweil argues, or excluded but not necessarily destroyed, as I would insist, screening simultaneously filters noise and displays information by channeling it into the patterns that eventually constitute knowledge.

The screening critical to channeling experience, articulating knowledge, and cultivating meaning occurs through *dynamic* patterns. While functioning in ways similar both to Kant’s a priori forms of intuition and categories of understanding as well as to Lévi-Strauss’s psychosocial structures, these patterns are not fixed but emerge and change over time. In his examination of the “self-organization of [the] brain and behavior,” J. A. Scott Kelso describes the complex dynamics of brain and mind activity through the metaphor of a river:

*Like a river whose eddies, vortices, and turbulent structures do not exist independent of the flow itself, so it is with the brain. Mental things, symbols and the like, do not sit outside the brain as programmable entities, but are created by the never ceasing dynamical activity of the brain. The mistake made by many cognitive scientists is to view symbolic contents as static, timeless entities that are independent of their origins. Symbols, like the vortices of the river, may be stable structures or patterns that persist for along time, but they are not timeless or unchanging.*¹⁰

The operations of brain and mind as well as their nonlinear interrelations are governed by principles we have already seen at work in complex adaptive systems. Within dynamic complex adaptive systems, patterns are always context dependent. Information and noise, as well as knowledge and meaning, are joined in something like a figure/ground relation. “Thought,” George Lakoff correctly argues, “has *gestalt properties* and is thus not atomistic; concepts have an overall structure that goes beyond merely putting together conceptual ‘building blocks’ by general rules.” When elaborating the significance of these “gestalt properties,” Lakoff invokes what Bateson describes as the ecology of mind: “Thought has an *ecological structure*. The efficiency of cognitive properties, as in learning and memory, depends on the overall structure of the conceptual system

and on what the concepts mean. Thought is thus more than just the mechanical manipulation of abstract symbols.”¹¹ The switch from understanding mental activity mechanically to analyzing thinking as a dynamic adaptive process makes it possible to reinterpret mind and culture in terms of complex systems rather than simple and stable structures. Explaining the necessary “conditions for self-organization,” Kelso writes:

*Patterns arise spontaneously as the result of large numbers of interacting components. If there aren’t enough components or they are prevented from interacting, you won’t see patterns emerge or evolve. The nature of the interactions must be nonlinear. This constitutes a major break with Sir Isaac Newton, who said in Definition II of the Principia: “The motion of the whole is the sum of the motion of all the parts.” For us, the motion of the whole is not only greater than, but different than the sum of the motions of the parts, due to nonlinear interactions among the parts or between parts and the environment.*¹²

From this point of view, mental activity, like Aunt Hillary, emerges from the interrelations of particular events without any centralized agency or directing agent. In other words, “the system organizes itself, but there is no ‘self,’ no agent inside the system doing the organizing.”¹³ This is a crucial point with far-reaching implications. The generation of mind does not presuppose the prior existence of mind or of any kind of purposeful agent. Instead of intentionally formed patterns through which experience is screened, the mind is generated by complex interrelations among patterns that emerge spontaneously. Insofar as human subjectivity or selfhood necessarily entails mental activity, the self is the result rather than the presupposition of screening information.

CULTURING NETWORKS

The patterns through which information is screened and subjectivity assumes form can be understood in terms of what I have described as complex adaptive systems. In this context, it is helpful to recall Gell-Mann’s definitive description of the operation of complex adaptive systems:

The common feature of all these processes is that in each one a complex adaptive system acquires information about its environment and its own interaction with that environment, identifying regularities in that information, condensing those regularities into a kind of “schema” or model, and acting in the real world on the basis of