BATESON’S ALPHABET

The ABC’s of Gregory Bateson’s Ecology of Mind

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Introduction

The “ecology of mind” developed by Gregory Bateson has had a persistent if subterranean presence in intellectual and cultural life since his death in 1980. Bateson has been recognized as an important early practitioner of ethnographic filmmaking, the source for Deleuze and Guattari’s concepts of “rhizome” and “plateau,” a theoretical touchstone for the anti-colonial philosopher Sylvia Wynter, a key figure in the early development of cybernetics, a point of reference for environmental artists and activists, and a pivotal thinker for the counterculture of the 1960s and 1970s. None of these isolated outcroppings of influence however, fully encompass Bateson’s multidisciplinary vision. Bateson’s Alphabet goes back to archival sources to rediscover the full scope of Gregory Bateson’s ecological thinking and demonstrate its value for our current moment.

The son of an eminent British biologist, Gregory Bateson began his academic career as an anthropologist in the 1930s. During fieldwork in Papua New Guinea, he met and later married the influential anthropologist Margaret Mead, and the two collaborated on groundbreaking research utilizing photography and motion pictures. Bateson and Mead were participants in the Macy Conferences on cybernetics during the 1940s and 1950s, and though they divorced in 1950, they continued to influence each other and share an interest in topics such as environmental education. After parting ways with Mead, Bateson embarked upon a series of research inquiries that moved across academic disciplines. The “double bind” model of schizophrenia; nonverbal communication in animals; theories about the nature of play, learning, and addiction; a critique of the anthropocentric attitudes fueling a rapidly approaching environmental crisis: all of these
were collected in *Steps to an Ecology of Mind* (1972), a book that brought him a new level of public recognition and influence.

During his lifetime, Bateson found no permanent institutional home for his idiosyncratic integration of anthropology, biology, social psychology, communication theory, and ecology. What once may have appeared to be a puzzling succession of academic affiliations is now legible as an early attempt to carve out a niche that has since been filled by the interdisciplinary field of the environmental humanities. Indeed, Bateson shared many of the central concerns of environmental humanities scholarship: the need to abandon narrow disciplinary traditions; the questioning of mind/body and nature/culture distinctions; an interest in co-evolution and assemblages of human and more-than-human relationships; the assertion that parable, metaphor, and storytelling have an important role to play in fostering ecological thinking; and the goal of adopting a “critical friendship with the life sciences.” Moreover, Bateson was sounding the alarm about global warming, melting ice caps, and runaway patterns of consumption fifty years ago, and he tied those symptoms of ecological crisis to deeply-rooted systems of Western thought.

*Bateson’s Alphabet* provides a new interface with Bateson’s work and harmonizes it with recent critical frameworks in the environmental humanities. The “new interface” to which I refer is an online, hyperlinked book that is composed of this introduction and sixty short, alphabetized essays that serve as a networked guide to Bateson’s thought. There are several benefits to encountering Bateson’s ecology of mind through this format. First, the grain and scope of Bateson’s multidisciplinary thinking was not easily transferred to the structural constraints of the traditional academic monograph. His most
successful book, *Steps to an Ecology of Mind*, overflows with insights that touch upon multiple intellectual domains and it can be overwhelming and disorienting to the uninitiated reader.\(^5\)

Second, Bateson had an idiosyncratic approach to argumentation that started from small details—the close description of a crab’s legs, for example—and moved to assertions about big topics like evolution, art, religion, and mind.\(^6\) Bateson tended to construct his essays, lectures, and workshops through an accumulation of illustrative anecdotes drawn from what he called his “matrix of ideas.”\(^7\) A former student described how stories, poems, jokes, and descriptions of scientific experiments became a “carrier wave” for explanation in a malleable format in which each component could be combined, inverted, or linked in a way that resembled protein molecules being built from a repertoire of amino acids.\(^8\)

Bateson’s style of presentation in talks and seminars, which involved the strategic use of fragmentary anecdotes organized in a flexible and combinatorial way, is mirrored in the alphabetized, hyperlinked, and networked form of *Bateson’s Alphabet*. One of my inspirations for taking the ABC approach is Roland Barthes’ autobiography, which consists of a series of alphabetized fragments. Barthes wrote that the alphabet provides “an unmotivated order…. which is not arbitrary”: “an idea per fragment, a fragment per idea, and as for the succession of these atoms, nothing but the age-old and irrational order of the French letters.”\(^9\) Following Barthes, the film scholar Robert Ray has explored the possibilities of the alphabetical form and describes the method’s productive “oscillation between anecdote and analysis.”\(^10\) Ray has applied the alphabetic method to Hollywood cinema and Henry David Thoreau, the latter being an author who, like Bateson, tended to
work through isolated fragments of illumination. In the environmental humanities, the philosopher Vinciane Despret has applied the abecedary form to a wide-ranging consideration of human relationships with animals.

Barthes’ reference to textual fragments as atoms; the cybernetic overtones of Ray’s reference to an “oscillation” between anecdote and analysis; the ecological affinities with Thoreau; Despret’s networked engagement with animal studies: all point to an isomorphistic fit between the alphabetic approach and Bateson’s “matrix of ideas.” As a final argument for the appropriateness of the method, I begin my own oscillation between anecdote and analysis with a story Bateson told about reciting the alphabet during his initiation to the British boarding school system. Bateson was raised an atheist and his mother “saw that there was a crisis ahead” when Gregory would encounter the school’s religious education. She told Bateson’s older brothers to prepare him:

They took me for a walk, and told me that at school I would probably sleep in a dormitory, and that I’d better watch what the other boys did, that when they knelt down to pray, that I should do the same … if I said the alphabet over eight times, … that would be long enough and then I could get up.

The alphabet is the interior soundtrack to a moment in Bateson’s life that he remembered as being particularly significant in shaping his character. “An interesting step had been taken,” he recalled. “And what is interesting you see, is not little Gregory kneeling down beside his bed and saying the alphabet. What is interesting was that he was taught at a very early age that he was different from other people and should conform.” In this
story, the alphabet serves as a bridge between childhood experience and adult recollection; religious and secular outlooks; and the social systems of school and family.

That revealing quote is taken from a recording made in 1979, and is part of an extensive audio archive of Bateson’s public presentations, classroom seminars, and recorded memos. Bateson’s Alphabet draws heavily on this underutilized audio archive, which contains unique material found nowhere else. Bateson was a compelling speaker who drew large crowds to his talks, and the pithy anecdotes and examples heard in these public performances are an accessible point of entry to his thought. Moreover, the audio archive reveals some of the compelling paradoxes of Bateson’s physical presence: an extremely tall man who spoke in a deep, booming voice yet was described as a “gentle giant” and communicated with a slow and crystalline eloquence; a British intellectual apt to lecture on weighty topics such as evolutionary theory and the history of logic but who did so with a dry humor and an extemporaneous, in-the-moment style of delivery that captured the imagination of young countercultural audiences. I have collected illuminating fragments from the audio archive that capture these complexities and bring something new to Bateson’s published canon. Bateson once compared his teaching to a haggis, a Scottish sausage composed of whatever scraps happen to be in the kitchen. He quoted the poet Robert Burns, who characterized haggis as being “full of fine confused feeding.” “I think on the whole,” Bateson told a group of students, “I’ve given you approximately a haggis.” Bateson’s Alphabet provides an unmotivated yet non-arbitrary flexible shape to Bateson’s haggis-like intellectual feast.

The hyperlinked, alphabetic form and utilization of archival material constitute what I referred to above as a new interface with Bateson’s thought. The analysis found in
each alphabetic entry harmonizes it with recent eco-critical frameworks. Bateson’s Alphabet puts Bateson in conversation with scholars in the environmental humanities such as Lawrence Buell, Bruce Clarke, Greg Gerrard, Donna Haraway, Ursula Heise, Robin Wall Kimmerer, Eduardo Kohn, Timo Maran, Carolyn Merchant, Timothy Morton, Deborah Bird Rose, Catriona Sandilands, Kate Soper, Wendy Wheeler, Cary Wolfe, and Sylvia Wynter. Several sub-fields of ecocriticism are particularly significant interlocutors: biosemiotics (the study of “signs in living systems”); “second-order” cybernetics and systems theory (the study of patterns of self-organization and self-reference in complex systems ranging from living cells to social systems); and cultural ecology (an approach to literature as “an ecological force” that translates nonhuman lifeways into human cultural discourse).  

My analysis aims to develop the relationship that already exists between Bateson and these approaches, while also fostering new connections with environmental media studies, ecofeminism, animal studies, environmental justice, and queer ecology.

My disciplinary background is in media studies and sound studies, and Bateson’s Alphabet demonstrates the ways in which Bateson’s ideas can be applied to media analysis. It is surprising that Bateson has not been cited more extensively in film studies, given that he published film analysis in the 1940s, was an early adopter of film and photography in anthropological fieldwork, inspired some of the first video artists, and had much to say about the social function of art, metaphor, storytelling and poetics. As the alphabetic entries that follow demonstrate, Bateson’s insights about nonverbal communication, dreams, and narrative can be productively transferred to the domain of media studies.
Each alphabetical entry in Bateson’s Alphabet grounds the discussion of Bateson’s sometimes dizzying ideas in a concrete media example, with a particular focus on several films. Terrence Malick’s The Tree of Life (2011) is based on the Book of Job in the Hebrew Bible, which was one of Bateson’s favorite textual examples. Mindwalk (1990) was co-created by the systems theorist Fritjof Capra and is deeply informed by Bateson. The cult film King of Hearts (1966) touches upon a number of Bateson-esque themes and is one of the only popular films to be discussed in archival recordings of Bateson’s seminars. Lewis Carroll’s “Alice” stories were key texts for Bateson, and references to film adaptations of them, in particular the version made by surrealist animator Jan Švankmajer, appear in many entries. In addition to these four central case studies, I discuss a number of other media texts: the work of the pioneering video artists Frank Gillette and Paul Ryan, who were inspired by Bateson; Intrepid Shadows (1966), an experimental film made by the Navajo artist Alfred Clah; and two films that were reportedly among Bateson’s personal favorites, Marcel Carne’s Children of Paradise (1945) and Francoise Sagan’s One More Winter (1979).21

Each alphabetic entry in Bateson’s Alphabet allows for a rich, multimodal encounter with Bateson’s ideas through media analysis and still images from the films under discussion. Moreover, each entry exists both as a standalone essay that can be downloaded for free as a PDF file, and also as a step on the reader’s unique pathway through the network. That path is not determined, and the reader can choose to click through the entries in alphabetical order or jump from entry to entry using links embedded in the text. Bateson’s Alphabet can be read multiple times in multiple ways, and so takes full advantage of the flexibility of the online format.
Fritjof Capra talked about Bateson’s “web of ideas” and the “threads” he would spin during a seminar. The cover image for Bateson’s *Alphabet* develops that metaphor as a visual representation of the book’s flexible hyperlink structure (see above). Some spiders’ webs consist of radial threads that move in a straight line from the outer frame to the central hub, as well as a spiral thread that crosses the radii at multiple points as it circles into the center. Similarly, *Bateson’s Alphabet* can be read in alphabetical order along the spiral path from A–Z as depicted on the cover image; or by following links of the reader’s choosing that transect the A–Z spiral.

The result is a new way to experience Bateson’s ecology of mind and a new kind of environmental humanities scholarship. Mary Catherine Bateson wrote that her father’s intellectual mission was to develop new ideas that would function as “true premises so that humankind in relation to nature becomes in fact a single self-correcting system, not one bound for destruction.” That mission is more timely than ever, and *Bateson’s Alphabet* assembles Gregory Bateson’s premises as beads of dew on a spider web, allowing his ecological ideas to shimmer in the context of a new morning.
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2 On Bateson and “holistic science,” see Peter Harries-Jones, A Recursive Vision: Ecological Understanding and Gregory Bateson (Toronto: University of Toronto Press, 1995), 6. In a 1975 interview, Bateson said: “People keep asking me why do you shift from anthropology to porpoises, and from schizophrenia to this and that, but my answer to that would be that I don’t shift. I maintain a … fairly steady interest in the same set of certain sorts of problems. And sometimes I think these are going to be illustrated with porpoises, and sometimes I think they’re going to be illustrated with psychiatric data or ecology or something else. What I try to do is to study the nature of order, and where it


4 See Harries-Jones, A Recursive Vision, 8.

5 Harries-Jones, A Recursive Vision, 87, 29.

6 In a comment attributed to Margaret Mead, Bateson’s talent was for “the extraordinary broad concepts and … [the] minor little … details…. One of the reasons it is hard to grasp the connections … [is] because he jumps the middle. He goes to the extraordinarily broad from very small observations,” David Lispet, Gregory Bateson: The Legacy of a


12 Vinciane Despret, What Would Animals Say if We Asked the Right Questions? (Minneapolis: University of Minnesota Press, 2016).


16 The video artist Paul Ryan wrote that “sharing ambience and mentation with the gentle giant, was precisely how many of us took our first baby steps to an ecology of mind,” Paul Ryan and Roy Skodnick, “Radical Software and the Legacy of Gregory Bateson,” Art Journal 68, no. 1 (Spring 2009): 112.


18 Harries-Jones, A Recursive Vision, 10; Toulmin, “The Charm of the Scout,” 362. Bateson liked to experiment with form in his own writing. Note his extensive of the “metalogue”: a literary form in which the “content of a proposition is presented in the manner of an imaginary dialogue,” Harries-Jones, A Recursive Vision, 92. See also Mary Catherine Bateson, With a Daughter’s Eye (New York: HarperCollins, 1984), 244. In this regard, Bateson’s book Steps to an Ecology of Mind is a fascinating experiment in the form of the academic monograph, mapping Bateson’s wide-ranging ideas onto a structure
with disciplinary centers of gravity relating to anthropology, social psychiatry, biology, and ecology.


20 See Henley, “From Documentation to Representation.”


23 Mary Catherine Bateson, With a Daughter’s Eye, 120.
When speaking about cybernetic systems, Bateson often used the example of an acrobat walking on a high wire with a balancing stick. The acrobat manipulates the stick to maintain stability on the wire.\(^1\) The stick wobbles so that the acrobat can stay steady. The acrobat anecdote illustrates the cybernetic distinction between feedback and calibration. Feedback refers to flexible patterns that are the balancing sticks for more rigid and slow-to-change patterns of calibration (see THERMOSTAT).\(^2\)

The acrobat’s balancing pole is also emblematic of Bateson’s understanding of “mind” as a system of pathways that does not stop at the skin (see SMOKE RING).\(^3\) Carolyn Merchant writes that Bateson’s “ecology of mind” sees nature as “a network of information cycling from brain to hand to stick to rock to earth to eye to brain.”\(^4\) Two figures in Bateson’s co-authored book Communication (1951) visualize this dynamic. In the first, we see an entity that “acts upon and is acted upon by an environment” (figure 1).\(^5\)
Bateson writes that we tend to divide the total circuit of organism plus environment into two parts (organism and environment), but the way in which “self” is differentiated from environment is, he asserts, to a certain degree, arbitrary. A second figure shows how an organism might include within its “self” objects and events that are outside the skin—like a balancing stick—and at the same time, parts of the body or bodily functions that are not under conscious control might be labeled as part of the environment (figure 2).

![Diagram](image)

In *King of Hearts* (1966), we see Poppy (Genevieve Bujold) walk across a high wire using an umbrella to balance. The scene is one of several fanciful displays of acrobatics that temporarily make the film’s narrative wobble. The narrative system soon self-corrects and the plot advances once again, but in those brief long shots we are given an opportunity to appreciate an enactment of embodied mind that extends beyond the skin, and a system of moment-to-moment feedback that facilitates the journey across the high wire (figure 3).
Notes


BAGELS

Bateson told the story of how, one morning, the participants in one of his seminars were having bagels for breakfast. One person quipped, “Don’t forget to eat the hole.” Another asked, “What happens to the hole after it is eaten?” Bateson replied, “Oh, it gets reincarnated in a donut.” This was a memorable conversation for Bateson because it helped to clarify his attitude towards death and reincarnation. He could conceive of the bagel being reincarnated but not the empty, structuring space around it; in other words, not the hole. He compared this to erasing the letter “O” from a chalkboard. The chalky material of the line that formed the “O” could be found as dust on the floor, but what about the hole in the middle?¹

These examples explore how things (bagels, the letter “O”) depend on no-things (see HAND).² In fact, Bateson’s “central message,” according to Fritjof Capra, was to promote a shift in thinking from objects to relationships.³ In the language of systems theory, this is the distinction between structure and patterns of organization. Capra and Pier Luigi Luisi write that systemic properties in living things arise from a pattern of organization, defined as “a configuration of ordered relationships.” “What is destroyed when a living organism is dissected is its pattern,” they write. The components of the structure are still there, but “the configuration of relationships between them—the pattern—is destroyed, and thus the organism dies” (see WAVES).⁴

In his bagel and blackboard examples, Bateson rejected the idea of life after death, but he was clear about the biological and cultural need for death: “Obviously you need death,” he said, “because otherwise the blackboard would get covered with crap and
the things that the old people say would never get forgotten and horrible things would happen.”

Terrence Malick’s *The Tree of Life* (2011) explores a related set of questions about death and the afterlife. A middle-aged architect named Jack O’Brien (Sean Penn) is haunted by the death of his brother, R. L. (Laramie Eppler). Jack has a vision of R. L. saying, “Find me,” which initiates the film’s complicated flashback structure (figure 4).

Jack’s peripatetic journey through his childhood memories culminates in a sequence on a beach, where his family is reunited. Is this a depiction of an afterlife? Or a crystallization of the thought process in Jack’s mind that has emerged from the resonant pattern of his memories (see *WINE GLASS*)?
Notes


2 Wheeler writes that Bateson moves from “the ontology of substance and essence” towards a “biosemiotic ontology of relations”; Wendy Wheeler, Expecting the Earth (London: Lawrence and Wishart, 2016), 12–13.

3 Fritjof Capra, Uncommon Wisdom (New York: Simon and Schuster, 1988), 73. See also Kimmerer, who writes: “my natural inclination was to see relationships, to seek the threads that connect the world, to join instead of divide,” Robin Wall Kimmerer, Braiding Sweetgrass (Minneapolis: Milkweed Editions, 2013), 42.


Bateson recalled how, when he was about ten years old at boarding school, he was tasked with memorizing the scientific names of plants from a botany book. The Latin terms he learned were “complete nonsense syllables” to the ten-year-old Bateson, and yet, looking back, he was impressed by how this exercise in rote memorization had succeeded in hooking a great deal of biological information onto that nonsense. Rote learning, he concluded, was a powerful means of getting information into the brain before the rational mind had done its “dirty work” of analysis, dissection, and interpretation.\(^1\)

Bateson’s description of rote learning reveals his distrust of a too narrowly instrumental or rational approach to the world, here characterized as the “dirty work” of analysis and dissection (see Darkness, Water Snakes, Vinegar). Bateson’s interest in rote was part of his larger investigation of levels of learning. In Bateson’s three-tiered model of learning, “Learning I” is associated with classical conditioning and instrumental reward; “Learning II” is a change in the process of Learning I, essentially, “learning to learn”; and “Learning III” throws into question the premises of character acquired via Learning II, as in instances of psychotherapy, religious conversion, artistic insight, or ethnographic encounter.\(^2\) The rote memorization of the Latin names of plants would fall under his category of Learning I. Another example of Learning I can be found in The Tree of Life, when we see the young Jack O’Brien taking his first steps and learning the names of animals. We will return to Jack’s education in subsequent entries on Bateson’s Learning II and Learning III (see Dreams, Porpoise, Recording). (figure 5 and figure 6)
Notes

1 UCSC, LCD10235, Gregory Bateson Recordings 1975, pt. 3, “With UCSC Staff,” 1975. Bateson said that one of the things he missed about England was being around people who had the “state of mind that arose from learning a lot of rote.” American schools avoid rote learning, and he considered this a “great mistake.”

BREAD-AND-BUTTERFLY

There is a dreamy sequence in Lewis Carroll’s *Through the Looking-Glass* (1871) when Alice hears the voice of a gnat who describes the insects of the looking-glass world. One of these odd creatures is the bread-and-butterfly, which has wings made of thin slices of bread and butter and a lump of sugar for a head. When Alice asks what the bread-and-butterfly eats, the gnat replies, “Weak tea with cream in it.” Alice notices a problem with this situation, since the creature’s sugary head would dissolve in its weak tea sustenance. “What if it can’t find any?” Alice asks. “It dies,” the gnat answers. “That must happen rather often,” Alice says. “It always happens,” the gnat replies.¹

Bateson made the surprising claim that this passage from *Through the Looking-Glass* was one of the most important contributions to the theory of evolution in the nineteenth century. For Bateson, the bread-and-butterfly’s dilemma suggested that natural selection was not strictly a matter of survival of the fittest, but instead the extermination of those creatures who got stuck such that “if A doesn’t get you, B will. If you adjust to A, the fate will be B, and vice versa.” This is the pattern that Bateson and his collaborators defined as the “double bind,” which ended up making a contribution to psychology rather than evolutionary theory.² Applying cybernetic thinking to family communication, Bateson proposed the double bind as a situation in which “the other person in the relationship is expressing two orders of message and one of these denies the other.”³ The result was a paradox between what is “actually said” and another channel of contrasting communication.⁴ Anthony Chaney glosses this as an “I love you” message in an “I don’t love you” context. For example, a child is put in a double bind when punished both for a correct reading of the “I don’t love you” context and for taking the “I love you” message at face...
value, which provokes further hostility from the parent, and then further guilt, and so on. For Bateson and his collaborators this was a factor in the development of schizophrenic symptoms in the child.

The double bind has fallen out of favor as a way of understanding the onset of schizophrenia, and in hindsight, it fell prey to an unfortunate tendency during the postwar era to blame mothers for behaviors deemed undesirable, from communism to homosexuality to schizophrenia. The double bind had a more productive legacy however, as part of the development of a systems approach to family communication and the rise of group therapy. It is also useful for the analysis of narrative and character development in film and literature. For example, in The Tree of Life, we see Jack’s personality crisis precipitated by a double bind dynamic not with his mother but with his father, Mr. O’Brien (Brad Pitt). In one scene, Mr. O’Brien imperiously asks Jack to hand him his lighter and then demands that Jack give him a hug. Jack’s face betrays his mixed emotions and inner turmoil. Mr. O’Brien asks, “Do you love your father?” Jack hangs his head and says, “Yes, sir.” This is a painful memory for the adult Jack, and suggests that the irresolvable double bind between an “I love you” message and an “I don’t love you” context is at the root of Jack’s midlife crisis (figure 7).
Notes


There was an old man who said, “Cuss.  
I must choose between better and wuss.
By rulings of Fate,
I must keep myself straight.
I’m not even a tram; I’m a bus.”

This is one of a pair of limericks that Bateson liked to recite to highlight a contrast between youth and age, social constraint and free will (see TrAM). Here the old man envies the tram-like existence of young people, who have the tracks of institutional and parental guidance to keep them in line. The old man feels exhausted by the imperative to be his own guide: he must keep himself straight; he must choose between better and worse. Bateson stressed that the two limericks formed a two-part system that together constituted an argument about youth and age. Bateson was drawn to this kind of formal doubling, and also made use of forked riddles (“What is a man that he may know a number; and what is a number that a man may know it?”) and William Blake’s proverbs (“Damn braces; Bless relaxes”).

The Tree of Life is the story of an “old man”—the middle-aged Jack O’Brien—saying “cuss” and questioning the rulings of fate. The film is structured around a Bateson-esque doubling of two outlooks on life: the “way of grace” associated with Jack’s mother (Jessica Chastain); and the “way of nature” associated with Jack’s father (see J. S. BACH, WATER SNAKES) (figure 8).
Notes

1 Bateson and Bateson, Angels Fear, 167.


3 Bateson and Bateson, Angels Fear, 177.
Bateson illustrated the power of narrative by reciting the fifteenth century ballad, “The Cherry Tree Carol.” The ballad tells of Mary and Joseph walking in an orchard, and Mary asks Joseph, “Pluck me a cherry, for I am with child.” A spiteful Joseph replies, “Let him that got thee with child pluck thee a cherry.” And the tree bends down a branch and gives her a cherry.¹

Bateson cautioned against taking this story literally. There probably were no cherries in Israel at the time of Jesus’s birth he said, but that was not the point of the story. Nor is the “Cherry Tree Carol” meant to convey the doctrinal message that cherries are sacred to the Virgin Mary. Instead, Bateson argued that the story is meant to inspire a sense of compassion for a “female culture hero,” and he confessed that whenever he told it he felt the tears welling in his eyes from a sense of joy and wonder.² This emotional response suggested to Bateson that at one level he believed the story, even though he knew very well that it wasn’t literally true.³

Bateson tended to locate the power of aesthetic experience in a work’s structural organization. The beauty of the “Cherry Tree Carol” he asserted, was related to its structure, as well as its “fact of untruth.” Cherry trees after all, don’t bend down and give people cherries.⁴ Bateson defined stories as aggregates of complex formal relations scattered in time.⁵ Stories were ways to organize complex sets of relations in a structural whole such that they could “pull on each other the right way.”⁶ They are systems of relations. It is indeed remarkable how much is packed into the three lines of the “Cherry Tree Carol”: metaphysical relations, gender relations, family relations, ecological
relations. Bateson was quick to point out that thinking in terms of stories did not “isolate human beings as something separate from the star fish and the sea anemones, the coconut palms and the primroses.” The biological world after all, was also organized in terms of aggregates of formal relations scattered in time, and so thinking in stories “must be shared by all mind or minds, whether ours or those of redwood forests and sea anemones” (see SALMON).⁷

The film King of Hearts is more like a parable or fairy tale than a realist drama; more like the “Cherry Tree Carol” than “The Cherry Orchard.” We might say that its power is related to “its fact of untruth.” The film tells the story of Plumpick (Alan Bates), a British soldier during World War I who is sent to disarm a bomb hidden in a French town newly liberated from the Germans. The townspeople learn of the bomb and flee, allowing the inmates of the town asylum to escape their captivity and take up the social roles vacated by the regular inhabitants. The film’s portrayal of mental illness as whimsical and childlike can rankle modern viewers. It is decidedly unrealistic: inmates in an asylum do not act like that! But that isn’t the point of the story. The film becomes much more interesting when considered as a system for organizing a complex set of relations such that they pull on each other in a certain way (see KING OF HEARTS).
The "royal road" to disturbing people’s presuppositions, Bateson said, was the use of parable: “Every religious leader of course knows this.” UCSC, LCD10284, Gregory Bateson Recordings 1978, “Double Vision, Occidental,” 1978.


A cornerstone of systems theory is the notion of feedback, which Bateson translated to the realm of social interaction with his concept of schismogenesis. First developed during anthropological fieldwork and then refined after his immersion in cybernetics, schismogenesis describes a self-perpetuating and escalating pattern of progressive change in a social system. Bateson distinguished between two kinds of schismogenesis, one symmetrical and the other complementary. For the former, the relationship is among rivals that have the same aspirations and behavior patterns. Each group drives the other toward increasingly excessive enactments of the same rivalrous behavior: the more A does X; the more B does X. Examples are commercial rivalry, national arms races, “keeping up with the Jonses,” and athletic events.

By contrast, complementary patterns are cases in which the self-perpetuating behavior of the two groups is fundamentally different, as when one group is dominant and the other submissive, or one nurturing and the other dependent. Such relationships can also escalate and lead to runaway feedback such that the more A does X; the more B does Y. The complementary pattern can be seen in cases when submissiveness promotes further assertiveness, which in turn promotes further submissiveness, as in certain dynamics between social classes, age grades, and genders.

One of Bateson’s examples was a married couple in the same profession who develop an overly competitive and rivalrous relationship. Were one of them to sprain their ankle however, an element of complementary dependency is introduced, and “suddenly they find they like each other very much and the tension disappears and the
house is happy.”5 On the other hand, a couple could go too far in the complementary direction, with one too dependent on the other. In that case, getting out on the tennis court to experience some intense but temporary competition could make them feel much better.

The nurturing behavior that resulted from the sprained ankle rebalanced an overly competitive pattern and a vigorous round of tennis recalibrated an overly complementary pattern. In both cases, a change in habitual behavior led to the recognition of a shared interpersonal pattern at a higher level. Bateson even developed a cybernetic definition of love: “I regard myself as a system, and I accept with positive valuation the fact that I am one, preferring to be one rather than fall to pieces and die; and I regard the person whom I love as systemic; and I regard my system and his or her system as together constituting a larger system with some degree of conformability within itself.” Love becomes a “three-way metaphor” that links self, other, and self-plus-other, and asserts “the value of the relationship as well as the value of self and other.”6

On the level of social ritual, Bateson argued that a runaway pattern of schismogenesis could be counteracted by a similar mixing of complementary and symmetrical dynamics, as when an excess of symmetrical rivalry triggers complementary social rituals.7 He gave the example of a complementary relationship between squire and villagers or management and labor that is calibrated by a cricket match, a symmetrical contest that had “a curiously disproportionate effect” on the social dynamic.8 Increasing tension in symmetrical patterns is reduced by a dose of the complementary, and vice versa; the correction for one is the other (see BREAD-AND-BUTTERFLY, I GIVE THEE ALL, THERMOSTAT).
When applied to rituals of social stabilization, schismogenesis bears a family resemblance to M. M. Bakhtin’s notion of carnival, which also serves as a balancing mechanism in a social system. Carnival works through the “peculiar logic of the ‘inside out,’” by staging “travesties, humiliations, profanations, comic crownings and uncrownings” that serve as parodies of social life. Carnival can be seen as a kind of cybernetic governor, functioning to recalibrate social tensions: after all, turning the world inside out simultaneously asserts that inside and outside are two parts of a shared unity.

Bakhtin’s work on carnival was first published in English in 1968. King of Hearts, which was released two years earlier, provides a rich case study in Bakhtinian carnivalesque. In one scene, a squad of German soldiers arrive in town during the “comic crowning” of Plumpick as King, and their flummoxed commanding officer asks, “What is this carnival?” (figure 9).

The Tree of Life features its own carnivalesque sequence, albeit transposed to the sphere of the family. Jack’s overbearing father leaves town, and an eruption of carnivalesque
play ensues when the three sons who have been under his tyrannical thumb realize he’s
gone. Jack (Hunter McCracken) pretends to be his father barking orders, and parental
authority is turned upside down when a lizard is brought into the house to coax their
mother into joining an exuberant play session that reasserts their shared humanity as part
of the same family system. As a result, the O’Briens suddenly find that they like each
other very much and the tension disappears and the house is happy. (figure 10 and figure
11)
Notes


3 Bateson, *Steps to an Ecology of Mind*, 323.


8 Bateson, *Steps to an Ecology of Mind*, 70.


CRUSTACEANS

Across the history of the environmental movement, different species of animals have served as charismatic emblems for the cause.¹ Whales, polar bears, octopuses: these animals have been “good to think with” at different moments in environmental discourse. Bateson was among the high-profile researchers to study whales and dolphins in the 1960s (see PORPOISE), but crabs and lobsters recur most frequently in his matrix of ideas.

For example, Bateson often spoke of his experience teaching at the California School of Fine Arts near Fisherman’s Wharf in San Francisco during the 1950s. He began the class by showing the students a dead frozen crab and asking them to produce arguments for why this object was the remains of a living thing.² Also note an oft-quoted passage from his book Mind and Nature (1979) in which Bateson asked, “What pattern connects the crab to the lobster and the orchid to the primrose and all of the four of them to me?”³ Crustaceans worked well to illustrate Bateson’s ecology of mind since they are vivid embodiments of symmetrical form and yet their obvious difference from human bodies makes the recognition of shared attributes more forceful.

When the passage above was printed in Co-Evolution Quarterly it was accompanied by a drawing. Within an irregular outline that vaguely suggests a cellular membrane, we see a crab, lobster, primrose, orchid, and amoeba, as well as a coastal cityscape (figure 12).
A variation on this theme can be seen on the cover image of one edition of *Mind and Nature*, which combines crab and primrose (figure 13).⁴
Bernt and Fritjof Capra’s film *Mindwalk* (1991) is a peripatetic dialogue between three characters. The flow of that dialogue is interrupted by a climactic scene in which the poet Thomas (John Heard) recites Pablo Neruda’s poem, “Enigmas” (1950). The first line of the poem is: “You’ve asked me what the lobster is weaving there with / his golden feet? / I reply, the ocean knows this.”
Notes


2 Bateson, *Mind and Nature*, 6. The first thing the students would say is that the crab was bilaterally symmetrical: “They saw that [the crab] was the same on the two sides, more or less. And they said, ‘Well, this is one of the things that indicates [it was alive], and this is correct. And your bodies … are, at least on the outside, fairly symmetrical’”; UCSC, LCD10292, “Ecology of Mind: Winter 1976,” 1976.


The cybernetician Norbert Wiener had an interesting habit when he was puzzled about a theoretical problem. “What he liked to do,” Bateson said, “was to sit in front of a curtain on which the wind was blowing so that there were movements in the curtain which would fill his eye… This would keep his brain in a similar sort of movement, and on top of that movement he liked to do his thinking.” Wiener felt that the addition of data to a brain that was too much at rest was not productive. “What was useful was to pour data, ideas, problems, etc., onto a brain which is already, in some sense, in motion.”

Wiener’s curtain technique echoes Bateson’s discussion of emergent patterns (see FABRIC), but the image of the curtain blowing in the wind is also a link between cybernetics and film studies, given that the trope of the “wind in the trees” is shorthand for cinema’s startling capacity to represent movement. The classic example in film studies is the Lumiere brothers’ Repas de bébé (1895), a short film of a man and woman feeding their baby. According to some accounts, early audiences found the movement of the trees in the background of the shot to be just as captivating as the human figures in the foreground (see FROGS). Was Wiener experiencing a quasi-cinematic fascination with movement in his appreciation of the wind in the curtains? Or were early viewers of Repas de bébé exploring Wiener-esque techniques for puzzling over theoretical problems?

The Tree of Life makes extensive use of windows and curtains as visual motifs. In one arresting shot, Jack’s “lost” brother R. L. has his face shrouded by a curtain. Here the curtain is not a medium of illumination via its pattern of movement but rather a barrier blocking a clear view of the past (see KING OF HEARTS) (figure 14).
Notes


Bateson liked to tell the story of a lecture at Harvard University, during which the mathematician Bertrand Russell labored to make recent discoveries in quantum theory intelligible to the audience. At the end of the lecture, the philosopher Alfred North Whitehead, who was acting as host for the event, rose to thank Russell. Whitehead expressed his gratitude for the speaker’s valiant efforts, and in particular, he thanked Russell for “leaving unobscured the vast darkness of the subject.” Though it could be interpreted as a subtle insult, Bateson understood this comment as high praise since textbooks and experts so often attempt to obscure the vast darkness of a difficult subject by pretending that all is known and there is no darkness.

Bateson was not anti-intellectual or anti-science; quite the opposite. He was, in fact, dedicated to bringing intellectual rigor to the holistic study of how various types of knowledge about the world fit together. This was a deeply interdisciplinary enterprise, and his mode of investigation often involved identifying patterns across disparate spheres of knowledge in order to inspire fresh insights and new avenues for research (see LEAF). What was the glue, Bateson once asked, that would enable one to move from the growth patterns of a tree to a better understanding of poetry, or vice versa. Both, he argued, were the products of living matter. For scholars in biosemiotics, the glue to which Bateson refers is semiosis, and his work is an important foundation for their efforts to shed light on the ways in which living organisms produce and understand signs.

The pursuit of interdisciplinary holism requires a willingness to accept the limits of knowledge: as Deborah Bird Rose writes, “mystery is an essential property of a
holistic system.” At times, Bateson’s embrace of the vast darkness beyond conscious comprehension can make him seem less like a semiotician and more like a surrealist. Jan Švankmajer is an influential surrealist filmmaker, and his Alice (1988) is a remarkable adaptation of Lewis Carroll’s “Alice” stories, which were one of Bateson’s perennial points of reference. Švankmajer signals from the start of the film that he will emphasize the source text’s surrealist undertones. A close-up of Alice’s mouth fills the screen as she tells the audience: “You must close your eyes, otherwise you won’t see anything” (figure 15).
Notes


5 Deborah Bird Rose, “Pattern, Connection, Desire: In Honour of Gregory Bateson,” *Australian Humanities Review*, no. 35 (June 2005):

[http://australianhumanitiesreview.org/2005/06/01/pattern-connection-desire-in-honour-of-gregory-bateson/](http://australianhumanitiesreview.org/2005/06/01/pattern-connection-desire-in-honour-of-gregory-bateson/). She continues: “One cannot remove one’s self from the system under examination, and because one is a part of the system the whole remains outside the possibility of one’s comprehension…. One will always encounter mystery in a holistic system.”
DOT

During seminars, Bateson would sometimes make a dot with chalk on the surface of a blackboard, crushing the chalk a little to create a lump. He would then explain that if he dropped his finger vertically onto the dot he would not detect the difference between chalk and blackboard. If, however, he moved his finger laterally across the blackboard, he felt the raised dot immediately. This was the case, he asserted, for all sensations: reports that enter the sensory system are reports about differences.1

The definition of information as “a difference that makes a difference” is a cornerstone of Bateson’s epistemology. He stated that all living things depend upon the perception of difference for their organization: “to be alive is to be aware somehow of differences.”2 In semiotic terms, the noticing of a difference relates to iconic recognition: “the process by which something gets recognized as something different is the root form of all semiosis.”3 This ability is shared by all living things since even single-celled organisms can detect and respond to the difference between areas of more or less nutrients. The perception of difference is a defining feature of the biological world, which Bateson, following Carl Jung, called the creatura (see SMOKE RING). Non-living objects like billiard balls are governed by “forces and impacts and such things,” he stated, but “cats and dogs and people touch each other off by virtue of that which can enter sense organs,” which is difference.4

There are, of course, crucial differences among species with regards to what enters the sense organs: ultrasonic signals make a difference to bats, but not to people. Every animal dwells within a particular “Umwelt,” Jakob von Uexküll’s term for a “species-specific objective world.”5 “We know the world imperfectly and incompletely,”
Wendy Wheeler writes, and “our knowing is always framed by our ways of world-modelling.” “Like all organisms,” she continues, “these modellings are constrained by the kinds of organisms-in-environments that we are.”

To illustrate species-specific modes of perception, Bateson sometimes referred to Uexküll’s famous example of the tick, but more frequently he talked about the geckos he encountered in Hawaii. At night, these little lizards would gather on the window screens where moths were attracted to lights inside the house. When a moth would land on the screen, the lizard would aim, but then nothing would happen for a while until the moth moved again, and then the lizard would strike. This was because the lizard’s eye did not receive information about a stationary object, and so it had to wait for the next movement. Bateson explained that, by contrast, the human eye has what’s called a micronystagmus—a minor tremor—which goes on continuously and by virtue of which we are able to see a dot on a blackboard, or a moth on a screen. Lacking micronystagmus, the gecko does not detect news of difference from a stationary object, so it does not see the moth until it moves.

Bateson supplemented this visual example with a proprioceptive one: when riding in an elevator one cannot feel the motion when it travels at a constant rate, but the moment that it accelerates or slows down one becomes conscious of its movement. As a sonic example, he referred to the ticking of a clock: if a sonic event goes on continuously—such as a clock ticking—you will cease to notice it. You will startle however, as soon as the clock misses a tick. It was in the sonic modality in fact, that this line of thinking found its most vivid expression in the cultural realm.
The “phase” pieces made by composer Steve Reich in the 1960s present two similar, repeated sonic patterns that slowly move out of sync with each other (see FABRIC). Reich’s work made a big impression on Brian Eno, the musician and producer who invented the genre of ambient music. Eno talked about Reich’s technique in relation to the work of neurophysiologist Warren McCulloch, Bateson’s colleague from the Macy Conferences on cybernetics. Drawing upon McCulloch’s essay, “What the Frog’s Eye Tells the Frog’s Brain,” Eno stated that “a frog fixes its eyes on a scene and leaves them there. It stops seeing all the static parts of the environment… but as soon as one element moves, which could be what it wants to eat—the fly—it is seen in very high contrast to the rest of the environment.” Eno found a similar dynamic in Reich’s phase pieces, since the listener ceased to hear any sonic information that remained static: “If you gaze at something for a long time, you’ll cease to really see it. You’ll see any aspect of it that’s changing, but the static elements you won’t see… What happens with the Reich piece is that our ears behave like the frog’s eyes… What you begin to notice are not the repeating parts but the sort of ephemeral interference patterns between them.”

Compare Eno’s argument to the kind of stop-motion animation we find in Jan Švankmajer’s Alice. Stop-motion animation is an art form based upon the strategic manipulation of our visual perception of difference. The objects onscreen are moved from one frame to the next just enough for the viewer’s eye to notice a difference, but not so much that the difference ceases to be legible as fluid movement. Stop-motion animation is an art form, in other words, that exploits our species-specific world-modeling in a particularly vivid way. If Reich’s phase pieces ask our ears to behave like a frog’s eyes, Švankmajer’s Alice reminds us that we are constrained by the kind of
organisms-in-environments that we are, and that the way we know the world is imperfect and incomplete (see OUTLINES).
Notes


3 Jesper Hoffmeyer, Biosemiotics (Scranton: University of Scranton Press, 2008), 283–84.


6 Wendy Wheeler, Expecting the Earth (London: Lawrence and Wishart, 2016), 124.


10 Daniel Belgrad has described music as an important vehicle of ecological thinking in the 1970s, as in the cases of acoustic ecology, R. Murray Schafer, and drone-based music. Daniel Belgrad, The Culture of Feedback: Ecological Thinking in ‘70s America (Chicago: University of Chicago Press, 2019), 112–13.

At one point in his life, Bateson was undergoing psychoanalysis and collecting his dreams. One dream in particular became important for his therapeutic process. In the dream, he has committed an unknown sin and is condemned to execution. After being taken to the place of execution, he delivers an eloquent speech to his assembled friends and relations. At the end of the speech he bows and says, “Excuse me, if I dramatize myself a little,” after which he woke up roaring with laughter.¹

This dream was significant for Bateson in part because it dramatized a jump from what he called Learning II to Learning III (see PORPOISE, RECORDING). If Learning I is associated with rote (see BOTANY), Learning II involves the context in which that learning takes place. Learning II establishes the patterns of individual character, but as one becomes aware of those patterns their arbitrary nature is made clear. That however, does not necessarily invalidate them. For example, one might come to realize that the patterns of one’s upbringing had established one’s ambitious character, which in turn fueled a successful career as an architect. That realization however, does not automatically mean that one should abandon being an architect. Bateson referred to the Zen phrase, “before enlightenment, drawing water and cutting wood; after enlightenment, cutting wood and drawing water.” Even after enlightenment, you’re still there cutting and drawing, only now with a broader view.² Bateson’s dream presents this process in condensed form: he feels shame at recognizing the limits of his characterological self as revealed through therapy; but he embraces a playful dramatization of the self as he crosses the threshold to a new level of joyful wakefulness.
Apart from their therapeutic uses, dreams play a role in Bateson’s discussion of verbal and nonverbal communication. Bateson noted that nonverbal forms of communication such as kinesics and paralanguage have “blossomed side by side with the evolution of verbal language,” which indicates that they perform functions that verbal language is “unsuited to perform.” Specifically, Bateson argued that nonverbal communication is concerned with “matters of relationship” (see Zoo).³ Dreams, he asserted, are a bridge between verbal and nonverbal modes of communication; they are “intermediate between the iconic coding of animals” and the symbolic coding of human speech.⁴

*Children of Paradise,* one of Bateson’s favorite films, provides a poetic manifestation of this argument, with its pairing of an avatar of verbal communication—the actor Frédérick Lemaître (Pierre Brasseur)—and an avatar of nonverbal communication—the mime Baptiste (Jean-Louis Barrault). The two performers are presented as different but complementary, their respective arts housed in two theaters that blossom side by side on the same street. Notably, Baptiste is associated with dreams: his bond with his audience comes from understanding their dreams; he passed his childhood in a half-awake state of dreaming; he finds inspiration for his act through dreamlike strolls through the city at night; and he speaks of love in the language of dream (“I saw you in my dreams”). Bateson’s proposal that dreams are intermediaries between verbal and nonverbal communication provides an explanation for the mime’s close affinity with the semiosis of dreams, as well as the fact that, at the pantomime theater where he performs, humans and animals—or at least, humans in lion and bird costumes—share the same nonverbal stage (figure 16).
Dreams, life... they’re the same.
Notes


3 Bateson, Steps to an Ecology of Mind, 418–19.

4 Bateson wrote that dreams are “metaphoric statements” that refer to “relationships which the dreamer, consciously or unconsciously perceives” in the waking world. Another intermediate could be found in “complex forms of art, music, ballet, poetry, and the like” that elaborate on patterns of nonverbal communication. “As kinesic and paralinguistic communication has been elaborated into dance, music, and poetry, so also the logic of dream has been elaborated into theater and art,” Bateson, Steps to an Ecology of Mind, 427–28.
Bateson told the story of a man who fell from the top of the Empire State Building and as he was passing the second floor was heard to remark, “I’m doing all right so far!”

Bateson told this anecdote as part of a discussion of ecological limits, exponential growth, and the inconvenient fact that “thresholds pinch suddenly.” In that context, the falling man’s misplaced optimism was meant to echo modern society’s obliviousness to a rapidly approaching environmental catastrophe. It is sobering to think that Bateson made this point fifty years ago, and talked then about the need for greater worry and even panic about environmental issues in order to mobilize action in the short-term and prevent dire consequences in the long-term.

Bateson also conveyed this message with the tale of the conference for professionals in the field of running conferences. These experts were keenly aware of the fact that, for any conference, the first half of the allotted time was inevitably wasted on trivia. They also knew that conference participants tended to realize this fact about halfway through the available time, after which they would panic about their lack of progress and get down to work. In the sad case of the conference of professional conference-makers, the participants were all too aware of this framework, and so they weren’t worried by the unproductive first half of the conference. They assumed that at some point they would make the shift to being productive, but because they lacked the necessary condition of being worried, they went on talking drivel until the end of the conference. The moral of the story was that there is value in worry.

By the same principle, Bateson added, people fire guns at avalanches so that they fall down before they get too big.
Bateson’s interest in skyscrapers like the Empire State Building went beyond the humorous anecdote above, and in fact, urban design and architecture were areas where his ecological thinking took root during his lifetime. In 1970, he convened a conference on the topic of “Restructuring the Ecology of a Great City” in partnership with the office of John Lindsay, Mayor of New York City. In an essay he wrote for the conference entitled “Ecology and Flexibility in Urban Civilization,” Bateson defined “a healthy ecology of human civilization” as “a single system of environment combined with high human civilization in which the flexibility of the civilization shall match that of the environment to create an ongoing complex system, open-ended for slow change of even basic (hard-programmed) characteristics.”

Bateson’s ideas were an influence on the architect Sim Van Der Ryn, a key figure in the development of sustainable design. Van Der Ryn was appointed California State Architect by Governor Jerry Brown in 1975, and was commissioned to design an office building in Sacramento, California. This project was meant to be a “showcase for ecological design” with the mission to be sensitive to “natural energy flows” and the “rhythms of light and climate.” When completed, this project was named the Bateson Building in tribute to Van Der Ryn and Brown’s intellectual mentor. Built around a large open atrium that served as “a sort of lung for the building,” the Bateson Building stored heat in a rock bed beneath the atrium floor, and circulated warm air through large canvas tubes. Motorized shades controlled the amount of incoming sunlight, and water was heated by rooftop solar panels. The open design was meant to align ecological systems with the social dynamics of the people working there, synchronizing “human relationships with the circadian cycle and the perception of time” (figure 17).
Bateson’s notion of information as difference (see DOT) was a foundational concept for the project. The Bateson Building was designed to be “sensitive to difference,” with walls described as “a living skin that is sensitive to and adapts to differences in temperature and light.” “We are not adapted to live or work at temperatures or lighting levels that are uniform or constant,” Van Der Ryn wrote. “We are most alive when we experience subtle cycles of difference in our surroundings.” When it came to lighting for example, the relevant measure was not “foot-candles of quantifiable illumination, which means nothing, but the quality of light you experience, which means everything.”

Borrowing one of Bateson’s most famous phrases, Van Der Ryn wrote that the Bateson Building was a “pattern which connects” people to “the change and flow of climate, season, sun, shadow, constantly tuning our awareness of the natural cycles that support all life.” “Maybe what we find beautiful,” he concluded, “is that which connects
us to an experience of difference: to an experience of the patterns of wholeness, patterns that distinguish the living world from the works of humankind.”

Despite these ambitious goals, the Bateson Building has largely disappeared from the public imagination. It is nonetheless historically significant, both as an early example of ecological design, and as an index of the reach of Bateson’s thinking. Van Der Ryn’s Bateson-inspired mission to see buildings as organisms and cities as ecosystems is still relevant today and resonates with a new generation of urban ecology that “combines urbanism and ecology as mutually engendering and interdependent systems.”

In Terrence Malick’s *The Tree of Life*, Jack O’Brien (Sean Penn) is an architect who spends most of his time in a glass skyscraper that feels badly in need of Van Der Ryn’s approach to ecological design. Images of looming skyscrapers and grid-like metal window-frames introduce us to Jack in a state of midlife crisis, trapped in an environment bereft of organic forms (figures 18, 19, and 20).
As Jack’s memories begin to take shape, images of biological complexity gain a foothold in this sterile angular world: we see a tree being planted in a skyscraper gazebo, and a murmuration of birds coils across the evening skyline (figures 21 and 22).
Later, the vertical movement of an elevator charts Jack’s inner journey. We see Jack going up in the elevator just before he encounters his family on a beach (see INSECTS).
After that sequence, we get a matching shot of Jack in the elevator as it descends, and then we see Jack walking outside, framed against the skyscraper (figure 23).

This image might serve as an emblem for the ecological mission of the Bateson Building, with its goal to create a pattern of wholeness that connects the living world and works of human design.
Notes

1 Mary Catherine Bateson, *Our Own Metaphor*, 124; UCSC, LCD10235, *Gregory Bateson Recordings 1975*, pt. 3, “Sonoma—Nov. 2–4,” 1975. Steve McQueen tells a version of this joke in the film *The Magnificent Seven* (1960). Skyscrapers were also an illustrative example for Bateson when he discussed the limits to growth. Bateson described what architects call the “elevator conundrum,” which is that the higher the building the more elevator shafts you need in order to get people to the top floors. However, the more elevator shafts you have, the less useable space. In Bateson’s version of the problem, the more floors that are added at the top require more space on the bottom for elevators until “at a certain point the whole of the bottom floor is elevator and further additions to the top will not increase the number of people you can put in the building.”

UCSC, LCD10234, *Gregory Bateson Recordings 1975*, pt. 2, “Esalen—Nov. 15,” 1975. See also the fable of the polyploid horse in Bateson, *Mind and Nature*, 51–53. The horse parable had to do with physical limits, Bateson explained, and added that the “Club of Rome,” who had published the influential book on the “limits of growth,” was dealing with the same problems “on the sociological level.”


5 On Bateson as mentor, see Sim Van Der Ryn, Design for Life (Layton, UT: Gibbs Smith, 2005), 65.


7 Sadler, “The Bateson Building,” 471.


10 Van Der Ryn, Design for Life, 66; Van Der Ryn and Cowan, Ecological Design, 187.


With regards to Van Der Ryn’s prominent place in the history of ecological design, see Lydia Kallipoliti, “History of Ecological Design,” in Oxford Research Encyclopedia of Environmental Science, April 26, 2018, https://doi.org/10.1093/acrefore/9780199389414.013.144


Compare Orff’s statement to Van Der Ryn: “Through ecological design, our buildings and cities can become more fully integrated with nature. Like organisms, they can produce their own energy, and consume and recycle their own wastes without polluting.
Design can show us the connection between nature’s living cycles and the built environment,” Van Der Ryn, Design for Life, 8.
EXCELSIOR

During a 1952 session of the Macy Conferences on Cybernetics, Bateson told the following joke. A man during World War II is working at a top-secret weapons plant. One day he comes out of the factory with a wheelbarrow full of excelsior, a kind of packing material. The guard stops him and says, “You can’t take that out.” “It’s only packing trash,” he says, “they throw it out anyway.” The guard asks, “What do you want it for?” The man explains that he wants it for his garden, and the guard lets him go. The man comes out with another wheelbarrow full of excelsior the next day, and again the day after that, and on for several weeks. The guard gets increasingly suspicious, and finally says, “Now look. Come clean. What are you stealing from the factory?” The man sighs and says, “Have you seen the price of wheelbarrows these days? I’ve got a dozen of ‘em at home now!”

It’s not a very good joke Bateson admitted, but it is useful to illustrate how humor involves making a jump between logical gestalts. Bateson was interested in how humor prompted a shift of figure-ground relations and logical frameworks (see OUTLINES). Humor could overcome the limitations of conscious understanding by sidestepping habitual patterns of carving figure from ground in the flux of experience. Like the guard, we tend to focus on the excelsior and miss the wheelbarrow.

In Children of Paradise, the actor Frédérick Lemaître (Pierre Brasseur) is under contract to perform in a play written by a trio of pretentious authors. To spite them, he transforms their plodding melodrama into a comedic farce. Notably, that shift is achieved by recalibrating figure-ground relationships in the context of the theater. Lemaître breaks
character by speaking directly to the audience; he confounds his fellow players by
delivering lines that are not in the script; he refers to himself by his own name rather than
the name of his character; he breaks the fourth wall by moving into the audience to
deliver some of his lines; and during an extravagant death scene, he directs the audience’s
attention to the box where the three authors are sitting, exclaiming: “The true criminals,
those who plotted in the shadows… the authors of this crime are there!” (figure 24).
Notes

1 Gregory Bateson, “The Position of Humor in Human Communication,” in Claus Pias, ed., Cybernetics: The Macy Conferences 1946–1953 (Zurich: Diaphanes, 2016), 542–43; UCSC, LCD10230, Gregory Bateson Recordings 1980, pt. 2, “Work Scholars,” 1980. He added: “We should be able to say how we would construct a cybernetic machine of some kind which would show this characteristic which would be thrown into some sort of oscillating condition by certain types of contradiction…. I am always prepared to say that an electric buzzer is laughing.”


3 Logical paradoxes, he claimed, were “the prototypic paradigm for humor,” and laughter occurs “at the moment when a circuit of that kind is completed,” Bateson, “The Position of Humor,” 2016, 543. This is a variation on the “incongruity” theory of humor, see Simon Critchley, On Humour (London: Routledge, 2002), 2–3.


EYES

In an interview with the Naropa Institute, Bateson asserted that a basic biological rule was that sense organs tended to become signaling organs. An ant’s antennae for example, become a means for signaling various sorts of messages. Likewise, our eyes become the site on our face where we express feelings, emotions, and intentions.1 The basic biological rule that sense organs become signaling organs is supported by the study of film acting, where the expressive power of the eyes has long been noted.

Alan Bates is a good example of a film star known for his photogenic eyes. One reporter described the actor’s “extraordinary eyes” as “clear, sharp piercing black dots that go out in concentric rings from emerald to turquoise to pale blue, ending up in chocolate brown—sort of a one man color wheel.”2 One of his first scenes in King of Hearts is framed to showcase his eyes as signaling organs. As his commanding officer, Colonel Alexander MacBibenbrook (Adolfo Celi), gives him his orders, Bates’s eyes, which are hidden from the Colonel but dominate our attention like two flashing headlights, signal his inner feelings of trepidation, distrust, and anxiety (figures 25 and 26)
Notes


Moiré is a French word meaning “watered,” and in English it refers to a kind of fabric with a shimmering appearance that resembles the surface of water. Moiré fabrics can make a necktie look green from one direction and red from another, and are created when two patterns intersect to generate a new pattern. Bateson was interested in moiré patterns as an example of “double description,” which is when the comparison of similarities and differences between two channels of information allow for the perception of higher-level patterns and insights.

One example of double description can be found in binocular vision, which utilizes the difference between information from two eyes to produce the extra dimension of depth. Likewise, moiré phenomena involves two similar patterns that are superimposed to produce a third. Patterns, Bateson concluded, are “sort of sexy things,” because you take one of them, and then another, you then put them together and get a third. For Bateson, the point was not simply to make pretty patterns, but to better understand the process by which one could move to a higher logical type. In the case of binocular vision, the information from two eyes facilitates a larger class of data that allows for depth perception.

Moiré patterns provided a useful metaphor for Bateson when he talked about epistemology; the way we know the world. Each of us move through the world with a set of internal patterns that we apply to our experience, he argued. He compared these internal patterns to a butterfly net or a sieve placed into the flowing river of experience. By applying our internal patterns to those we encounter, we create new patterns that are
neither the ones we encounter nor the ones we carry. This moiré model of epistemology helps to resolve a tension that Cary Wolfe has identified in Bateson’s thought. On the one hand, Wolfe notes a constructivism signaled by Bateson’s use of the phrase “the map is not the territory”; that is, our perception of the world is not the world (see DOT, OUTLINES). On the other hand, Wolfe interprets Bateson’s phrase “the pattern which connects” as a “totalizing insistence” that there is a single overarching pattern connecting disparate phenomena. Bateson’s comments about moiré and his use of the net/sieve metaphor acknowledge the distinction between map and territory, sieve and river, inner and outer patterns, while also asserting the complexity that emerges when those patterns interact. In other words, he did not offer a single, totalizing model, but a multiple, contingent, and emergent one (see CURTAINS).

*King of Hearts* is set in the French town of Senlis. We get a stereoscopic double description of the town’s skyline as seen from both the British and German point of view. The paired images of the two military men, each with their binoculars, serves to heighten the folly of their limited, monocular perspective on the world around them (figure 27 and 28).
Notes


2 Hui, Cashman, and Deacon write that “the superimposed patterns must be highly similar for the difference pattern to be robustly noticed,” Julie Hui, Tyrone Cashman, and Terrence Deacon, “Bateson’s Method: Double Description,” in Jesper Hoffmeyer, ed. *A Legacy for Living Systems: Gregory Bateson as Precursor to Biosemiotics* (Cham: Springer, 2008), 80–81.


4 Hui, Cashman, and Deacon, “Bateson’s Method,” 84–85. The authors write that “to be brought into relationship is to be categorized as cases belonging to the same class by abduction, and once the similarity is established the information sources can be systematically compared, exposing their differences.”


Systems Theory and Postmodernity (Minneapolis: University of Minnesota Press, 2000), 177.
Flounders are flat fish that lie on their side on the bottom of the ocean. Bateson liked to describe how baby flounders begin their life as symmetrical creatures with eyes on either side of their body. At a certain point in their development, they begin to twitch and proceed to push one eye over to what will be their upper side. They end up as asymmetrical creatures with two eyes on one side of their body.¹

The example of the flounder was part of Bateson’s discussion of asymmetry in nature and its relation to information. He asserted that the most basic biological forms are round. Bacteria on a plate will grow into a circular colony; many organisms are spherical; and when others go into hibernation they contract into a sphere. Bateson asserted that spheres are the shape that results when no additional information is provided to determine shape. Added information sets the course for an ellipse, an elongated body, a front and back, or a right and left.² In other words, it takes additional information to go from radial to bilateral symmetry.³

Here again, we meet Bateson as predecessor to biosemiotics, given his attention to the role of information and communication in embryology. The effort required of the baby flounder to achieve its asymmetry externalizes the hidden biosemiotic processes involved in creating a complex body. Bateson elaborated on this point through a comparison to human craft. It’s not easy for a carpenter to make an object that is the same on two sides, and that task will require the use of measuring tools. In the development of embryo fish, crabs, or people, there were no measuring tools available. There must therefore, be communication inside the body as it grows in order to achieve this.⁴ Bateson
argued that external bodily patterns such as the stripes on a cat have to be “achieved communicationally. You’ve got to have not only messages but entities—cells, whatnot—capable of reading the messages, of receiving them and acting on them.” Within the body therefore, was a huge amount of communication that we know little about. “This is all mind,” he said. “The transmission and reception of messages is mind. And it’s all through down to your fingertips.”

His point was to counter the mechanistic model of mind versus body; to show that bodies are perfused with semiosis; that embodied processes are mindful.

In The Tree of Life, there is a stunning sequence that shows the evolution of life through artful film editing. The first photographic image we see of a recognizable creature is a jellyfish. Next, we see a sea slug, and then an axolotl. The progression moves us from sea to land, but also from radial to bilateral symmetry. Following Bateson, we might say that this sequence is visualizing not only a lesson in comparative biology, but in comparative biosemiotics (figures 29, 30, and 31).
Notes


Bateson often told the story of the frog who was put in a saucepan of cold water. If the water temperature is raised slowly such that the change is not perceptible to the frog, it won’t jump out of the pot and will end up boiled. This, for Bateson, was a fable for how modern Western society has disturbed the climate and polluted the environment without perceiving the signs of ecological danger. We could, quite easily, do to ourselves what is done to the frog. Bateson used the frog in a pot anecdote as a warning about the stakes of inaction on environmental issues. It has since become a prominent trope in environmental discourse, due in no small part to its inclusion in Al Gore’s *An Inconvenient Truth* (2005).

Frogs are also central characters in a story Bateson told about an interaction that occurred at a conference sponsored by the Wenner-Gren Foundation in 1968. During the conference, which was entitled “The Effects of Conscious Purpose on Human Adaptation,” a psychologist named Bert Kaplan gave a presentation on Leonardo da Vinci’s painting, “The Virgin and Child with Saint Anne” (1501–1519) (figure 32).
The painting shows the holy family in the foreground and a distant blue-gray landscape behind them. Kaplan argued that the painting represented a great advance from the Renaissance period by separating the human family from the landscape. The biologist Barry Commoner responded by asking Kaplan what he held sacred. “The family,” Kaplan
replied. “Bert,” Commoner said, “if you don’t hold the frogs in the waterfalls [to be] as sacred as the human family, you’re doomed.”

Commoner was stressing the need for an ecological vision that went beyond the human family and that involved a multi-species awareness along the lines of what Donna Haraway calls “making kin.” In the context of a discussion of the da Vinci painting, Commoner’s critique also resembles a key tenet of ecocriticism. His insistence that the natural habitats depicted in the background were just as meaningful as the human action in the foreground aligns with Lawrence Buell’s ecocritical assessment of literary works based upon whether they present the nonhuman environment “not merely as a framing device but as a presence that begins to suggest that human history is implicated in natural history.” For Buell, environmental texts are those that do not understand human concerns (the family) as the only legitimate interest. Buell would agree with Commoner I think, that the frogs in the distant waterfall are just as significant as the holy family, and that the relevant ecological unit is the two in relation (for more frogs, see XENOPUS).

Bateson certainly agreed with Commoner’s assessment, and stated that setting up the human family in opposition to the frogs in the waterfalls was “a lethal idea for any society that has enough technology to put the idea into practice. You cannot both think that way and be able to act according to your thought.” One alternative visual approach that Commoner and Bateson might have presented to Kaplan is to be found in the anthropomorphic landscape. These surreal images present a visual “double description” that combines the human body with the environment in such a way that the viewer oscillates between those two perspectives. One example of such an image is Joost de
Momper’s “Winter,” which was used as the cover image for the 1973 edition of Bateson’s *Steps to an Ecology of Mind* (figure 33).
In different ways both *Mindwalk* and *The Tree of Life* are “environmentally-oriented” texts by Lawrence Buell’s criteria, and we might compare each to da Vinci’s “The Virgin and Child.” *Mindwalk* maintains a tight focus on the dialogue among its three human protagonists, but as they move into the landscape surrounding Mont Saint-Michel, their conversation incorporates the ecosystems that surround them. It is as though we walk with the Holy Family in da Vinci’s painting down to the waterfalls and listen as they strike up a conversation about the frogs they find there. Likewise, *The Tree of Life* situates its central family drama in the deep time of biological and planetary evolution. It’s as if da Vinci had painted dinosaurs in the landscape behind the Holy Family, or fossils of prehistoric creatures in the rocks beneath their feet, or if the sky above them depicted a massive sun engulfing the planet in the far-distant future.
Notes


3 Bateson, *Our Own Metaphor*, 244–45, 284-07A.


6 UCSC, LCD10293, *Gregory Bateson Recordings 1968 and 1970*, “Frogs in the Waterfall—Jan. 14, 1970,” 1970. Bateson stated that “if you only have a half-assed technology you’re still safe. But the moment you have an effective technology *and* you think that way, you have got to correct your thinking. There is no way of getting rid of the technology that I know of. The engineers are much too powerful.”

7 On anthropomorphic landscapes, see Barbara Maria Stafford and Frances Terpak, *Devices of Wonder* (Los Angeles: Getty Publications, 2001), 249; Thomas Dacosta Kaufmann, *Arcimboldo* (Chicago: University of Chicago Press, 2009), 9. Michel Jeanneret writes that, when viewing an anthropomorphic landscape, “I move and the image is transformed before my eyes, but no version is more correct that the other; the uncertain perspective makes me oscillate between two perspectives.” In language that resonates with Bateson’s ecology of mind, he writes that these images “belong to a universe where microcosm and macrocosm exchange properties. They reveal an
underlying animist, metaphoric thought that considers nature as a unitary living organism within which species communicate and bodies pass from one form to another … the superimposed images of face and mountain, ear and mushroom, speak to the secret affinity that associates living things.” Michel Jeanneret, *Perpetual Motion* (Baltimore: Johns Hopkins University Press, 2001), 259. Roland Barthes also uses the language of “oscillation” to describe Arcimboldo’s work: “my reading oscillates continually.” Roland Barthes, *The Responsibility of Forms* (Berkeley: University of California Press, 1985), 131.
“There was once a garden,” Bateson wrote. “It contained many hundreds of species” living in “great fertility and balance.” Among that complex, subtropical ecosystem there were two primates, and one of them saw a fruit on the top of a high tree that was out of reach. So they began to think. “That was the mistake,” Bateson asserted. “They began to think *purposively.*” One primate got an empty box and put it under the tree, but still they couldn’t reach the fruit. So they put another box on top of the first one and eventually they got it. The primates then committed wholeheartedly to this purposive way of thinking and behaving, and proceeded to declare some species “weeds” and “pests,” develop agriculture, lose the topsoil, and eventually wreck the entire ecosystem. In the end, they had “cast God out of the Garden,” by which Bateson meant the awareness of their own and the Garden’s “total systemic nature.”

Bateson’s interpretation of the Garden of Eden story anticipates the “Gaia hypothesis” to the extent that it associates large-scale or planetary ecological systems with the concept of God (see REDWOODS). The story also expresses Bateson’s suspicion of “purposive action,” which was a message that did not always appeal to student audiences in the 1960s, some of whom found it to be a retreat from political action. It is certainly true that Bateson’s main intellectual strengths were not in the realm of political theory, and with regards to the Eden story, it is fair to ask about the systemic forces that exist at the societal level above the two isolated primates. After all, it’s at the social, collective level that the impact of wooden boxes, fruit trees, and agriculture would result
in the loss of the topsoil. Moreover, not all primates might use their wooden boxes in the same ways.

In *Mindwalk*, a similar concern is raised about the tendency towards abstraction in systems theory. The poet Thomas asks the scientist and systems theorist Sonia (Liv Ullmann), “Where are the other people in your system, Sonia? … I feel just as reduced being called a system as I do being called a clock” (see *GRANTCHESTER CLOCK*). The film gestures towards the social application of systems theory when the politician Jack (Sam Waterston) urges Sonia to join his staff and bring her insights to the political realm, but we are left to wonder if or how this might work.

In hindsight, Bateson made an important contribution to 1960s radicalism by being one of the key figures to put environmental issues on the political agenda (see *URCHINS*). There are also eco-socialist undercurrents to be found in Bateson’s critique of a too-narrow, resource-driven view of the natural world (see *MONEY*). At one university appearance, Bateson shared the stage with a self-identified socialist speaker who talked about the struggle for what we would now call environmental justice: he talked about the pollution that affected factory workers on the southside of Chicago, and asbestos poisoning among workers in rural Minnesota. At one point, the speaker describes the links he sees between Bateson’s approach and Marxism. Bateson interjects: “What you’ve said makes a great deal of sense to me.” Powerful intellectual and political patterns might emerge if we can find ways to harmonize Bateson’s ecology of mind and environmental justice (see *YAMS*).

*King of Hearts* contains its own reference to the Garden of Eden. In a pair of beautifully framed shots, we see: first, the inmates leaving the asylum through its
unlocked gates to take on their new roles in the vacated town; and later, the inmates returning through the gates, discarding the costumes that have signaled their temporary social roles (figure 34 and 35).

In the film’s most iconic image, we see Plumpick standing naked at the asylum gates like a newborn child reentering paradise (figure 36).
As the inmates return to the asylum, we see lush green leaves behind the iron gates, suggesting an idyllic natural space contained within. As stated above (see CHERRY TREE), the film’s power derives from its “fact of its untruth”: asylums are not idyllic gardens, but the point of the film is not to present an exposé of mental health facilities in wartime France. The film is most effective if interpreted as a parable or fairy tale. The greenery behind the gate is the film’s most pastoral image, subtly suggesting that an encounter with nature might occur within the town rather than in a far-distant wilderness area. That is a message that resonates with a biosemiotic perspective that encompasses processes of sign transmission and interpretation inside an organism (endosemiotics), as well as the sign processes of plants and animals (phytosemiotics and zoosemiotics). The garden is in the primates as much as the primates are in the garden (figure 37).
Notes


3 Note the comment attributed to Margaret Mead, that Bateson tended to “jump the middle” in his thinking by moving from “minor details” to “extraordinary broad concepts.” Bateson’s talent was for “the extraordinary broad concepts and … [the] minor little …. details.” David Lispet, Gregory Bateson: The Legacy of a Scientist (Englewood Cliffs, NJ: Prentice Hall, 1980), 227. Scholars working to update his thinking should address this by extending Bateson’s thinking up from his fine-grained biological observations as well as down from his broad-ranging ecological concepts.


5 UCSC, LCD10291, Various Recordings, “Healy.” We might also note Bateson’s influence on the environmental activist Joanna Macy.

During a seminar in 1977, a student asked Bateson where he was born. In the village of Grantchester, he replied, and he added that he knew the exact time of his birth as well: half-past four. “The clock in the village of Grantchester always says half-past four,” he explained. “In the afternoon,” he added, “tea time.” Bateson became something of a cult figure in the 1970s, and anecdotes like this one suggest that part of his appeal had to do with a certain dry, Lewis Carroll-esque humor that punctuated his public talks. Bateson’s story about Grantchester’s broken clock also resonates with ideas in systems theory discussed by the three characters in Mindwalk.

One of the first stops on their peripatetic dialogue is the clock tower on Mont Saint-Michel, which they enter “just as the ancient clockwork goes through the last motions of striking the full hour; and all kinds of wheels are still spinning.” This location prompts a discussion of how the clock became the “model of the cosmos” for enlightenment thinkers, who then “mistook the model for the real thing.” Sophia argues that people got the idea that “nature was just a giant clock. Not a living organism, but a machine.” Sophia’s speech echoes Ilya Prigogine and Isabelle Stengers’s claim that “each great period of science has led to some model of nature” and that for “classical science it was the clock.” Sophia asserts that systems theory is a remedy to this kind of reductionist, mechanistic thinking (figures 38 and 39).
In *King of Hearts*, the plot revolves around the town’s mechanical clocktower. In fact, the film begins within the gears of the clock. The opening sequence presents shots of the ticking gears as the credits move in synchrony with the clockwork rhythms on the
soundtrack. Here is a reminder that cinema, with its mechanical synchronization of sound and image, is part of the history of clockwork technology and mechanistic thinking.

Indeed, the film’s credit sequence makes explicit Michel Chion’s description of cinema’s “rapture of synchronization” as a union of sound and image that runs like “the moving parts of a marvelous watch” (figure 40).^4

After the opening credits, the clock tower takes on a darker aspect when it is revealed to be the site of a time bomb meant to destroy the town. The plot’s mechanism clicks into gear as Plumpick attempts to neutralize the threat of the clock/bomb while the “irrational” inhabitants of the asylum overthrow the rational order of clock time. Midway through the film, the inmates remove the clocks from inside abandoned houses and pile them together in the town square: a surreal and carnivalesque image that inverts inside and outside; public and private (see Cricket) (figure 41).
The climactic moment arrives when Plumpick scales the tower and insinuates his body into the clockwork to prevent the hammer from striking a bell and setting off the bomb. It’s a sequence that recalls Charlie Chaplin in *Modern Times* (1936), and to drive home the sense of victory over rational and mechanistic forces, the film slips into absurdist humor, with Plumpick doing acrobatic spins on the clock (figure 42).
Jan Švankmajer’s *Alice* also gleefully misuses clocks. In Švankmajer’s adaptation of the Mad Hatter’s tea party, we see the March Hare repeatedly spreading butter on pocket watches and hanging them on the Hatter’s wooden body (figures 43 and 44).
In *Mindwalk*, the clock is an emblem of outmoded mechanistic thinking. In *King of Hearts* and *Alice* it stands for rational, conscious thought run amok. All three films, like Bateson’s quip about the village of Grantchester, suggest that the best clock is a broken one.
Notes


3 Prigogine and Stengers add that, “for nineteenth-century science, the period of the Industrial Revolution,” it was “an engine running down,” Ilya Prigogine and Isabelle Stengers, Order Out of Chaos (New York: Verso, 1984), 22, also see 111.

Classical logic has several varieties of logical syllogism. The best known is this one: Men die; Socrates is a man; Socrates will die. That syllogism is constructed, Bateson explained, by placing Socrates into a class (“men”). In that sort of syllogism, subjects are named and fixed into a class. Bateson asserted that syllogisms like this were “of little use in the biological world until the invention of language and the separation of subjects from predicates.”\textsuperscript{1} Communication, mental process, and the semiosis that occurs within bodies and ecosystems: all of these things are much older than the structures of human language. Bateson concluded that the syllogism by which the world actually works therefore, was something like this: Grass dies; Men die; Men are grass.\textsuperscript{2}

Bateson’s grass syllogism dethrones Western logic and offers an alternative model that strives to be more in tune with natural processes. Outside of human language, he claimed, there is only the grass syllogism, working not by the processes of deduction or induction, but by abduction and metaphor (see LEAF). Metaphor is therefore more than pretty poetry and is, in fact, the logic upon which the biological world had been built.\textsuperscript{3} Fritjof Capra explains: “the Socrates syllogism identifies items, the Bateson syllogism identifies patterns. And this is why metaphor, according to Bateson, is the language of nature. Metaphor expresses … similarity of organization, and metaphor in this sense was the central concern of Bateson’s work.”\textsuperscript{4}

The decentering of human language and logic is something that Bateson shares with biosemiotics. Timo Maran argues that biosemiotics “widens the sphere of semiotic processes to embrace all living organisms on Earth, thereby ensuring that human cultural
and semiotic activities cannot be treated as a semiotic island in the vast ocean of unsemitic void.” A biosemiotic view refuses to narrow its scope to an “anthropocentric” or “glottocentric” view of semiosis and asserts, like Eduardo Kohn, that representation is “both more general and more widely distributed than human language.” What is needed, Kohn concludes, is a view of semiosis that would “provincialize” language. Bateson’s grass syllogism is a step in that direction.

One avenue for provincializing human language is to investigate the patterns of nonverbal communication that humans share with other animals. Bateson collaborated with the anthropologist Ray Birdwhistell, the founder of the field of “kinesics,” on the Natural History of an Interview project. Established in 1955 at the Center for Advanced Study in the Behavioral Sciences in Palo Alto, California, the aim of the project was to investigate face-to-face interaction in psychiatric interviews, and the outcome was a framework for analyzing filmed social interaction. Bateson and Margaret Mead’s use of film and photography in their anthropological study of Balinese social behavior had been an influence on Birdwhistell, and Bateson provided his own filmed interviews to the Natural History of an Interview project (see TRIPOD). Bateson praised Birdwhistell’s finely grained analysis of posture and gesture but complained about the discomfort he experienced when he was the onscreen subject of analysis and it was his unconscious movements that were dissected frame by frame (see RECORDING).

Gesture plays an important role in The Tree of Life. At a crucial moment, R. L. puts his arm on Jack’s shoulder in a wordless sign of reassurance, forgiveness, and brotherhood (figure 45).
Jack struggles to put the nonverbal message into words, and a whispered voice-over asks, “What was it you showed me?” Later, Jack makes the same gesture to a neighborhood boy who has been treated as an outcast because of burns on his body (figure 46).
In the sequence that depicts the deep history of life on Earth, we see a predatory dinosaur make a roughly analogous gesture to a prone dinosaur that appears to be injured or dying. Here gesture becomes the shared predicate in an abductive leap that connects vast differences in time and experience akin to the famous cut in Stanley Kubrick’s *2001: A Space Odyssey* (1968), which links a prehistoric bone tool to a futuristic space station (figure 47).

The centrality of gesture in this sequence makes the CGI dinosaurs in *The Tree of Life* feel more like a film by Ray Birdwhistell than Steven Spielberg. In a book on Malick, Steven Rybin observes that the dinosaur interaction is “as carefully drawn as the relationship between young Jack and his father,” and depicts not simply “evolutionary survival of the fittest” but “a mysterious fact of experience that is best understood in
detailed gestures, movements, and relations between beings.” “Indeed,” Rybin concludes, “it is in the fundamental mystery of relationships that Malick finds a parallel between prehistoric evolutionary processes and the more finitely embodied gestures of the human characters in his film.”⁹ Another way to say this might be: R. L. nonverbally communicates kinship; the dinosaur nonverbally communicates kinship; R. L. is a dinosaur.
Notes

1 Bateson and Bateson, Angels Fear, 29–30; UCSC, LCD10230, Gregory Bateson
Westling write that “nature’s logic is relational and poetic . . . whether you approve or
disapprove of poetry, dream and psychosis, the generalization remains that biological
data make sense—are connected together—by syllogisms in grass. The whole of animal
behaviour, the whole of repetitive anatomy, and the whole of biological evolution—each
of these vast realms is within itself linked together by syllogisms in grass, whether the
logicians like it or not,” Wendy Wheeler and Louise Westling, “Biosemiotics and

2 Bateson and Bateson, Angels Fear, 26; Bateson, A Sacred Unity, 240–41.

Fellows,” 1980. Zapf writes that “relational, metaphorical thinking, rather than syllogistic
reasoning, corresponds to the principles on which the living world is built and on which
an ecology of the mind can orient itself.” Bateson’s syllogism is “closer to the processes
of life, which are characterized by structural similarities and shared properties, [rather]
than the abstract classifications and exclusionary boundary-lines of logical-conceptual


5 Timo Maran, “Biosemiotic Criticism,” in Greg Garrard, ed., The Oxford Handbook of
Ecocriticism (Oxford: Oxford University Press, 2014), 262; Thomas A. Sebeok,
61–78.


8 UCSC, LCD10294, *Gregory Bateson Recordings 1979, pt. 1, “Bali Workshop,”* 1979. Bateson described the unpleasant experience as due to the fact that “the dance is being turned into words and when its turned into words it isn’t a dance anymore,” JKS Audio Collection, Naropa University Archives, Naropa University, “Gregory Bateson Lecture: Parts and Metaphors,” 1973, 
http://archives.naropa.edu/digital/collection/p16621coll1/id/1832/rec/1

“If you want a lawn,” Bateson wrote, “which is the equivalent in the suburbs of a grassy plain, there are certain steps you have to take.” These steps involve “pretending to be a horse.” First you need to buy a lawn mower, which would do the work of the front teeth of the grazing horse. Then, you need to tighten the turf by squashing it down, so you buy a roller to substitute for the horse’s hoofs. Finally, to prevent the grass from losing its green color you buy a sack of manure to substitute for the back end of the horse. The unit of evolution, Bateson concluded, was not “this species or that species,” but the interlocking co-evolution of the eco-complex horse and grassy plain. In fact, it was even more complicated than that, since there were multiple species of grass and hoofed animals eating, and all of it timed to fit the weather, the seasons, and the behavior of the animals.¹

Bateson defamiliarizes the everyday image of the suburban lawn by placing it in the longue durée of evolutionary history. At the same time, he expands upon a common example used to illustrate the evolution of a single species—the horse—to make the case for co-evolution. The result is an enactment of his motto, “the larger gestalt; the longer time.” In The Tree of Life, the suburban lawn becomes the stage upon which much of the O’Brien family drama unfolds. As part of Mr. O’Brien’s harsh regime of discipline, Jack is trained to pretend to be a horse along the lines Bateson describes, weeding and tending the grass around their house. These scenes suggest how Bateson’s parable of the grassy plain could be further expanded to include anthropological and sociological factors such
as cultural ideas about lawns, social institutions related to yard work, and middle-class rites of passage (see THERMOSTAT) (figures 48 and 49).
Notes

G R A S S

Bateson recalled how, as a young boy, he went to school by the rounded chalk hills in England known as the South Downs. He used to go to the Downs to collect plants, and was struck by the complicated ecology of over fifty species growing in the two-inch-high turf, which was kept short by grazing rabbits and sheep. Bateson’s recollection of the South Downs is one of several accounts of his childhood interest in natural history (see BOTANY, INSECTS). In this case, the childhood memory morphs into a parable of ecological folly.

Bateson explained that the sheep became a nuisance with the coming of the automobile, so they were removed from the Downs. This left the rabbits, who kept the turf ecology in place for a few years after the sheep had left. However, “for some reason, it was thought desirable to exterminate the rabbits of the Downs,” as had been done in Australia using the virus myxomatosis. The rabbits were deemed pests and killed. The result was a radically altered ecosystem, with grass three feet high and consisting of only a few species.

The cautionary tale of the South Downs is an example of Bateson’s interest in co-evolution, as well as his critique of “conscious purpose”; that is, the human tendency to see parts and not wholes, short-term benefits and not long-term stability, and thereby set off disastrous unintended ecological feedback loops (see GARDEN). The Tree of Life makes reference to a notorious example of unintended ecological consequences in a shot of children running behind a truck that is pumping clouds of DDT into the air to kill mosquitos. As famously described by Rachel Carson, the short-term elimination of insect
pests by DDT was soon followed by a host of disastrous ecological and public health feedbacks (figure 50).
Notes


“Have you ever tried to describe anything,” Bateson once asked an audience. The painter Albrecht Dürer had tried to depict a tuft of grass, Bateson asserted, and he “failed hopelessly.” Describing the tuft of grass in words would be even harder. Bateson returned to this example in an introductory essay he wrote for Terry Evans’ book of photography, *Prairie: Images of Ground and Sky* (1986). Bateson asserted that, while Dürer’s “The Large Piece of Turf” (1503) is “enormously ambitious,” it “fails as a representational work.” Likewise, Bateson complained that Dürer’s “Stag Beetle” (1505) is unconvincing: “the stag beetle is dead and anybody who is familiar with live stag beetles will see at once that he is a little rotten in the joints.”

Bateson’s goal was not so much to diss Dürer as to praise those artists “whose prime direction was the synthesis between a scientific and an aesthetic understanding of nature.” He praised Evans’ photography and called for more creative work that would “combine scientific rigor with imagination.” The science of ecology, he hoped, would do much to develop that synthesis. As a more recent example, Robin Wall Kimmerer’s *Braiding Sweetgrass* (2013) makes a powerful case for the interweaving of science and traditional knowledge: “We see the world more fully when we use both.” “Science can be a way of forming intimacy and respect with other species that is rivaled only by the observations of traditional knowledge holders,” Kimmerer writes. Kimmerer interweaves scientific description, poetry, storytelling, memoir, and traditional Indigenous knowledge in a way that I think Bateson would’ve appreciated.
In its own way, the film *Mindwalk* answers the call to combine “scientific rigor with imagination.” In a preface to a book of the screenplay, Fritjof Capra writes that the motivation for the film was to address a set of global problems that are “harming the biosphere and human life in alarming ways that may soon become irreversible.” “There are solutions,” he writes, “but they all require a radical shift in our thinking, our perceptions, our values, our lifestyles.” Echoing Bateson, he concluded that what was needed was “a massive campaign of public education,” and *Mindwalk* was meant to be a contribution to that campaign.6

Fritjof’s brother Bernt Capra directed the film, and described the process by which he turned his brother’s nonfiction book on systems theory, *The Turning Point*, into a peripatetic dialogue among three friends.7 The book of the screenplay contains a section of “scientific commentary” by Fritjof to expand upon the concepts discussed in the film. As part of the marketing campaign for the film, the distribution company handed out a computer program called “Save the Planet” that contained information about climate change, ozone depletion, recycling, energy saving tips, reducing waste, and even templates for letters to elected officials and details about pending legislation.8

For some critics, the combination of scientific rigor and imagination in *Mindwalk* posed an aesthetic challenge. A New York Times critic praised the film for its “good serious talk,” but described it as a “feature-length op-ed piece” and concluded that it was “better read than said.”9 A review in the Washington Post described it as “a lecture dressed up as a movie” in which the plot was “nothing more than functional, the performers mere mouthpieces.”10 Another critic declared that it was “not a movie” but rather a ”session of hectoring.”11 Such reviews implicitly support Bateson’s claim that
“the world to be investigated is commonly split into two sides—the mechanical and the aesthetic—and the human mind, the organ to which is assigned the task of synthesizing these two sides, is itself correspondingly split between imagination and rigor.” As critical reactions to *Mindwalk* indicate, moving too far towards the “rigor” side of the continuum resulted in an ontological shift in the experience: it was no longer a movie, but an op-ed or lecture in disguise (see *DARKNESS, WATER SNAKES*).

Grass emerges as a topic of discussion in *Mindwalk*. In one scene, the three interlocutors leave the island of Mont Saint-Michel and reach “an area where the smooth surface of the sand is broken up by occasional shocks of yellowish grass.” These fields of rye become an example of the self-maintenance of living systems. In lines that echo Bateson’s discussions of the co-evolution of horse and turf and the rabbit-sheep-grass complex of the English South Downs, Jack (Sam Waterston) notes that “it must take a special breed of sheep to be able to graze around here … with all this salt… How could the grass grow without the manure and the sheep grazing on it? I wouldn’t be surprised if the people around here have a taste for salty lamb. So the people are in this, too. The sea, the grass, the people, the sheep” (figure 51).
Notes


4 Robin Wall Kimmerer, Braiding Sweetgrass (Minneapolis: Milkweed Editions, 2013), 46.

5 Kimmerer, Braiding Sweetgrass, 252. See also Kimmerer on the Three Sisters as “a new metaphor for an emerging relationship between Indigenous knowledge and Western science, both of which are rooted in the earth,” 139.

6 Floyd Byars, Fritjof Capra, and Bernt Capra, Mindwalk: The Screenplay (Los Angeles: Brass Tacks Press, 2021), 7. During the making of The Tree of Life, Terrence Malick was “obsessive about there being scientific fact and detail behind everything” that was portrayed. For the images of microbial evolution, Malick consulted with the legendary evolutionary biologist Lynn Margulis, who provided microscopy videos that were used as references for the visual effects team, Jody Duncan Jesser, “The Tree of Life: Creationisms,” Cinefex, no. 128 (January 2012): 68, 75–76.


Bateson sometimes asked his students, “how many fingers do you have?” The correct answer, he would explain, is not five. In the world of living things and the processes of growth, there was not a “word” that means “finger” or the number “five.” Instead, there are messages about relationships—about the act of “branching” for example—and so the better question would be, “how many relations between fingers do you have?” The answer to that is four. The lesson was that we should be counting not things, but relationships.¹

As with the shift from the Socrates syllogism to the grass syllogism (see GRASS¹), the goal of Bateson’s hand example was to inspire a change in epistemology by making human thought and language isomorphic with the processes by which living things are organized.² Bateson sought ways of thinking that were in harmony with the living creatures that are, he said, the most important things in our world.³ The ramifications of such a shift could be aesthetic as well as philosophical. Perceiving one’s hand, not as a “number of bananas on the end of a sort of flexible stick” but as a “nest of relations” resulted in the discovery of a new kind of beauty in biological form (see J. S. BACH). The shift from things to relations also had economic and political ramifications since it changed the attitude one might take towards possession and property (see GARDEN, MONEY). It’s easy to collect and possess multiples of things like bananas, he said. “You can stack them in various ways … and count them, and tell your neighbors how many you’ve got, and so on.” But how does one possess relations? How many relations are in a
hand? “And relations between relations. And relations between relations between relations.”

Of all the teaching tools in Bateson’s matrix of ideas, this is his most—if you’ll pardon the pun—“ready to hand.” During one presentation he concluded by asking the attendees to “take your hand home and take a look at it when you get there—very quietly, almost as part of meditation. And try to catch the difference between seeing it as a base for five parts, and seeing it as constructed of a … pattern of the interlocking of relationships which were the causes of its growth.”

One could pursue a Bateson-esque meditation on the epistemology of relations by watching The Tree of Life, since images of hands are a prominent motif in the film. We see hands waving in the wind, playing the organ, folded in prayer, and moving through tall grass (figures 52, 53, and 54).
Notes


The Book of Job, particularly as presented by William Blake, was a key teaching text for Bateson. He described its concluding chapters, in which God speaks to Job from out of the whirlwind, as the “most extraordinary sermon ever written.”¹ For Bateson, that sermon consisted in God telling Job “that he does not know any natural history: ‘Knowest thou the time when the wild goats of the rock bring forth? Or canst thou mark when the hinds do calve? Canst thou number the months that they fulfil? Or knowest thou the time when they bring forth?’”² This, for Bateson, was “a thunderous lesson in natural history and … the beauty of the natural world.”³

That lesson touches upon not only wild goats and hinds, but stars, clouds, oceans, the wind and rain, birds, lions, wild oxen, ostriches, horses, hawks, hippopotami, and whales. Bateson interpreted the story as charting a process of psychological crisis that is resolved when Job reconnects with the larger ecological gestalt and longer geological time. A similar process can be found in Eduardo Kohn’s account of a time in his life when he was overcome by feelings of anxiety and anguish. Then, while walking along the banks of a river, he spotted a tanager at “the scruffy edges of town where molding cinder blocks meet polished river cobbles.” Finding the tanager with a pair of binoculars, Kohn describes how, as the bird came into focus, he “experienced a sudden shift”: “My sense of separation simply dissolved. And, like the tanager coming into focus, I snapped back into the world of life.”⁴

Kohn explains this moment in biosemiotic terms: his suffering was the result of “the constructive quality of symbolic thought.” Symbolic thought creates virtual worlds
such that it “makes anxiety possible.” What is needed when symbolic thought runs wild, Kohn asserts, is to counter it with the “indexical grounding” that bodies provide: “sighting that tanager in the bush at the messy edge of town taught me something about how immersion in this particularly dense ecology amplifies and makes visible a larger semiotic field beyond that which is exceptionally human, one in which we are all—usually—emplaced. Seeing that tanager made me sane by allowing me to situate the feeling of radical separation within something broader. It resituated me in a larger world ‘beyond’ the human. My mind could return to being part of a larger mind.” I think that Bateson would have noticed a pattern connecting Kohn’s tanager and Job’s hinds.

As many critics have pointed out, Terrence Malick’s The Tree of Life is an adaptation of The Book of Job. The film begins with an epigraph from Job that signals an interpretation similar to Bateson’s: “Where were you when I laid the foundations of the earth? … When the morning stars sang together, and all the sons of God shouted for joy? (Job 38: 4,7)” (figure 55).
At one point in the film, the O’Brien family hears a sermon on the subject of Job. The film’s protagonist is named Jack O’Brien (J. O. B.), and he must come to terms with the lingering pain of a family trauma that has left him struggling with questions about why bad things happen to seemingly pious people. Moreover, the film is framed by images of an abstract “voice from the whirlwind” and, like Job, Jack learns to situate his personal struggles in a broader context, in this case, the life and death of the planet and the evolution of life.

Bateson presented his thoughts on the Job story during a speech at California’s annual Governor’s Prayer Breakfast in 1976. In that context, the story was not meant for individual spiritual contemplation but as a call for politicians to reorient to a broader ecological view. “I, as a citizen, would be much happier about the world in which I live, about how my civilization is going to treat that world, the sorts of pollution and exploitation that the civilization is going to engage in, and all the rest of that, if I felt sure that my governors and my representatives knew how many months the hinds do keep and where they bring forth their young.” In another venue, Bateson modulated that sentiment in a way that Kohn might appreciate, advising his readers that they should never vote for a candidate who was “neither a poet nor an artist nor a bird-watcher.”
Notes


7 “We vanish as a cloud,” the priest says. “We wither as the autumn grass, and like a tree are rooted up.”


“I GIVE THEE ALL, I CAN NO MORE”

Bateson liked to quote the following episode from Lewis Carroll’s *Through the Looking-Glass* (1871).

“You are sad,” the Knight said in an anxious tone: “let me sing you a song to comfort you.”

“Is it very long?” Alice asked, for she had heard a good deal of poetry that day.

“It’s long,” said the Knight, “but very, very beautiful. Everybody that hears me sing it—either it brings the tears into their eyes, or else—”

“Or else what?” said Alice, for the Knight had made a sudden pause.

“Or else it doesn’t, you know. The name of the song is called ‘Haddocks’ Eyes’.”

“Oh, that’s the name of the song, is it?” Alice said, trying to feel interested.

“No, you don’t understand,” the Knight said, looking a little vexed. “That’s what the name is called. The name really is ‘The Aged Aged Man’.”

“Then I ought to have said ‘That’s what the song is called’?” Alice corrected herself.

“No, you oughtn’t: that’s quite another thing! The song is called ‘Ways and Means’: but that’s only what it’s called, you know!”

“Well, what is the song, then?” said Alice, who was by this time completely bewildered.

“I was coming to that,” the Knight said. “The song really is ‘A-sitting On A Gate’: and the tune’s my own invention.”

Bateson used this perplexing dialogue between Alice and the White Knight to illustrate the notion of logical types: the different levels of conceptual categorization that need to be kept distinct when moving from description to argument. Confusion arises between names of things, classes of things, and names of classes of things. The name of the song is called “Haddock’s Eyes”: that’s not the name of the song, that’s what the name is called.2

Bateson made extensive use of the concept of logical types, which was originally developed by the philosopher Bertrand Russell as a way of avoiding logical paradoxes in mathematics. Russell’s remedy for avoiding the “vicious circle” of reasoning that arises from statements like “This sentence is false” involved “distinguishing members of a class from the class as a whole and disallowing members of a class to refer to or presuppose the existence of the class.”3 In the case of “This sentence is false,” “false” and “true” are ways of classifying sentences; a higher order of abstraction. The paradox arises from a member of a class (a sentence) that refers to the higher logical level.

Bateson explained that statements and statements about statements operate at two different levels, and their combination could result in logical paradoxes. He gave the example of a frame drawn on the blackboard with the words written inside: “All propositions in this frame are untrue.” If it is untrue, then it is true. The system oscillates: if yes then no; if no then yes. Here is where Bateson saw the great potential of cybernetic thinking. Logicians might reject contradictions of this type, but oscillatory systems were the bread and butter of cybernetic investigation (see OSCILLATION, THERMOSTAT).4

In the case of the dialogue with the White Knight, Alice confuses two levels: the song and the name of the song. To make matters worse, both song and name are “called”
something else. The name is ‘The Aged Aged Man’ but it’s called ‘Haddocks’ Eyes’; the song is ‘A–sitting On A Gate’ but it’s called ‘Ways and Means.’ After the White Knight’s performance, Alice adds yet another level of complexity when she recognizes that the tune is not his own invention, but the old hymn, “I Give Thee All, I Can No More”: names of things, classes of things, classes of names of things and names of classes of things.

Jan Švankmajer did not include the scene with the White Knight in his version of Alice and in fact, largely dispenses with Lewis Carroll’s witty wordplay. Carroll’s interest in logical types remains however, and is given visual expression by a relentless nesting of interiors: rooms within houses; desks within rooms; drawers within desks, leading to further houses and rooms and desks and drawers (figure 56).
Notes


3 Hui, Cashman, and Deacon, “Bateson’s Method: Double Description. What is It? How Does It Work? What Do We Learn?” 84–85. “Classes are always about conglomerates of members, making classes a higher order abstraction with respect to the members exemplifying it.”

4 UCSC, LCD9773, Gregory Bateson Archival Recordings from the Esalen Archive, “Cultural Relativity and Religious Beliefs Part 1,” 1975–1980. Bateson explained: “What has really happened is that time gets put in. And the time has the effect that if proposition P is true at time–1, then it is untrue at time–2; if it is untrue at time–2, then it is true at time–3; and so on. It swings and the whole thing exists in time.”
Bateson told the story of how, at boarding school, he became a long-distance runner. Though not athletic by nature, Bateson had discovered that the school’s running path went through a woodland area. He was interested in the wildlife in the woods, and on his runs, he would collect beetles. “I think I hold the world’s record for how long you can spend on a two-mile long-distance run,” he said. “It’s about an hour and a half!” This anecdote provides another snapshot of Bateson’s upbringing and his longstanding interest in natural history. We also learn that certain places are particularly appealing to amateur insect collectors like the young Bateson. This is because they are ecotones: the term for a zone of transition between adjacent ecological systems where there is often heightened interaction and biodiversity. Bateson explained that it was at the interface that you find species associated with multiple adjacent ecosystems. “I know it empirically,” he said. “If you’re looking for things like insects … that’s where you find the stuff.” In the book *Angels Fear*, co-written with his daughter Mary Catherine Bateson, interface is defined as “a surface that forms the meeting place between two regions” and that serves to define a boundary between systems while simultaneously facilitating information exchange and interaction between them (see SMOKE RING).

The interface concept has broad resonance across the sub-fields of the environmental humanities where Bateson’s influence has taken root. In systems theory, interface is an essential concept for understanding self-organizing systems that maintain an internal networking that “continually reproduces itself within a boundary of its own making.” In biosemiotics, membrane structures are understood as the site of constant
activity, where “molecular messages are exchanged in order to bring biochemical functions on the inside and the outside of these interior membranes into accordance.”  

Semiosis involves a signal that crosses such a membrane: Wendy Wheeler argues that signs “form a bridge, passage or interface between the world of the subject and the world of objects.”  

Jesper Hoffmeyer writes that a crucial step in the evolution of life was the generation of a closed membrane around autocatalytically closed chemical systems to create “a basic asymmetry between an inside and an outside, making the membrane a potential interface structure through which the autocatalytic mix on the inside might learn to adjust cleverly to the conditions outside.”  

This elemental evolutionary development is given visual expression in Terrence Malick’s The Tree of Life (figure 57).

Interfaces are also important to Hubert Zapf’s cultural ecology, especially in his discussion of “the special significance of the seashore for a cultural ecology of literature.”
Zapf writes that the beach is located at the interface of water and land and so is “an especially intensive contact zone” between “culture and nature, between habitable and uninhabitable spheres.” 9 “In the liminal space of the beach,” Zapf continues, “heterogeneous phenomena and forces meet, each of which represents necessary but contradictory conditions of human life and culture—the solid and the fluid, the habitable and the uninhabitable, the graspable and the ungraspable, the limited and the unlimited, the historical and the transhistorical.” 10

Following Zapf, we might notice how the seashore functions in Mindwalk and The Tree of Life. Mindwalk is set on Mont Saint-Michel, a tidal island off the coast of Normandy. As the film’s characters engage in a conversation that explores the interface of the graspable and the ungraspable and the blurring of solid and fluid in quantum physics, the coastal setting motivates images of the rising tide that rhyme with the conversation and underline their location at the boundary of the habitable and uninhabitable (figure 58).
Zapf’s cultural ecology also sheds light on a sequence in *The Tree of Life* that has divided critics: Jack O’Brien’s encounter with his family on a heavenly seashore. For some critics, the beach sequence in *The Tree of Life* is heavy-handed, lacking in subtlety, and employs imagery that, unlike the rest of the film, is prosaic and predictable.¹¹ Zapf provides testimony for the defense. Zapf writes that “the beach is a place where historical time is both present and suspended and where the archaic origins of life and culture can be experienced as coexisting in sensory immediacy with prevailing social conditions. It is a place where deep time and local time concur, merging our civilizational sense of historical linearity and uniqueness with an awareness of the transhistorical co-evolution of human and nonhuman life.”¹²

From Zapf’s perspective, the seashore is a perfect place for *The Tree of Life* to harmonize timescales of a human lifetime and the archaic origins of life, as well as the inner world of memory and the outer world of relationship. The beach setting allows the O’Brien’s family history to be grounded in other temporal scales, ranging from the moment to moment lapping of the waves and cries of the sea birds to the cycles of the tides and the deep time of biological evolution (figures 59, 60, and 61).
Bateson explained that he was brought up to believe that “all athletics were designed to make cannon fodder of us; that the purpose of athletics was to make us into soldiers. And I was brought up in a family that had almost complete contempt for soldiering, [and] regarded the war as a piece of commercial rip-off. So I wasn’t very good at athletics.”


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1 UCSC, LCD10294, *Gregory Bateson Recordings 1979, pt. 1*, “Work Scholars—Mar. 12,” 1979. Bateson explained that he was brought up to believe that “all athletics were designed to make cannon fodder of us; that the purpose of athletics was to make us into soldiers. And I was brought up in a family that had almost complete contempt for soldiering, [and] regarded the war as a piece of commercial rip-off. So I wasn’t very good at athletics.”


4 Bateson and Bateson, Angels Fear, 209.


6 Jesper Hoffmeyer, Biosemiotics (Scranton: University of Scranton Press, 2008), 27.

7 Wendy Wheeler, Expecting the Earth (London: Lawrence and Wishart, 2016), 59.

8 Hoffmeyer, Biosemiotics, 34.


10 Zapf, Literature as Cultural Ecology, 191.


12 Zapf, Literature as Cultural Ecology, 191.
Bateson recounted the incident when the ethologist Konrad Lorenz heard the sounds of jackdaws on the roof of his house. Lorenz was studying the jackdaws and recognized the sounds of fighting. Hurrying outside to see what was happening, Lorenz was surprised to find that no birds were actually fighting. Instead, a bird he knew as “Old Bill” was making fight noises; essentially, talking to himself about fighting. None of the other birds seemed disturbed by this. What was intriguing to Bateson about this anecdote was that there seemed to be a piece of information that the jackdaws were sharing that allowed them to understand that this was only noise about fighting. Here was an indication that animals recognized a signal as a signal. “Many things become possible,” Bateson stated, “when you have the meta-information that this signal is a signal.”

Bateson told the story of Lorenz and Old Bill as a way to begin an account of his research into the topic of play. Spurred by Lorenz’s experience, Bateson’s next step was to go with his colleague Weldon Kees to the San Francisco Zoo in order to see if any of the animals were aware of their signals as signals (see Zoo). They were looking for signals that communicated messages like, “Listen, I’m going to make a signal,” or “No, I didn’t mean that. I meant something else.” They were looking, in short, for classification of behavior (see I GIVE THEE ALL). They found it in the play of two river otters, and subsequently made the film, The Nature of Play: Part 1, River Otters (1954). Play involves the classification of signals since a given action could be either an act of serious aggression or part of a game. Play behavior involves signaling that a bite is a play bite: not a real act of aggression. Bateson gave the example of two dogs who approach each
other and need to communicate, “We are not going to fight.” “Fight” is communicated by “the showing of fangs,” but it is then necessary for the dogs to discover that this was “only exploratory”: “They therefore engage in a brawl; discover that neither ultimately intends to kill the other; and, after that, they can be friends.”

Moving from otters and dogs to people, Bateson’s work on play was an important influence on the study of social interaction by the sociologist Erving Goffman. Goffman was interested in the ways in which a given activity could be “re-keyed” from being understood as say, an authentic ceremony to a session of make-believe or a historical reenactment. King of Hearts presents variations on this theme with its satiric church service, coronation ceremony, military exercises, marriage, and commercial interactions.

Lewis Carroll’s “Alice” stories offer another instance of framing and meta-communication, with Alice’s dreamlike adventures revealed to be sessions of imaginative play or fantasy incorporating common nursery objects like a deck of cards and chess pieces. Švankmajer’s Alice ends with Alice waking up surrounded by the mundane objects—cards, dolls, blocks, an inkwell, a pin cushion—that were transformed into the surreal settings and characters she encountered in what we are now to assume was a dream. Eager to shatter the reassuring line between dream and reality, Švankmajer proceeds to show us that the taxidermy rabbit who led Alice on her adventures has escaped from his display case in the frame story’s waking reality. “He’s late as usual,” Alice thinks. “I think I’ll cut his head off” (figures 62 and 63).
In Bateson’s terms, we might say that narrative frame stories exist on a higher level of abstraction than the scenes contained within, and communicate a categorization or assessment of those interior scenes: “This was all a dream or a session of a child’s imaginative play,” for example, “so don’t take it too seriously.” In cybernetic terms, the frame story works through a process of calibration (see THERMOSTAT). Giving his film the shape of a logical paradox, Švankmajer flattens the distinction between those two levels of the narrative, removing the reassurance that the frame of waking reality is a separate and higher level of experience, folding the system in on itself to become a vertiginous closed loop that oscillates endlessly.
Notes


5 Bateson, Steps to an Ecology of Mind, 141, 178, 181. Bateson described the difficulty of expressing negative statements in nonverbal communication, forcing animals to say “the opposite of what they mean in order to get across the proposition that they mean the opposite of what they say.”

6 Goffman defined frames as “definitions of a situation … built up in accordance with principles of organization which govern events—at least social ones—and our subjective involvement in them,” Erving Goffman, Frame Analysis (Boston: Northeastern University Press, 1986), 10–11. On play, see p. 41.
J. S. BACH

Bateson described listening to J. S. Bach’s “Goldberg Variations” under the influence of LSD. He had taken the drug in order to think about “the problems of aesthetic order” (see LSD). Bateson was struck by how Bach’s music involved the progressive modification of musical phrases: one is given a statement, and then the modification of the statement, the modification of the modification, and so on, in “a sort of endless dance of one modulation after another.” Bateson perceived a connection to the rhythms of the human body and in particular to the segmentation of the spine, with each vertebrae a modulation of the previous one.

The abductive leap from Bach variations to the spinal column is another example of Bateson’s desire to align mental and aesthetic life with natural forms (see GRASS, HAND). We also find here his interest in the horizon between conscious and unconscious experience. The LSD experience had showed him that aesthetic beauty had something to do with the overloading of his intellectual capacity. At a certain point, the patterns of Bach’s music went beyond what he could process analytically, and it was just at that point that he started to feel they were beautiful. “There’s something rather mysterious in that,” he said. “Modulations of modulations of modulations” (see ZOO).

Bach makes an appearance in both Mindwalk and The Tree of Life. In Mindwalk, the poet Thomas (John Heard) plays “the simple and beautiful notes of a Bach melody” on the organ in the Mont Saint-Michel chapel. The melody becomes the means to grasp system theory’s concern with relations rather than things. “The relationship between time and pitch makes melody: relationships make music,” Thomas declares. The physicist
Sonia (Liv Ullmann), who has been talking about atomic physics, responds:

“relationships make matter” (figure 64). 5

In *The Tree of Life*, we see Jack’s father play Bach on the organ in their church. This is a significant scene because it complicates the relationship the film has established between “the way of grace” and “the way of nature.” Mr. O’Brien is the embodiment of the “way of nature,” which is characterized by worldly ambition, survival of the fittest, and a harsh regime of parental discipline, and yet he is also capable of creating the sublime, delicate, spiritual harmonies of Bach (figure 65).
Bateson’s preference for classical forms is also reflected in his taste in movies. One of his favorites films, *Children of Paradise*, was “designed to be classic in the art-historical sense” according to film scholar Dudley Andrew, with its balanced oppositions of different characters, social strata, and forms of theater, as well as the “effortless unrolling of its elegant, geometric plot” (see DREAM). The film is divided into two parts, each of which opens with the image of a symmetrical theatre proscenium with classical columns (figure 66).
Andrew points out that motifs in part one are “answered, and often inverted” in part two, with the tragedian turning whimsical and the comic mime becoming tragic. Children of Paradise then, is a segmented cinematic dance of one modulation after another.
Notes


6 Bateson was interested in artistic expressions that went beyond rational thinking and explored formal relations. “It’s very clear to me that the rigidity of poetry, the fact of its restrictive rhythms and things of this kind, are in themselves ways of talking about the universe in which we are. Quite apart from the words. …The fact of the rhythm, the fact of the human response to rhythm, of the human creation of rhythm becomes … a

Bateson worked briefly as a film analyst at the Museum of Modern Art in New York City. There he developed an idiosyncratic approach to film analysis, which began by attending a screening of the film. Then, after letting the film reverberate in his mind for a few days, he would create a schematic diagram of the various forces and individuals in the film and how they were juxtaposed. Next, he would go back to see the film a second time, entering the theatre halfway through the movie’s runtime. That is, he watched the second half of the movie first. He’d then go and have a cup of coffee and wait until the film was shown again. Now he watched the film from its start to the midpoint, thinking about the beginning as a function of the end. In other words, he considered what was needed at the start of the film to make it end the way it did. As the result of this method, Bateson claimed that a movie quickly began to “fall to pieces,” and the work of film analysis became a matter of “very simple dissection,” which he compared to the dissection of a snail. The internal organs of a snail are not tied together with connective tissue and so one simply had to open the animal and wave a scalpel around in the water and “the parts separate out beautifully.” “Dissecting a movie is like that,” he said.¹

King of Hearts is one of the few narrative feature films to be mentioned in the audio archive of Bateson’s seminars and lectures. I therefore decided to take it as the subject of Bateson’s method of film analysis. I watched King of Hearts and then made a diagram of the relationships in the film. Thus laid out, the film appeared as a system of nested interfaces. On the outermost level are the opposing British and German armies, which meet at the point of the French town where the film’s action takes place. Within
the town is another interface between the townspeople and the asylum. Within the asylum, there is a further separation of men and women.

The narrative follows Plumpick (Alan Bates) as he moves across these various thresholds, in the process generating a series of contrasts and comparisons. We are meant to see the similarities between the two armies: both are hierarchical, brutal, and absurd. We are meant to see the differences between the inmates and the outside world. The film, like much of Bateson’s analysis, “jumps the middle” to the extent that we don’t see much of the townspeople after the first few minutes of the film. Expanding the role of the townspeople would have allowed for a more complex set of comparisons between town and asylum, or between townspeople and military combatants (see GARDEN).

My diagram helped me to see the film’s system of relationships, and also to appreciate the significance of its visual motif of interfaces such as gates, walls, cages, and windows (see GARDEN). In one scene, Plumpick attempts to lead the inmates out of the town to safety but they refuse to go beyond the gates. The boundary is emphasized by the soundtrack: at the moment that Plumpick moves across the threshold, the joyous music we’ve been hearing abruptly cuts out. In an image that was often reproduced in the film’s promotional materials, the inmates stand at the boundary line of the town’s walls watching Plumpick leave (figure 67).
Bateson’s method of film analysis is useful for identifying narrative patterns through the diagram exercise, while at the same time, it decenters the narrative through the technique of watching the film from its mid-point, which feels a bit like contemplating a painting turned upside down. The narrative pathways established in the opening scenes, which indicate the film’s intended reception, become less determinative, allowing new pathways and connections to emerge. Bateson’s method of film analysis is symptomatic of his interest in developing a kind of scientific rigor that left space for unconscious processes. Bateson said that cultural texts like poetry had to be handled “with enough gentleness” that they retained their “wildness,” and that analysis should be applied in a way that “will not destroy the quality of that which you are analyzing.” The goal is to dissect the snail without killing it.
Notes


Bateson often made reference to a scientific insight that he attributed to Johann Wolfgang von Goethe, which was that the parts of a plant—stem, leaf, bud—were defined by their relationship to each other. A stem is that which bears leaves and was once a bud; and a leaf is that which has a bud in its angle.¹ For Bateson, this was not only a lesson in botany, but also a lesson in communication. In fact, the parts of speech—noun, verb, etc.—were also best defined in terms of relationship: a noun has a certain relationship to a predicate; and a verb has a certain relationship to a noun. The point is illustrated by the paradoxical statement, “Go is a verb.” In that sentence of course, “go” is a noun. Bateson concluded that there were similarities between the grammar underlying anatomy and the grammar underlying sentences.²

Bateson identifies a pattern which connects language (parts defined by relationship) and plant growth (parts defined by relationship). Bateson’s insight is the result of abduction, a form of logical syllogism that, unlike induction and deduction, does not require identified classes that exist only in language (see GRASS¹). Instead of starting with classes defined by language, abduction produces novel forms of categorization through the identification of similarities.³ In abduction, Bateson found a way to align human thought with natural phenomena, as for example, in the formal similarity that indicates a deeper connection between “a human hand and the wing of a bat,” or between the structure of language and the growth of leaves (see HAND).⁴

With regards to the parts of speech, one result of the abductive leap was to enliven learning. The boredom of analyzing sentences in school could be alleviated by
connecting the exercise with the workings of the living world: “the shapes of animals and plants are transforms of messages. Language is itself a form of communication … Anatomy must contain an analogue of grammar because all anatomy is a transform of message material.” The lesson that the anatomy of living things and the anatomy of speech are analogous phenomena is a biosemiotic one. We are in the midst of “a massive heaving of protoplasm and its messages all the time,” Bateson said, and this omnipresence of messaging “gives you an idea of what ‘mind’ is.”

Terrence Malick’s The Tree of Life contains a number of visual abductions; that is, graphic similarities that suggest a shared categorization at a higher level. Images from the Hubble Telescope of distant galaxies rhyme with clouds of DDT, a meteor striking the Earth rhymes with the rock Jack throws through a neighbor’s window, and the gesture of a dinosaur rhymes with a gesture between brothers. These visual abductions prompt the kind of question that Bateson liked to pose: what is the larger pattern which connects these things?
Notes


5 Bateson, *Mind and Nature*, 16.

6 UCSC, LCD10291, *Various Recordings*, “Education and Learning.”
Bateson took LSD on several occasions, once with Harold Abramson in the 1950s, and once with Dr. Joe K. Adams of the Palo Alto Mental Research Institute. He stated that one reason he took the drug was to study the aesthetic organization of behavior (See J. S. Bach). He recalled how, during the latter session, Adams said, “Gregory, you think too much.” Adams took a rose out of the garden and showed it to Bateson. “Stop thinking,” he said. “Take a look at that.” Bateson looked at the rose and said, “Gee, Joe, think of all the thought that went into that.”

His response to the rose in this anecdote indicates his view of evolution as a “mental” process, with the result being that the production of a rose required a great deal of thought (see Redwoods). In the end, Bateson found LSD’s effects to be “very pretty” but also rather “trivial.” It was like seeing the patterns of cracks in broken glass, he wrote. One sees the cracks, but not the substance, that is, the glass.

A more profound experience of perceptual transformation occurred when Bateson encountered the optical experiments created by the ophthalmologist and perceptual psychologist Adelbert Ames Jr. Bateson visited Ames’ lab in the early 1940s and referred to the experience as “one of the determinative moments” in his life. He often described the uncanny experience of Ames’ “size-brightness” demonstration, which uses balloons to reveal how the relative size and brightness of objects determine our assumptions about their relative distance, as well as the “parallax” demonstration, which shows how our judgments about distance are based on how we move in relation to objects. Even more than the experience of LSD, Ames’ optical illusions confirmed...
Bateson’s assertion that the map is not the territory; that unconscious processes create our perception (see DOT, OUTLINES). It was a deeply disconcerting morning for Bateson when he first encountered Ames’ demonstrations. He described leaving the lab and being so disconcerted that he could “scarcely cross the street”: he was unsure if he could believe what his eyes were telling him about the movement of oncoming traffic.  He had lost faith in the images he was unconsciously creating. Think of all the thinking that goes into the image of an oncoming car.

Perhaps the most famous of Ames’ demonstrations is the “distorted room,” which looks like a normal rectangular space from one vantage point, but in fact has been carefully designed so that it distorts the relative size of objects placed within it. The Ames distorted room has become a tool for the creation of cinematic special effects, and can be seen in Willy Wonka and the Chocolate Factory (1971), The Lord of the Rings (2001–2003), and Eternal Sunshine of the Spotless Mind (2004). The Ames room may also have been used in several scenes in a version of Alice in Wonderland made in 1972 (figures 68 and 69).
Notes


4 Biographer David Lipset wrote that Bateson “frequently referred to two personal experiences, when discussing the importance of perceptual transformation”: the LSD experience and “the experiments with optical illusions in depth perception” by Ames, Lipset, p. 273. See Roy R. Behrens, “The Life and Unusual Ideas of Adelbert Ames, Jr.,” Leonardo 20, no. 3 (1987): 273–79.


During his seminars, Bateson sometimes gave his students the following exercise. Imagine a man standing in front of a mirror. He is shaving with his right hand and notices that his image in the mirror is shaving with its left hand. He asks himself, “Why is there a reversal of right and left but not a reversal of top and bottom?” Explain.1

As he often did, Bateson begins with a mundane image—a man shaving—and then plunges his students into deeper waters. The trick of the exercise is that it requires the student to disentangle two kinds of description.2 Bateson explained that the words “right” and “left” are in an interior, subjective language, while “top” and “bottom” are in an external, objective language. That is, top and bottom are definable outside the observer (as are east and west), but right and left are in a language that is meaningful only from the point of view of the bilaterally symmetrical observer.3 To get an embodied sense of the difference, recall your own early efforts to distinguish right from left, likely involving a scaffolding of “R” and “L” symbols drawn on hands and shoes. You did not have a similar difficulty learning up and down.

The concepts of right and left, Bateson continued, were actually quite mysterious and impervious to exact definition in words. To illustrate he noted that the Oxford English Dictionary defined “left” as: “Epithet of that side of the body which is usually the weaker.” Another dictionary defined “left” by saying that if you stand on the equator and face the rising sun, the left is the side closest to the North Pole. Both definitions grapple with the difficulty of describing these concepts in words without using an ostensive object as a point of reference.4
One lesson to be learned from this exercise has to do with logical types, since it demonstrates the confusion that can arise from moving from one level of description to another. It also makes the biosemiotic case for provincializing human language by revealing the difficulty of mapping words onto embodied experience (see Crustaceans). As a visual figure for this exercise, we can hardly do better than a captivating image that appears as a fragment of Jack’s early childhood memory in The Tree of Life: a pair of disembodied hands reflected in a mirror (figure 70).
Notes


4 UCSC, LCD10289, *Gregory Bateson Recordings 1977, pt. 2*, “Pathways of Separation and Unity,” 1977; UCSC, LCD10234, *Gregory Bateson Recordings 1975, pt. 2*, “History of Consciousness,” 1975. The current definitions in the *Oxford English Dictionary* are as follows. For “right”: Designating that side of the human body which contains the hand which is favoured in use over the other (left) hand by the majority of humans, or which is to the east when a person is facing north.” And for “left”: “Designating that side of the human body which is to the west when a person is facing north, and which contains the hand which is less likely to be favoured in use over the other (right) hand by the majority of humans.”
Bateson made a distinction between maximization and optimization. In the biological realm, he argued, there are no variables that can be maximized. We need oxygen to live, but too much oxygen becomes toxic. The same goes for water and nutrients: all are good up to a certain quantity but too much of them becomes lethal.¹ Money, Bateson argued, stood in stark contrast to this, by suggesting that there is a central variable in human life that could be maximized: $101 is always better than $100 and so on. Money was thus a profoundly anti-biological entity, and encouraged people to make decisions based on a false philosophy.² In the biological world, variables have to be optimized, not maximized.

Bateson’s distinction between maximization and optimization emerges from a cybernetic approach to feedback loops. A positive or “reinforcing” feedback loop is a pattern that is “amplifying, reinforcing, self-multiplying, snowballing—a vicious or virtuous circle that can cause healthy growth or runaway destruction.”³ Bateson emphasized the ecological implications of such runaway systems, and criticized the accepted economic wisdom that the Gross National Product should increase every year: that system would eventually break down, despite the invention of new technologies to make its symptoms “a little more comfortable to live with.”⁴ One reason for protecting wilderness areas, he asserted, was to serve as reminders that living systems are deeply interdependent in ways that are optimizing rather than maximizing. Wilderness is a place where one could discover that sheer quantity is not the point.⁵

In Mindwalk, the scientist Sonia and the politician Jack find common ground in their shared concern about “the obsessive pursuit of growth.” Giving expression to
Bateson’s motto, “the larger gestalt; the longer time,” Sonia declares that “we have to give importance to the next generation. And the next…. See, it was only when we failed to include them in our scientific theories and in our pursuit of growth that we placed all living systems in jeopardy.”6
Notes

1 Bateson, *Steps to an Ecology of Mind*, 335.


Bateson was fascinated by the behavior of mountain climbers. Halfway up the mountain their legs start to ache, their lungs start to burn, their head starts to pound, and their blisters sting. The obvious, commonsense thing to do in such a situation is to sit down, eat lunch, and go home.¹ Mountain climbers however, keep pressing on into more suffering and pain until they achieve their goal. For Bateson, this behavior was both peculiar and non-trivial.²

Bateson had firsthand experience with the kind of person who engaged in this odd behavior: his English teacher at school was George Leigh Mallory, who climbed Mount Everest on three occasions. It was Mallory who, when asked why he wanted to climb Everest, had uttered the famous reply, “Because it’s there.”³ Mallory died during his third expedition to Everest in 1924.

Bateson talked about mountain climbing as part of his discussion of addiction.⁴ Like the recovering heroin addict who resists the commonsense, immediate urge to eliminate painful withdrawal symptoms with a hit of the drug, mountain climbers ignore short-term pain for more abstract long-term payoffs.⁵ Mountain climbing, Bateson asserted, was an example of an organism behaving in a way that was “anti-hedonistic,” and it offered hope to counterbalance the fear that the overconsumption of modern society would inevitably wreck the environment. Mountain climbers demonstrated the potential for humans to put themselves voluntarily into “double bind” situations in order to achieve a painful long-term goal. Bateson wasn’t a mountain climber, but he had overcome a powerful addiction: he smoked three packs of cigarettes a day from the age
of eighteen to sixty-eight. The sensible thing to do when experiencing his blinding withdrawal symptoms was to have another cigarette. To act against immediate comfort was “an extraordinary mystery,” he said, and he asserted that the study of addiction was of vast importance for “any understanding and even hope for the species.”

Bateson’s interest in “anti-hedonist” behavior as a counter to environmental crises resonates with Kate Soper’s notion of “alternative hedonism,” which calls for fostering disenchantment with consumerism through the creation of seductive alternative pleasures. Soper writes that an anti-consumerist ethic should appeal “not only to altruistic compassion and environmental concern but also to the more self-regarding gratifications of consuming differently: to a new erotics of consumption or hedonist imaginary.” The study of addiction in Bateson’s ecological terms can be an ally to that project.

When it came to ecological matters, Bateson tended to be the source of rather gloomy prognostications. A quiet undercurrent of hope can be found in his work however, which surfaces in surprising ways. His enthusiasm for mountain climbing is one example, and he also made an impassioned argument for cheese. Here was one of the few harmless inventions of the human species he stated, one that extends resources by saving food from rotting and does not increase the destruction of natural habitats. Hope was the central theme in an essay he wrote in 1942 as part of the war effort (see MOVIE HOUSES). The goal of public communication, he wrote, should be “a nameless, shapeless, unlocated hope of enormous achievement. For such a hope to be effective, the achievement need scarcely be defined. All we need to be sure of is that, at any moment, achievement may be just around the corner.” “We have got to be like those few artists and scientists who work with this urgent sort of inspiration,” he continued, “the urgency that comes from
feeling that great discovery, the answer to all our problems, or great creation, the perfect sonnet, is always only just beyond our reach.”

In *Mindwalk*, we meet a disillusioned scientist and poet, both of whom seem to have lost the “nameless, shapeless, unlocated hope” that Bateson describes. The film makes some of its own gloomy prognostications, but ends with a fragile sense of hope, since an urgent sort of inspiration seems to have returned to the scientist and poet through their encounter with a politician who is described as “the eternal optimist.”
Notes


4 Bateson once defined addiction as “interactive process which leads to a cumulative change which enforces in some degree the continuation of the process,” UCSC, LCD10294, Gregory Bateson Recordings 1979, pt. 1, “Art and the Science of Psychotherapy,” 1979.


6 UCSC, LCD10289, Gregory Bateson Recordings 1977, pt. 2, “Phoenix,” 1977. “I think this whole field of addiction, anti-addiction and its paradoxes need a great deal of research and probably are the thing that we could most profitably spend time looking at.” See also Bateson and Ryan “A Metalogue,” 55. Bateson stated that addiction was “the single most important unresearched area in human relations.” UCSC, LCD10294, Gregory Bateson Recordings 1979, pt. 1, “Art and the Science of Psychotherapy,” 1979.


9 Gregory Bateson, “Comments on ‘The Comparative study of Culture and the Purposive Cultivation of Democratic Values,’” in Conference on Science, Philosophy and Religion in Their Relation to the Democratic Way of Life, Inc.: Second Symposium (New York: 1942), 97. He also gave the example of “the mother of a child who feels that, provided she pay constant enough attention, there is a real hope that her child may be that infinitely rare phenomenon, a great and happy person.” The goal was “a habit of rote sequences inspired by a thrilling sense of ever-immanent but undefined reward,” p. 97.

10 Byars, Capra, and Capra, Mindwalk: The Screenplay, 30.
In 1943, Bateson went to work for the American Office of Strategic Services as part of the war effort. He was sent to India, where the first thing he did in order to learn more about the culture was to go to the local movie houses. Fictional films, he said, were the best place to learn about the structure of cultural fantasies: “You can learn more about the human population and its state of mind in the fictional movies houses than anywhere else.”¹ What he found was that India’s fictional films were filled with disguised attacks on the British colonial authorities. He mentioned this fact to British administrators, and their response was, “What movies?” Not only had they paid little attention to film, but their attitude was that it was improper for a British person like Bateson to be attending the “vernacular movies.”²

Bateson often used British colonialism as an example of pathological patterns of human relationship.³ What was improper from the point of view of the British colonial authorities was a white British academic taking on the role of spectator vis-à-vis the Indian population, rather than asserting the power to put himself on display. Given his arrival in India in 1943, there is a good chance that one of the films Bateson saw was Kismet (1943), which features a song—“Dur hato o duniyawalon”—that is often interpreted as a disguised attack on the British Raj. Though it ostensibly rebukes the Germans and Japanese as part of the Allied war effort, nationalistic cries of “India is ours” and “Foreigners keep out” are easily transposed to the British colonial occupiers.⁴

Bateson’s story about Indian cinema also demonstrates his anthropological interest in popular film, and he analyzed films at the Museum of Modern Art around this
same time, where he crossed paths with the film theorist Siegfried Kracauer (see King of Hearts). In an examination of the Nazi film, Hitlerjunge Quex (1933), Bateson made an argument about popular film’s relation to national sentiment that is similar to the one Kracauer would later publish in From Caligari to Hitler (1947). Bateson writes that since a film is not “the idiosyncratic production of a single artist” but instead is “created by a group of filmmakers working in close cooperation and with an eye on a popular audience,” it therefore is “psychologically germane” to a specific society as a whole.\(^5\)

Bateson’s work on film was part of his larger engagement with political communication during World War II. Fred Turner notes that Bateson and Margaret Mead were part of a school of cultural anthropology that presented a “robust, scientifically legitimate challenge to the race science of the Nazis … and to the racism of American society as well.”\(^6\) The two anthropologists grappled with the challenge of how the Allies might develop instrumental wartime communication without succumbing to the propagandistic techniques of the fascist enemy.\(^7\) Bateson wrote of “a basic and fundamental discrepancy” between “manipulating people in order to achieve a planned blueprint society, and the ideals of democracy.”\(^8\) In a co-authored paper from 1941, Mead and Bateson wrote that “the moment the central agency begins … to see itself as a manipulator of puppets, propaganda becomes inevitable.”\(^9\)

These principles were put to the test when Bateson was asked to take part in “black radio” initiatives in Southeast Asia during the war. Black radio, he explained, was when you go on the air and pretend to be enemy nationals who don’t like their own government: for example, you pretend to be Nazi officers who don’t like Hitler, and encourage other officers to think the same way. Bateson was tasked with creating radio
programming to undermine Japanese propaganda in Burma and Thailand. He was reluctant to do this, and as quoted above, felt that the long-term effect of the usual strategy would be to undermine democratic principles. To paraphrase comments he made on religion and advertising: it’s not an awfully good idea to use the central values of the culture as instrumental, manipulative gimmicks, because before you know it, they cease to be the central values of the culture (see Vinegar).

Instead of the black radio model, Bateson advised the OSS to do the opposite: “We listened to the enemy’s nonsense and we professed to be a Japanese official station. Every day we simply exaggerated what the enemy was telling people.” Bateson’s approach avoided the amplification of a runaway feedback loop in which their lies are countered with our lies in a symmetrical competition that results in both sides losing credibility. A similar tactic can be found in the realm of popular comedy. Some performers, rather than transgress cultural norms for shock value, create an act in which the dominant ideological discourse is taken more literally than it is supposed to be taken. Such an “overconformist” mode can be found in Stephen Colbert’s exaggerated caricature of a conservative television pundit on “The Colbert Report” (2005–2014).
Notes


3 Bateson once outlined “two forms of colonial administration. There is that form of colonial administration which says that the natives have got to be like the colonists. This is missionary endeavor … and becomes a tyranny. The other form of colonial administration says that the natives have got to be like themselves and had better not change. … Then poetry freezes and everything dies and the flowers can’t make seed and nothing goes. So neither of these will do. To do either becomes imperialism,” Stewart Brand, II Cybernetic Frontiers (Berkeley: Random House, 1974), 33.

4 Rachel Dwyer, 100 Bollywood Films (London: BFI, 2005), 147.

5 Gregory Bateson, “An Analysis of the Nazi Film ‘Hitlerjunge Quex,’” Studies in Visual Communication 6, no. 3 (1980): 20–55. See Kracauer: “The films of a nation reflect its mentality in a more direct way than other artistic media” since “films are never the product of an individual. … Since any film production unit embodies a mixture of heterogeneous interests and inclinations, teamwork in this field tends to exclude arbitrary handling of screen material, suppressing individual peculiarities in favor of traits common to many people,” From Caligari to Hitler: A Psychological History of the German Film (Princeton: Princeton University Press, 1947), 5.


9 Gregory Bateson and Margaret Mead, “Principles of Moral Building,” *Journal of Educational Sociology* 15, no. 4 (December 1941): 218–19. They added that “the only way to avoid this result is to organize the whole system so that the central agency is firmly oriented toward discovering, encouraging, and servicing local initiative.”


NEW COLLEGE, OXFORD

Bateson told a story about the grand dining hall at New College, Oxford, which had large oak beams across the ceiling. At one point, an entomologist went up to the rafters and discovered that the oak beams were full of beetles. This was a dangerous situation because the beams could fall, and so the College Council met to figure out what to do. Where could they get beams of that size and quality to replace the old ones? The College Forester was called in and asked about the problem. “Well sirs,” he said, “we was wonderin’ when you’d be askin’.” In fact, when the College was founded, a grove of oaks had been planted to replace the beams in the dining hall should they ever become beetle-infested. The grove was still there, waiting. This plan had been passed down from one College Forester to the next for four hundred years. “A nice story,” Bateson concluded. “That’s the way to run a culture.”

The New College anecdote embodies the “seventh generation” ideal of Native American cultures that was adopted by the environmental movement. Bateson expressed a similar notion with his motto: “the larger gestalt; the longer time.” Along with his taste for Baroque music (see J. S. BACH), we could see the New College anecdote as expressing a certain antimodernist “ecomedievalism.” Rather than simply reject such a sentiment out of hand as nostalgia, I agree with Daniel Helbert that “environmental medievalism has the potential to provide both the historical context for our present environmental problems and the inspiration for some of their solutions.” It’s in that spirit that Bateson offers the New College story.
Mindwalk enacts a form of environmental medievalism through its setting at Mont Saint-Michel. When the politician Jack (Sam Waterson) first sees Mont Saint-Michel from a distance, he declares: “The Middle Ages got left behind on this rock. Time just moved on.” The stone masonry of Mont Saint-Michel pairs with the melodies of Bach and discussions of premodern temporality to provide a visual alternative to the modern mechanistic worldview and regimes of unsustainable growth. The director, Bernt Capra, wrote that he had chosen the location because he wanted to share “a certain elegiac feeling I always get in such places; that previous generations knew more about living in harmony with nature, and maybe also that in their lives the concept of beauty itself played a much bigger role than it does in ours.”

The film’s depiction of Mont Saint-Michel gets more complicated however, when it becomes a conceptual tool for grappling with the unimaginable scale of quantum physics. To illustrate her claim that atoms consist of vast regions of empty space, Sonia asks Jack and Thomas to imagine an atom blown up to the size of Mont Saint-Michel. The nucleus in that imaginary atom would be “the size of a small pebble,” the electrons “much smaller still,” and the rest empty space. The film’s promotional poster visualizes Sonia’s thought experiment, showing Mont Saint-Michel rising out of a smooth spherical mass that resembles a planet or atomic particle looming over the three characters engaged in conversation over lunch. Three spatial and temporal scales coexist in this promotional image: atomic; interpersonal; and historical. The result is not so much a monolithic relationship to time (nostalgic longing for the past) as a double (or triple) description of it (figure 71).
Notes


8 Notably, the cathedral has been used as a metaphor for the human body in systems theory: “the human individual is a part of a majestic cathedral of great complexity of detail, yet of sweeping simplicity and order in overall design. All parts express the character of the whole, yet all parts are not the same. This is the systems concept of
Oscillation

Clonus is a trembling of the leg that results from a spinal reflex. Bateson gave these instructions on how to create clonus. “While sitting, place the leg with thigh horizontal and foot supported on the floor. Move the foot inward toward you so that the heel is off the floor and the ball of the foot supports the weight of the leg. When the weights and angles are correctly adjusted, an oscillation will start in the muscle of the calf with a frequency of about six to eight per second and an amplitude of about half an inch at the knee.”¹ Clonus is a spinal reflex because it involves an oscillating loop of messages travelling from the muscle to the spine, and then back from the spine to the muscle without involving the brain. It is a reflex involved in walking, and functions without upper-level conscious control.²

Bateson’s discussion of clonus is symptomatic of his interdisciplinary style of thinking: he connects cybernetics to anthropology through a discussion of physiology. Spinal reflex was first discussed in cybernetic terms by Norbert Wiener, and Bateson encountered its cultural application during anthropological fieldwork in Bali, where he found clonus to be a resource for the creation of a trance state.³ He described a ritual in which participants took the “ego-alien” experience of clonus as a vehicle for inducing an “ego-alien” mental state. The ritual involved a string stretched between two bamboo sticks. On the string are hung two dolls with bells on their feet. Two men hold the sticks and set up clonus in their arms so that the dolls start to dance. Next, a young girl holds onto the stick and is shaken by the men’s clonus. She beats out a rhythm in time with a gamelan orchestra and then collapses into trance.⁴
Bateson found the theme of ego-alien or animated body parts in other aspects of Balinese culture: the idea that a hand could become independently animated, for example; or accounts of a person whose arm goes into trance; or ghost stories about legs that hop around a cemetery. The recurring theme was of body parts that could be “separately alive.”

Having identified a cultural pattern that connected different expressive forms in Balinese culture, he then made a comparison with his own culture, where he found a notable absence of that theme. Westerners, he said, tended to believe that mind is separate from body, not that mind is “separately in every part of the body.”

Bateson’s anthropological work with Margaret Mead in Bali has been the subject of some criticism in recent years. Fatimah Tobing Rony rejects Bateson and Mead’s suggestion that Balinese culture was “schizophrenic” and points out that their characterization of Balinese mothers as “frigid and cruel” was symptomatic of a trend in postwar America to blame women for the neuroses of their sons (see BREAD-AND-BUTTERFLY). Tobing Rony also notes the anthropologists’ restricted view of Balinese culture, which elided the discussion of history, colonialism, class, poverty, disease, and labor. In this case at least, we might say that Bateson was not interdisciplinary enough, given that he needed to supplement his cybernetic anthropology and social psychology with perspectives from social history and political theory.

Despite the limits of his anthropological engagement with Balinese culture, Bateson’s interest in culturally specific notions of mind/body relations remains suggestive. Fans of horror cinema may question Bateson’s assertion that animated body parts are not a feature of Western culture. Animated body parts can be found in the surrealist tradition as well. In Švankmajer’s Alice, stop-motion animation gives life to
what appears to be a cow’s tongue, various animal skeletons, and a piece of red meat (see 
SALMON). In one room, discarded socks burrow and squirm like worms, and Alice’s 
socks come to life and attempt to escape her feet (figures 72, 73, and 74).
Notes

1 Bateson, *A Sacred Unity*, 85.


8 Tobing Rony, “The Photogenic Cannot be Tamed,” 10. Tobing Rony concludes that their film, *Trance and Dance in Bali*, is “representative of a kind of anthropological imperialist blindness, ironic considering that these scientists believed and promoted the idea of their own superior vision,” 21.

Bateson was deeply influenced by the work of the artist, poet, and visionary William Blake.¹ His father, William Bateson, had a great appreciation for art (see VINCENT VAN GOGH) and owned Blake’s painting, “Satan Exulting Over Eve.”² Bateson often cited Blake’s poetry and prose, but he made less frequent reference to his visual works. Mention of two Blake images can be found in the audio archive of Bateson’s talks and seminars: Blake’s adaptation of the Book of Job (see HIND); and a peculiar drawing called, “The Ghost of a Flea.”

“The Ghost of a Flea” was part of a series of “visionary heads” that Blake drew in a collaborative project with John Varley, a landscape watercolorist who had an interest in phrenology, the pseudoscientific analysis of skull formation. Blake and Varley developed a technique for learning about historical figures in which Blake would conjure up a mental vision of the individual and then project that image onto paper, where he would draw an outline around it. Varley would then examine the shape of the skull and make assertions about the person, taking careful notes about the position of the planets at the time of the apparition.³

The most notable fact about “The Ghost of a Flea” for Bateson had to do with the details of its creation, as revealed in Varley’ notes. In Varley’s account, Blake was surprised by the flea’s appearance and began to draw the outline of the creature with its mouth closed. He paused his work however, and moved to the corner of the paper to start again, declaring that the flea had opened its mouth. Blake sketched the flea’s open mouth
and waited until the flea closed it again, at which point he returned to the first sketch and finished it (figure 75).
Bateson saw this strange episode as a lesson in art’s relationship to the unconscious. It was significant to Bateson that though Blake could decide on the subject matter of his visions, he “couldn’t quite control them.”5 “The act of causing the image to open or close its mouth is beyond Blake’s capacity,” he explained. “He has to wait for the flea, in spite of the fact that it is, in a certain sense, his flea.”6 As a parable of artistic creation, the episode thus illustrates how the artist works at the “interface between conscious and unconscious” (see VINEGAR, WATER SNAKES).7 “In a sense, what the artist is claiming is to be free to follow that which comes up,” Bateson said.8 In this context, an artistic vision gains authority to the extent that it is something to which the artist submits or surrenders. Indeed, for Varley, it was precisely Blake’s hesitation with regards to the flea’s mouth that most convinced him that Blake had “a real image before him.”9

The creation of “The Ghost of a Flea” suggests that dream, hallucination, and artistic vision are not under complete voluntary control, but Bateson liked to point out that neither were the images we form in everyday perception.10 Bateson often quoted Blake’s assertion that “wise men see outlines and therefore they draw them” to support his views on perception and difference (see DOT).11 Bateson was interested in the process whereby perception transformed external events into internal experiences. Drawing upon ideas from Gestalt theory, Bateson argued that human beings do not see a shower of impulses originating in the retina and traveling up the optic nerve. Instead we see “a man, a tree, or what not”: “the human being is thus able to categorize large areas of the picture in terms of Gestalten.” These processes lend a tremendous economy to perception, allowing us to recognize that a square is a square even if we see it from different angles, but it also tends to make us think in terms of “things” rather than relationships.12
Moreover, the great economy of this kind of codification is species-specific and ambivalent: “every Gestalt label is a man-made categorization of events in a universe which might be categorized in infinitely various ways.” Bringing the discussion back to Blake, Bateson stated that “if you can detect difference, then you can … see or receive news of outlines. And really, conceptually and philosophically speaking, you live in a world of outline drawings, and you create the corporeal world, as Blake called it, to fill in between the outlines.” To quote Blake: “Nature has no outline: but Imagination has.”

There is one other aspect of “The Ghost of a Flea” that is worth mentioning: it is a kind of proto-cinema. Note that Blake’s mental image is a moving image that he projects onto a blank screen to create a multi-frame representation that resembles a flipbook or thaumatrope. In fact, Blake’s process bears a resemblance to the animation technique of “rotoscoping,” in which live-action film footage is projected frame-by-frame onto a transparent drawing board where animators trace the outlines of the figures to provide a sense of realistic movement. The rotoscope was invented by the animators Max and Dave Fleischer and popularized by their “Koko the Clown” and “Betty Boop” cartoons. As animation critics have pointed out, there is an uncanny quality to rotoscoped figures that results from the way in which the technique confuses the ontological registers of photography and animation. It is as if the animated image is haunted by the unseen photographic body hidden behind it. In this respect as well, “The Ghost of a Flea” is a worthy predecessor, with its strange combination of spirit vision and drawn document. Returning to Bateson’s analysis of “The Ghost of a Flea,” perhaps the uncanny effect of rotoscoped images is tied to how they make visible a troubling aspect of our own perception: our unconscious habit of living in a world of outline drawings. Using
morphing software, I have attempted to recreate the moving mental image that haunts Blake’s sketch (see online version of the book).
Notes


2 Lipset, 53. Gregory grew up “at the feet of William Blake’s ‘Satan Exulting Over Eve,’” 105.


7 Bateson, Steps, 138.
8 UCSC, LCD10233, Gregory Bateson Recordings 1975, pt. 1, “Ecology, Karma and Evolution: Natural Selection among Ideas—Vancouver,” 1975. “I don’t see any reason to believe [artistic visions] are any more free than your fourth thoracic vertebrae is free to differ in a certain way, it does differ from the third thoracic vertebrae but I don’t think it’s free to choose which way to go…. I think these things are very much deeper.”

9 Butlin, “Blake, Linnell and Varley,” 134.


11 See Bateson, Mind and Nature, 91, 189.


13 Ruesch and Bateson, Communication: The Social Matrix of Psychiatry, 192.

14 Bateson, Sacred Unity, 277. See also Bateson’s metalogue, “Why Do Things Have Outlines?,” Bateson, Steps, 32.


Ryan Pierson, *Figure and Force in Animation Aesthetics* (Oxford: Oxford University Press, 2020), 115. Pierson writes: “The impression left thereby is of two separate things, one atop the other. The line cannot exactly act freely from the figure, but it cannot coincide with it either. Hence the tendency to describe it as a haunted body, one that is animated by a distant spirit yet remains in subtle ways resistant to it,” Pierson, *Figure and Force in Animation Aesthetics*, 131.
Bateson studied dolphins at the Makapuu Oceanic Institute in Hawaii during the early 1960s. As such, he took part in a wave of interest in cetaceans at that time. John Durham Peters writes that, as a result of work by researchers like John C. Lilly, “the dominant conceptions of whales and dolphins changed from long animate barrels of animal feed and lubricants to sea gurus soulfully singing of cosmic peace and harmony, showing humans the higher path of intelligence and coexistence like age-old Yodas.” Bateson was interested in the nonverbal communication of porpoises, and the ways in which they communicated about social relationships.

Bateson often referred to one particular episode at the Oceanic Institute that involved the training of a female porpoise. The goal was to teach the porpoise to do something “new,” which would then be rewarded with a fish. She was not rewarded for behavior that she had done previously. At the first session, the trainer waited for the porpoise to do something that could be considered “new,” like a flip of the tail or a shake of the head. The porpoise was then rewarded with a fish. At the next session, the porpoise would return to the previous behavior—the tail flip for instance—but no reward was forthcoming. This would frustrate the porpoise but after a while, she would do something that could be regarded as new, get a reward, and proceed to do that for the rest of the training period. So it went until the fifteenth session when, in a burst of excitement, the porpoise suddenly “did twelve new things one after the other, some of which nobody’d ever seen at all in that species.”
This anecdote indicates how Bateson’s work with porpoises fed into his ideas about learning and logical types. The porpoise in the story makes a conceptual breakthrough by understanding the category “new behavior”; an insight of higher-level classification akin to recognizing an action as “play.” This insight occurred during a session of what Bateson called Learning I, which is associated with classical Pavlovian conditioning and instrumental reward (see BOTANY). The story gets more interesting when Bateson elaborated on the context. It turns out that the trainer was unable to obey the rule that the porpoise only receive fish when she did something new. In fact, the trainer would throw “unearned fish” to the porpoise from time to time in order to “maintain the relationship between trainer and porpoise.”

The “unearned fish” moves us into the domain of Learning II, which has to do with the context in which Learning I occurs. Learning II is “learning to learn” and has occurred if the behaviors acquired during Learning I are applied in subsequent contexts. Bateson sometimes referred to Learning II as “characterological” learning since it shapes what is commonly called a person’s character. For example, if someone has learned to expect a reward for exploratory behavior they will likely display a “curious” character in subsequent situations. A rat starts by learning to press a bar to get food, and then learns that the world contains contexts for purposive action: “the rat is becoming a manipulative rat.” This applies to humans as well. “It is said that Mr. Jones is dependent, hostile, fey, finicky, anxious, exhibitionistic, narcissistic,” Bateson writes. “All are descriptive of (possible) results of Learning II.” The trainer in the porpoise anecdote needed to be attentive to both levels at once: to guide the porpoise through Learning I while maintaining a context of trust that would result in a porpoise with a suitable character for...
this type of work and thereby sustain the lessons. In subsequent discussions, Bateson came back to this story as shorthand for contextual learning, reminding his students: “don’t forget the unearned fish” (on Learning III, see RECORDING, TELEVISION).

Mr. O’Brien, the overbearing father in The Tree of Life, could have thrown his son Jack a few more unearned fish. At several points in the film, he explains his motivation in terms of the characterological learning he wishes to instill in Jack and his brothers. “It takes fierce will to get ahead in this world,” he says. “If you’re good, people take advantage of you.” “You know Jack,” he explains, “all I ever wanted for you was to make you strong, and grow up to be your own boss.” Mr. O’Brien applies strict discipline in the hopes of creating a strong and resilient character capable of facing a harsh and unforgiving world. The technique seems to have worked to a certain degree, given that Jack grows up to be a successful architect. Jack’s midlife crisis and the mysterious death of his brother R. L. however, make clear the flaws of Mr. O’Brien’s system (see BREAD-AND-BUTTERFLY).
Notes


2 “Lecture by Gregory Bateson Part 2 1975,” from Orders of Change, Naropa. https://archive.org/details/Lecture_by_Gregory_Bateson_part_2_1975_75R004. See also D. Graham Burnett, “A Mind in the Water,” in Orion Magazine. https://orionmagazine.org/article/a–mind–in–the–water/, which quotes a letter from Bateson to John C. Lilly in which he wrote: “If I am right, and they are mainly sophisticated about the intricacies of interpersonal relationships, then of course (after training analysis) they will be ideal psychotherapists for us.”


4 Bateson, Steps, 287.

5 Bateson, A Sacred Unity, 209; UCSC, LCD10289, Gregory Bateson Recordings 1977, pt. 2, “Heenan Group,” 1977. Bateson recalled that the trainer had “a sort of awareness of when to throw away a fish,” and would not throw a fish when the porpoise might think it was a reward for a behavior that was not new, but only in “interval moments.”

6 Bateson, 2000, Steps to an Ecology of Mind, 293–94.

7 Bateson and Bateson, Angels Fear, 48.

8 Bateson, Steps, 297–98.
QUANTING A PUNT

Bateson recalled how, while studying anthropology at Cambridge University, he learned how to operate a narrow, flat boat called a punt. Propelling such a boat with a long pole is called “quanting a punt.” This was not an easy task, and Bateson remembered occasions when he lost control of the punt such that it drifted away leaving him suspended above the water clinging to the pole. The trick, he discovered, was to impose a regular wobbling motion on the punt with his feet, which would provide stability and control. “There’s somewhere a moral in this story,” Bateson added cryptically.¹

This episode from Bateson’s education is an example of embodied learning with cybernetic overtones (see ACROBAT). The guiding of a wobbly boat invites a cybernetic interpretation since, as has often been pointed out, the word “cybernetics” is derived from the Greek word for “steersman.”² For American children, the embodied lesson in control that Bateson describes has often been learned, not by quanting a punt, but by riding a bicycle. In The Tree of Life, Jack and R. L. use their bicycles to ride to green, ecotonal spaces beyond their suburban neighborhood (figure 77).
In *King of Hearts*, the carnivalesque inversion of asylum/town extends to inversions of nonhuman/human when caged animals in the town’s circus are released from their captivity. In one shot we see a chimpanzee riding a bicycle through the streets. There’s somewhere a moral in this story (figure 78).
Notes


Bateson remembered the first time he heard his voice played back on an audio recording. Like many of us, he found this to be a distinctly disconcerting experience and didn’t like it. Bateson spoke about a similar kind of discombobulation that resulted from seeing himself on film while his gestures were analyzed by Ray Birdwhistell (see Grass). The reason he didn’t like this experience, he said, was that it was pushing him towards the edge of what he called Learning III (see Botany, Porpoise).

Learning II habits are typically acquired in childhood and persist through life. They can be changed however, through Learning III, which throws into question the premises of character acquired via Learning II and occurs in contexts such as psychotherapy and religious conversion. As one example, consider how a therapist might demonstrate the contradictions in a patient’s beliefs, or show the patient an “exaggeration or caricature” of those beliefs via dream analysis or hypnosis. Bateson tended to be rather vague about the specific processes of Learning III, pointing in the general direction of meditation, anthropological fieldwork, therapy, psychedelic experience, and art. Hearing the unconscious nuances of one’s recorded voice or being made aware of the quirks of one’s gestures on film could start to push a person towards the edge of Learning III. Some early video artists were inspired by Bateson to use the television apparatus in just this way (see Television).

Mindwalk dramatizes a reorganization of character in its protagonists, and was based on a book whose title brings to mind the essence of Learning III: The Turning Point (1982). Jack the politician is revitalized by his encounter with systems theory, and
Sophia the scientist is nudged out of her self-imposed exile to reconnect with the people around her. The Tree of Life can also be seen as a parable of Learning III. The film is built around a crisis of Jack’s character as the unresolved tensions and contradictions in his life become unmanageable. By reflecting on a series of childhood memories, Jack confronts the process by which his character was constructed.

Jack’s first step towards Learning III is visualized in a desert terrain where he sees himself reflected dimly in a puddle (figure 79).

That process culminates in a face-to-face encounter between the adult Jack and the child Jack (Hunter McCracken): a pithy visualization of the kind of “double description” that occurs in Learning III. Jack gains a binocular view of himself, thereby allowing for a
new, more comprehensive perspective on his character, and a new opportunity to change it (see FABRIC) (figure 80).
Notes


3 Bateson, Steps, 301, 303.

4 Bateson, Steps, 302.
Bateson used the ecology of a redwood forest as an example of the kind of “mind” that
was manifested in “communicational regularities in the biosphere.” When that sort of
ecological mind reached a certain scale, he said, the word “god” might be applied to it.¹
In statements like this, Bateson seems to align himself with James Locklock’s “Gaia
hypothesis,” which he encountered just before he died.² The Gaia hypothesis is a view of
the Earth as a “self-regulating system, analogous to a living organism.”³ Equating the
Earth to a Greek goddess can be misleading, and Ernest Callenbach argues that the planet
is “not a conscious entity with a purpose or special concern for humans. Those who think
of it as a stand-in for a supreme being or god are misinformed.”⁴ I think that Bateson
would agree, and he was quick to point out that the larger mind he referred to as the god
“Eco” differed from conventional notions of God in that it can go insane if sufficiently
maltreated.⁵

Bateson’s Eco-god strikes me as being less like Gaia and more like the
biosemiotic notion of semiosphere. Biosemotics encompasses all sign processes that take
place in nature “from the single cell to the ecosystem.”⁶ Jesper Hoffmeyer posits the
semiosphere as a semiotic counterpart to the biosphere: a “sphere of sign processes and
elements of meaning that constitute a frame of understanding within which biology must
work.”⁷ We might say then, that the “larger mind” of the redwood forest is tantamount to
the forest semiosphere: the network of interconnected semiotic relationships in that
ecosystem.
Referring to Bishop Berkeley’s famous thought experiment, Bateson argued that the tree that falls in the forest is indeed observed, and that other organisms in the wood respond to the tree’s fall. The falling tree becomes message material within the ecological code of the forest. Bateson once speculated about how the “mind” embodied by a field of wheat could be understood as a dynamic pattern that was “a sort of dance”: “the meadow with its interacting multiplicity of species is unendingly dancing and thereby being bumped by information … ‘about’ the environment.” Peter Harries-Jones expands on Bateson’s example, describing the meadow’s “unlocalized sense organ,” which is sensitive to “the resonance of the whole ecosystem of the meadow” and reacts to patterns of difference. Harries-Jones connects these ideas to the work of zoologist Wouter van Hoven, who discovered that trees “react to environmental stress by releasing chemical signals downwind to other trees.” What Harries-Jones makes clear is that Bateson’s discussion of a forest or meadow mind would today be understood in terms of the dense symbiotic and semiotic ecological systems often referred to as the “wood wide web.” The pleasure one takes in going for a walk in the woods, Bateson said, is due to feeling a connection with that kind of mind, and an echoing between our own makeup and the makeup of other living things.

Bateson’s discussion of the Eco-god was not meant simply to encourage walks in the woods however, but to prompt environmental education and action. Speaking in 1968, Bateson warned that the rise of carbon dioxide in the atmosphere could result in a rise in average temperatures that could melt the Antarctic ice cap, elevate sea levels and devastate agriculture. If such predictions were accurate, he guessed that his audience had about twenty years until a major ecological disaster. The main factor in this potential eco-
disaster, he asserted, was the public’s lack of understanding, and he called for an enormous job of education to change people’s thinking.\textsuperscript{12}

Mindwalk was produced twenty years after Bateson made those remarks, and the film embodied its own campaign of public education to address global environmental issues (see GRASS\textsuperscript{4}). As Bateson had used redwood trees to illustrate his ideas, so a tree on the Normandy coast becomes a teaching tool in Mindwalk. Jack asks, “How can you think usefully about things in this holistic way? … How can you talk usefully about a tree without [taking it apart and] talking about its roots or its leaves or its bark?” Sonia replies that, while “a Cartesian would look at a tree and conceptually take it to pieces,” a systems thinker would look at the tree and see “the seasonal exchange between tree and earth, earth and sky; would see the annual cycle, which really is one big breath the earth takes through its forests … providing us with oxygen”:

“A systems thinker would look at the tree and see the life of the tree only in relation to the life of the whole forest; would see the tree as a habitat for birds, a home for insects. If you looked at a tree, trying to understand it as something separate, you would be bewildered by the millions of fruits it’s producing in its lifetime, because only one or two new trees would grow from those fruits. But if you look at the tree and see it as a member of a larger living system, that abundance of fruits will make sense. Because hundreds upon hundreds of forest animals and birds will survive because of it … Interdependence. And the tree cannot survive on its own either. To draw water from the ground, it needs the fungus that grows on the tip of each root. And the fungus needs the root to survive, and the root needs the fungus. If one dies, the other dies. There are
millions of relationships like this in our world, each depending on the other for life. The systems theory recognizes this web of relationships as the essence of all living things.”

Sonia names Bateson as one of the scientists exploring this approach to living systems (figure 81).
Notes


2 Bateson and Bateson, *Angles Fear*, 149.


9 Bateson and Bateson, 198. See also Bateson, *Mind and Nature*, 12.


Bateson liked to recount the Irish tale of Tuan MacCarill. The story begins with the early Christian missionary St. Finian who, on arriving in Ireland, is told that there is an “old-fashioned man” in the mountains. St. Finian travels to the old-fashioned man’s castle to preach the new religion. The two gentlemen meet and proceed to introduce themselves. The old-fashioned man says, “I am Tuan, the son of Starn, the son of Sera … and I am Tuan son of Carill, son of Muredac.” Finian is confused and asks how the man can have two patrilineal genealogies. Tuan explains as follows.

I was with the first party of people who came to Ireland. All the other first inhabitants were killed by a plague, and I was the only one left. I lived for years in the woods, eating acorns and letting my hair and toenails grow. When I grew old, I went to sleep in a cave and dreamed that I was a stag. When I awoke, I was what I had dreamed. And I roamed Ireland as a stag and became king of the stags. I grew old, and wolves chased me back into the cave. I slept and dreamed that I was a wild boar, and when I woke, I was what I had dreamed. I tore the wolves to pieces and became a champion of the boars. But I got old, and went back to the cave. I dreamed that I was a salmon, and when I woke, I was what I had dreamed. I dodged all the nets and all the hooks until a fisherman caught me in his net and pulled me out of the water. He took me home and cooked me and I was eaten by the wife of Carill and I became the son of Carill in her belly and that’s how I got my second genealogy.¹

This story, which can be found in James Stephens’ collection, Irish Fairy Tales (1920), is one of Bateson’s examples of totemism, which, he explains, is a religion in
which the Bateson family worships the bats. In other words, there is an ancestral relation between an animal species and a group of human beings. For Bateson, totemism signaled a “a real felt connection” with animals.² In telling the story of Tuan MacCarill, Bateson’s primary concern was less with the history of religion and more with the potential for totemistic thinking to be a pathway for grasping “what sort of thing we are.”³ As with the “Cherry Tree Carol” (see CHERRY TREE), the power of the story arises from the “fact of its untruth”: nobody was ever impregnated by eating a boiled salmon, but that isn’t the point. The point is to provide a vehicle for a felt connection and identification with the natural world.⁴

Bateson also described scenes in T. H. White’s novel The Sword in the Stone (1938) that resemble the Tuan story. The Sword in the Stone was adapted by Walt Disney as an animated film in 1963, and features sequences in which Merlin transforms the young Arthur into a fish, a squirrel, and a bird. These sequences are a good example of Ursula Heise’s argument that animated films are “the principal aesthetic genre that engages with the reification of nature and its possible alternatives in modern society.” Animation, Heise asserts, is a genre that refuses to treat “either natural or human-made environments as mere inert materials” and instead insists that they are “alive and populated by all manner of nonhuman agents.”⁵ Heise describes how animation’s “speaking and acting animals, plants, and objects” invite the viewer to see humans as “only one of many manifestations of liveliness, intentionality, and agency.”⁶ In Bateson’s terms, animation has developed a vocabulary for something like totemism, creating a pathway for grasping the sort of co-evolutionary thing we are.
Bateson stated that the average, modern Western person interacts primarily with “automobiles, plates, faucets, plumbing.” Nonetheless, the child who runs across the room making car noises “is the automobile just as much as Tuan is the stag and later the salmon.” In other words, the impulse for identification and empathy is still there.\(^7\) In Švankmajer’s Alice, stop-motion animation brings movement and vitality to non-living objects. One sequence in Alice makes the blurring of the lines between non-living and living explicit: an animated pincushion transforms into a living hedgehog (see SMOKE RING). Animation like Švankmajer’s is doing the important service of maintaining the impulse for identification with the more-than-human world (figures 82 and 83).
Notes


6 Heise, “Plasmatic Nature: Environmentalism and Animated Film,” 305.

Bateson described a device that consisted of a small box with a round hole in the front and a flexible leather flap on top. When the box was filled with smoke and tapped on the leather flap, a smoke ring was produced out of the hole. This smoke ring, turning around its own circular axis, could move very quickly and with enough force to extinguish a candle thirty feet away. “Tough little things” these smoke rings, Bateson remarked.

Bateson was interested in smoke rings as “a very primitive, oversimplified paradigm for all recursive systems that contain the beginnings of self-reference, or shall we say selfhood”: “It has duration and location and a certain degree of separation by virtue of its in-turned motion.” The smoke ring is thus an emblem of autopoesis, the self-making or self-maintenance that is a defining feature of living things. Bateson’s consideration of the selfhood of a smoke ring is a good example of Cary Wolfe’s assertion that systems theory is “not grounded in the dichotomy of human and nonhuman” and provides a “powerful and coherent way to describe the complex, intermeshed networks of relations between systems and their specific environments of whatever type, be they human, animal, ecological, technological, or (as is increasingly the case) all of these.”

In Bateson’s terminology, the smoke ring is a phenomenon that exists at the boundary between two domains: the pleroma and the creatura. These concepts, which Bateson took from Carl Jung, became the foundation of his epistemology. Pleroma is the “lifeless world” as described by physics, where actions are determined by force and energy. Creatura is the world of living creatures where causality is based upon the
perception of difference (see Dot). The pleroma is the domain of the second law of thermodynamics, where things have the tendency to “fall effortlessly into messiness,” that is, to increase in entropy. By contrast, living creatures pull off the remarkable trick of producing increasing orderliness or “negentropy.”

Bateson asserted that regularities in the realm of the pleroma were at the interface with the creatura, and he gave the examples of patterns of stellar evolution, waves arranging pebbles on the beach, mud cracking in the sun to make basaltic columns, and smoke rings. Such regularity moves to a new level of complexity on the creatura side. This line of thinking has been developed by Terrence Deacon, who writes that, while “the epitome of [negentropy] is found in living and thinking beings, the roots of the time-reversed character of these processes can be traced to inanimate processes.” As examples of a spontaneous increase of order dependent on a flow of energy, Deacon mentions eddies and whirlpools maintaining their shape behind a boulder in a stream, convection cells, the pattern-generation processes of snow crystal formation, and chemical autocatalysis. These are places where “nature tangles its causal chains into complex knots in such a way that the global effects can come to resemble a reversal of time.” To identify the pattern which connects smoke rings, whirlpools, autocatalytic chemical process, and biological evolution is to cross the border separating creatura and pleroma.

In light of the prominence of smoke rings, whirlpools, and eddies in this discussion, it is notable that in the Book of Job, the “thunderous lesson in natural history” is delivered by a whirlwind. One interpretation of the story then, would be to take it quite literally: Job encounters an actual whirlwind in which he discerns an echoing between himself as an autopoietic living thing, all other living things, and even proto-living, self-
sustaining things like the whirlwind. In Malick’s adaptation of Job, *The Tree of Life*, the whirlwind is made less thunderous, and instead takes on a sublime, shimmering, prismatic, and somewhat smokey appearance (figures 84 and 85).
Notes


3 Capra and Luisi write: “the main characteristic of life is self-maintenance due to the internal networking of a chemical system that continually reproduces itself within a boundary of its own making,” Fritjof Capra and Peter Luigi Luisi, The Systems View of Life (Cambridge: Cambridge University Press, 2014), 129. Another emblem of autopoiesis derived from a concept Bateson learned during ethnographic fieldwork with the Iatmul people of Papua New Guinea. The Iatmul had a metaphor from basketwork that referred to “hiding the ends,” that is, tucking in and hiding the end of the braids in order to finish the basket. UCSC, LCD10288, Gregory Bateson Recordings 1977, pt. 1, “Whole Person Conference, Cabrillo College,” 1977.

4 Cary Wolfe, “In Search of Posthumanist Theory: The Second-Order Cybernetics of Maturana and Varela,” in William Rasch and Cary Wolfe, eds., Observing Complexity: Systems Theory and Postmodernity (Minneapolis: University of Minnesota Press, 2000), 175. Bruce Clarke asserts that second-order cybernetics undercuts “the usual delimited sense of cognition as conscious awareness or psychic experience,” and “this opening up of the concept to nonconscious and nonhuman forms of sentience is its particular entrée into posthumanism.” Bruce Clarke, Neocybernetics and Narrative (Minneapolis:


9 Deacon, The Re-Emergence of Emergence, 118. Wiener described living organisms as a “local enclave in the general stream of increasing entropy, of increasing chaos and de-differentiation. Life is an island here and now in a dying world… Our tissues change as we live: the food we eat and the air we breathe become flesh of our flesh and bone of our bone, and the momentary elements of our flesh and bone pass out of our body every day with our excreta. We are but whirlpools in a river of ever-flowing water. We are not stuff

10 Deacon, The Re-Emergence of Emergence, 124.
Bateson was not a fan of television. He complained that entertainment was a way of framing communication so that it was bled of meaning, and TV was his prime example.\footnote{Entertainment is the food of boredom,} he said, and added that it was the “cheapness” of television, not its violence that bothered him.\footnote{In statements like these we are reminded that Bateson was of the same generation as the great critic of the “culture industry,” Theodor Adorno, and shared some of Adorno’s negative attitudes about popular culture.} Bateson’s critique was an outgrowth of his cybernetic anthropology, with popular entertainment understood in the framework of addiction (see MOUNTAIN CLIMBER). He compared entertainment to a drug that seemed to cure boredom and depression but in fact left audiences more bored and more depressed than they were before.\footnote{Despite his critique of television, Bateson was a major influence on two early video artists: Frank Gillette and Paul Ryan. Gillette and Ryan both took part in “TV as a Creative Medium,” the groundbreaking video art exhibition at the Howard Wise Gallery in New York City in May 1969, which also featured installations by Nam June Paik and Charlotte Moorman.\footnote{Gillette and Ryan were subsequently associated with the magazine “Radical Software” and the countercultural “think tank,” the Raindance Corporation.} Gillette and Ryan met Bateson at a conference on social change in 1969 and were impressed with how he “laid out in clear and unambiguous terms how our species was at risk because of environmental destruction.” They went on to participate with Bateson in a symposium on the ecology of New York City in 1970 (see EMPIRE STATE BUILDING) and Ryan studied with Bateson at the Naropa Institute in 1974.\footnote{Bateson’s writing}}
appeared several times in “Radical Software” and he was an explicit influence on Gillette and Ryan’s cybernetic and ecological approach to video art.

Ryan described portable video equipment as “a complete cybernetic system … a self-contained system for processing culture.”

Guided by Bateson’s definition of information as “a difference that makes a difference,” Ryan formulated what he called “the relational circuit,” the figure for which was the moebius strip. “A Moebius strip,” he wrote, “is a one-sided surface made by taking a long rectangle of paper, giving it a half twist, and joining its ends…. The outside is the inside. The inside is the outside.” The power of video, he asserted, is “to take in your own outside. When you see yourself on tape, you see the image you are presenting to the world.”

“Tape can be a tender way of getting in touch with oneself,” Ryan asserted, and his composition for video, “Everyman’s Moebius Strip” (1970), transformed video technology into a cybernetic therapeutic system. Ryan asked participants to respond to a series of prompts while being recorded by a video camera. They were asked to breathe; yawn; stretch; touch their face; think of someone they loved; and give facial reactions to a list of people, including Spiro Agnew, “Your Mother,” Huey Newton, and “You.”

“Everyman’s Moebius Strip” updated Bateson’s use of film for the investigation of social communication and utilized video as a tool in what Bateson calls Learning III (see RECORDING).

Frank Gillette’s “Process and Meta-Process” (1973) demonstrates how video could manifest Bateson’s ideas about perception, information, and ecology. Presented at the Everson Museum of Art in Syracuse in 1973, “Process and Meta-Process” consisted of a number of display cases and video installations. Gillette wanted to resist the notion
that humans were “separate from and superior to nature,” and to counter habits of thinking that allowed “technology to ravage nature.” Video could be a tool in that mission, and the exhibition’s juxtaposition of biological and technological processes was meant to assert that human society, nature and technology were “all parts of a unity.” Television could integrate these domains when used as a cybernetic process.

The exhibition featured a number of “environments” in glass cases: termites eating patterns in wood; chicken eggs hatching; the behavior of bacterial molds, iguanas, snails, insect larva, tortoises, tarantulas, crabs, and crickets (figures 86 and 87).
Video cameras scanned these cases and transmitted images in real time to monitors in the gallery. Spectators could thus see both the “actual process, as well as the televised information of the process,” thereby creating a third, or “meta-level” of experience. Monitors also displayed the activity taking place within the gallery space so that viewers experienced themselves from different points in space and time. Interior shots were combined with sounds and images of natural environments outside the gallery. All of these channels of televised information were displayed on a row of ten monitors called the “Integration Matrix,” which was meant to prompt the viewer to notice similarities and differences across the various systems. “The nature of these differences and similarities, and their permutations,” Gillette wrote, “is the primary theme of the show” (see GRASS) (figure 88).
Ryan and Gillette’s video work from this era shows how, despite his negative sentiments about the medium, Bateson’s ideas could inform a televisual aesthetic. In their hands, video became a cybernetic tool for integrating the human individual, society, and ecosystem; a model that imagined the future of the medium less in terms of YouTube’s slogan “Broadcast Yourself,” and more in terms of the ancient Greek aphorism, “Know Thyself.”
Notes

1 Bateson was concerned that TV would “get a hold of an important truth” and “trivialize it,” UCSC, LCD10284, Gregory Bateson Recordings 1978, “The Talk about Doctoring,” 1978.


6 Paul Ryan, Video Mind, Earth Mind (New York: Peter Lang, 1993), 2. See also Paul Ryan, “From Video Replay to the Relational Circuit to Threeing,” Leonardo 39, no. 3 (2006): 199; Paul Ryan, interviewed By Felicity D. Scott And Mark Wasiuta,
“Cybernetic Guerrilla Warfare Revisited: From Klein Worms to Relational Circuits,”

Grey Room 44 (Summer 2011): 116.


11 Ryan expressed the desire to create “a cyber/ecological notational system … the idea was that you could build from that an information transmission system grounded in perception and not in speech or writing, because you had tools of perception and you had a vocabulary and you had this collaborative three-person process,” Paul Ryan, “Cybernetic Guerrilla Warfare Revisited,” 121.

12 Paul Ryan, “Self–Processing,” Radical Software 1, no. 2 (Fall 1970): 15. Ryan is quoting the Beatles song, “Everybody’s Got Something to Hide (Except for Me and My Monkey” (1968): “Your outside is in/ and your inside is out.” That song is also cited in an article coauthored by systems theorist Francesco Varela: see Ranulph Glanville and


THERMOSTAT

The classic example of a cybernetic system is a house thermostat. Bateson explained that the thermostat has two key components. The first is not usually visible, and is made of two metal strips that bend differentially depending on the temperature. When the temperature gets too cold, the metal strip triggers a switch that starts the furnace, and when it gets too hot the furnace is stopped. The temperature of the room oscillates between two temperatures. This is a feedback system. The second component of the system is an interface designed to be seen by the resident of the house. This is the means by which the resident sets the temperature around which the feedback circuit is going to swing. The total system involves two kinds of change: the feedback loop that controls the furnace; and the calibration of the threshold within which the loop operates.¹

The thermostat’s feedback and calibration is a useful example of different logical types (see ACROBAT, I GIVE THEE ALL, OSCILLATION). Expanding the illustration from the technological to the anthropological realm, Bateson noted that the bodies of the residents in the house have also been calibrated by their lived experience. If they lived for a time in Alaska, for example, they might prefer the house to be colder, and if they lived in the tropics they might like it hotter.² The difference between the classic thermostat example and Bateson’s expanded model that includes the residents is the difference between “first-order” and “second-order” cybernetics (see URCHINS).

In Lewis Carroll’s Alice’s Adventures in Wonderland (1865), we find a representation of feedback and calibration in narrative form. Alice’s various episodic encounters are calibrated by an ongoing modification of her size via bottles labeled
“drink me” and cakes labelled “eat me.” There are thus two orders of narrative progression, one calibrating her size and the other her pursuit of the white rabbit and encounters with a succession of bizarre interlocutors. Švankmajer’s Alice heightens these moments of calibration by marking them with a visible change in Alice (see WAVES). In one sequence, Švankmajer depicts the nightmare of too narrow a calibration of behavior. This occurs during the Mad Hatter’s tea party, where the Mad Hatter and March Hare are stuck in a pathological loop that consists of spreading butter on pocket watches, pouring tea, moving down one place, winding the March Hare’s mechanism, and starting the process all over again (figure 89).
Notes


2 Bateson, Mind and Nature, 185; UCSC, LCD10229, Gregory Bateson Recordings 1980, pt. 1, “Seminar at Jungian Institute,” 1980. As another example of social, governmental systems, Bateson asked the audience to imagine driving on the highway at seventy-five miles an hour. This would “alert a self-corrective circuit, and a cop comes and flashes lights behind you.” The cop, however, was “calibrated by instructions from Sacramento that he should stop cars that are going more than ten miles an hour…. above state speed limit.” The entire system was an alternation of “fixed points which are essentially static but subject to change, and floating points, floating systems which are the world of actual events,” UCSC, LCD10229, Gregory Bateson Recordings 1980, pt. 1, “Seminar at Jungian Institute,” 1980. See also UCSC, LCD10295, Gregory Bateson Recordings 1979, pt. 2, “The Learning of Modes,” 1979.
Bateson told the story from Greek mythology of Tiresias who, as a young man, was walking in the woods and saw two snakes copulating. He separated them with a stick and as a result his sex was changed from male to female. After living as a female for ten years, Tiresias was walking in the woods and again saw two snakes copulating. Again, she separated them and her sex was changed from female back to male. Later, the king and queen of the gods, Zeus and Hera, were having an argument about who experienced the most sexual pleasure, men or women. They called on Tiresias to settle the dispute since he’d had the contrasting experience. He asserted that women had more pleasure, whereupon Hera became enraged and struck him blind. Zeus was very pleased with this answer however, and gave him the gift of second sight.¹

Bateson used this story as an illustration of double description, which involves learning not from uniformities but from differentiations of contextual structure (see FABRIC). Tiresias had a kind of binocular vision with regards to questions of sexual experience, and so could move to a higher level of abstraction on the subject. This anecdote also provides an opening in the Bateson archive for an engagement with queer ecology, the interdisciplinary field that investigates “prevailing heterosexist discursive and institutional articulations of sexuality and nature.”² The Tiresias story is notable from this perspective in the way that it interlinks snakes, humans, and gods, as well as questions of gender and disability.³

One bridge between Bateson and queer theory is performance studies, an important site of work on performativity, gender, and sexuality.⁴ There is a direct link
between Bateson’s work on play as metacommunication and several influential texts in performance studies. Bateson influenced Erving Goffman’s work on the performance of everyday life, and is also cited in Richard Bauman’s *Verbal Art as Performance* (1977). Bauman cites Bateson’s “powerful insights” about interpretive frames of communication as an influence on his understanding of performance. Richard Schechner also draws upon Bateson as part of his consideration of ritual, performance, and play. How might we pick up this conversation between Bateson’s ecology of mind and performance theory?

Catriona Sandilands writes that early examples of queer ecology include studies of “same-sex (male) eroticism in pastoral literatures.” These studies pursued the idea that “the homosexual activities of boy-shepherds represented a more authentic and innocent sexuality than the heterosexual conventions they need to learn in order to enter into adult relations of (enforced) heterosexuality.” The *Tree of Life* subtly echoes this tradition through shots that contrast the pastoral, “authentic and innocent” homosocial play of the O’Brien brothers with Jack’s fraught heterosexual awakening, which takes place not in a natural space but through the illicit entering of a neighbor’s home and the fetishistic handling of a woman’s negligee. When Jack is overcome with guilt and anxiety about this transgression, he returns to natural spaces, disposing of the negligee in the flowing waters of a river (figures 90, 91, 92).
Notes


2 Queer ecology aims “to reimagine evolutionary processes, ecological interactions, and environmental politics in light of queer theory” and “highlights the complexity of contemporary biopolitics, draws important connections between the material and cultural dimensions of environmental issues, and insists on an articulatory practice in which sex and nature are understood in light of multiple trajectories of power and matter,” Catriona Sandilands, “Queer Ecology,” in *Keywords for Environmental Studies* (New York: New York University Press, 2016), 169.
3 We might also note that Bateson’s notion of schismogenesis emerged from an analysis of a New Guinea ceremony that involved “transvestitism and ritualized homosexuality,” see Lipset, *Gregory Bateson: The Legacy of a Scientist*, 140–41.

4 See also Benjamin Breen’s discussion of Bateson and Margaret Mead’s radical approach to gender and sexuality in the 1930s, Benjamin Breen, *Tripping on Utopia: Margaret Mead, the Cold War, and the Troubled Birth of Psychedelic Science* (New York: Grand Central Publishing, 2024) 33.


There was a young man who said, “Damn.
I begin to perceive that I am
A creature that moves
In determinate grooves.
I’m not even a bus; I’m a tram.”

This is the second of two paired limericks that Bateson used to discuss youth and age (see BUS). The grooves of youth tend to be fixed and determinate, and with age comes greater freedom, but also more responsibility for choice. King of Hearts is a whimsical, poetic exploration of society’s “determinate grooves.” The social grooves vacated by the townspeople are filled by the asylum inmates, who take up the costume and patterns of behavior of each role. The “irrationality” of the inmates creates some wiggle-room in their determinate grooves. The barber for example, pays his customers instead of the other way around. He inverts business as usual, but keeps the basic pattern the same. Indeed, for all its surrealist gestures the film is not a revolutionary one. This is most clear in its lack of imagination when it comes to gender roles. It seems that for female inmates, the only roles available are duchess, prostitute, or acrobat. The film thus reflects a world in which the grooves are particularly determinate for women, and this holds both for the asylum and the town (see TIRESIAS).

Françoise Sagan’s One More Winter (1979), a short film that was reportedly one of Bateson’s favorites, has a double structure that resembles the bus/tram limericks. The
film features two central characters, a young man named Jean (Jean Barney), and an old woman named Germaine (Alice Reichen). The two sit next to each other on a park bench and strike up a conversation. Realizing that they are both waiting for someone, she asks, “Isn’t waiting very upsetting?” “Either she comes or she doesn’t,” Jean replies nonchalantly. “It’s her or another, there are plenty of girls around.” “That’s true for you, at your age,” Germaine says. “You are lucky to be waiting for someone you don’t love,” she continues. “You are untroubled… I am afraid.” We learn that Germaine is a widow, and that she meets a gentleman friend in the park every afternoon when the weather allows. She misses him during the winter, and this is their first meeting of the spring. “This winter has been very long,” she says. “I don’t even know if he is still alive.”

Jean looks with pity at Germaine, and we wonder whether perhaps she is delusional: is there a gentleman friend at all? The young woman for whom Jean has been waiting arrives, but this conventionally attractive young couple holds little emotional interest for the viewer. Instead, the film’s climax arrives when an older gentleman is seen in long shot. “It’s him,” Germaine says. “One more winter.” She gingerly descends the stairs of the gazebo and, as a romantic duet from Verdi’s opera *La Traviata* swells on the soundtrack, the two walk towards each other, meet, and hold each other’s hands. Jean watches transfixed, perhaps envying the depth of emotion experienced by the old woman he was so quick to pity. Bateson was also transfixed by this beautifully compact little drama, and a colleague recalled seeing tears rolling down his cheeks as he watched the film (figure 93).
Notes

1 Bateson and Bateson, *Angels Fear*, 167.


In 1976, Bateson got into argument with Margaret Mead during an interview for Stewart Brand’s magazine, *CoEvolution Quarterly*. The argument had to do with questions of objectivity in ethnographic filmmaking, and boiled down to whether the camera should be put on a tripod or not. Mead stressed the need for long, stable, impersonal shots of behavior that could be studied as anthropological data. Bateson, who stated that he believed less and less in objectivity the older he got, thought that filmmakers should hold the camera in their hand so that it could move and capture important contextual details that framed the action.¹

The transcript of the conversation is a good reminder that Bateson was not just an analyst of film (see *King of Hearts, Movie Houses*) but a filmmaker himself. More specifically, he was a gifted camera operator, and camera movement was the central issue in the argument with Mead. It is perhaps not surprising then, that camera movement is a prominent stylistic element in two films that were particularly meaningful to Bateson. The first of these films comes up in the argument with Mead.

During the discussion of camera movement, Stewart Brand asks about *Intrepid Shadows* (1966), which Mead calls a beautiful “work of art,” but one which is “useless” as ethnographic data. She is particularly impressed with several moving shots at the end of the film, which she claims were made by the filmmaker walking on windy days, filming as he walked, and moving the camera independently of the movement of his body.² That filmmaker was Alfred Clah, and *Intrepid Shadows* is one of six films produced in 1966 when Sol Worth (a professor at the Annenberg School for...
Communication) and John Adair (an anthropologist from San Francisco State University) taught filmmaking to a group of Navajo students in Pine Springs, Arizona. Clah was a Navajo but not a member of the Pine Springs community, and had been studying at the Institute of American Indian Art in Santa Fe.³ Clah’s art training and liminal status in relation to the Pine Springs community were factors in shaping his film, which is more poetic, abstract, and experimental than the other documentary-style films made as part of Worth and Adair’s project.

*Intrepid Shadows* begins with shots of tree branches swaying in the wind and shadows moving over a rock. Shadows are thus established as a theme from the start, and serve as a visual link between sky, living things, and earth (figure 94).
After a sublime visual overture, an “intruder” (Johnny Nelson) enters the frame from behind a tree and walks towards the camera. He notices a spider web and pokes it with a stick (figure 95).^4

The intruder’s action sets in motion a mysterious process represented by a metal hoop that rolls across the landscape seemingly of its own volition. The intruder now takes the form of a hand-painted Yei-be-chai mask that moves through the landscape as if trying to figure out the enigma of the rolling hoop (figures 96 and 97).^5
The middle section of the film interweaves three kinds of movement: the hoop rolling; the mask walking and looking around; and camera movements that trace the outline of tree trunks, branches, and clouds (see OUTLINES). Shadows of the intruder/camera operator enter the frame, suggesting a growing connection between the filmmaker and the environment. A shot of the mask looking up is followed by an eyeline match as the camera moves gracefully over the contours of clouds and tree branches. These movements seem to signal a change in the system, and the hoop falls through the trees to rest on the ground.

In the film’s final section, rapid pans and tilts suggest the use of a tripod and then, in the stunning shots that intrigued Margaret Mead, we see the long shadow of Clah as he moves through the landscape with the camera, interweaving the movement of his body, his shadow, and the camera (figure 98).
The result is a sense of integration, with the combined entity Clah/camera/shadow taking the place of actor/mask to present a subject who is no longer an intruder but instead has become part of a larger unity of self and environment. In the final two shots we see first, the shadow of the hoop spinning on the ground, and then the hoop itself, spinning in the foreground along with its shadow in a mesmerizing convergence of movement (figure 99).  

Bateson sometimes showed *Intrepid Shadows* during his seminars, and it is easy to see why it appealed to him: it’s production backstory speaks to his training as an
anthropologist; its subject matter resonates with his interest in integrating systems of mind and environment; and its stunning cinematic style—and camera movement in particular—must have excited him as a filmmaker. Style and content converge to depict more-than-human mind. Mead wrote that Clah “handled his camera so that the viewer actually sees animism … this film makes it possible to actually see the kind of images in the trees which are so often reported, but usually remain invisible to eyes that are not attuned to this vision.”

Distinctive and expressive camera movement can also be found in Françoise Sagan’s short film, One More Winter (1979), one of Bateson’s personal favorites (see TRAM). Under the credits, we see a close-up of animal figures on a motionless merry-go-round. The merry-go-round begins to move, and the camera pulls back to frame its horizontal rotation in the foreground over a static background. The next shot inverts this dynamic, presenting a view from the center of the merry-go-round such that the animal figures are static in the foreground while the background moves. These two shots form a cinematic double description of the same phenomenon from two complementary perspectives (see BUS, FABRIC) (figures 100, 101, and 102).
Next the camera moves up from the merry-go-round into the canopy of trees above it, tracing the lattice of branches to eventually descend onto a circular gazebo in a Paris park where we meet our two central characters (figures 103, 104, and 105).
One More Winter, like Intrepid Shadows, is a showcase for creative camera movement that links figure and ground, data and context. Given his interest in these two films, I think Bateson would have appreciated Terrence Malick’s The Tree of Life, which is full of virtuosic camera movements that frame figure and ground in surprising ways. Moreover, it is permeated with the visual motif also found in One More Winter and Intrepid Shadows: again and again the camera looks up into a canopy of trees, prompting questions about the relationship between self and environment, and situating the viewer in a larger gestalt and a longer time (figures 106, 107, and 108).
Notes


2 Brand, “For God’s Sake, Margaret,” 40–41.

3 “Navajo Films Themselves: Giving Background to the 1966 Film Series,” website created by the University of Pennsylvania Archives, accessed October 30, 2023: https://www.penn.museum/sites/navajofilmthemselves/the–films–2/intrepid–shadows/

4 Clah told Worth and Adair that “he intrudes the spider web,” and then “mysterious things happen.” The authors write that, “In Navajo mythology, the Spider Lady is one of the creators of the world, weaving and holding it together. It is very dangerous to interfere with her function as it might destroy the delicate balances holding the world together.” Sol Worth and John Adair, Through Navajo Eyes (Albuquerque: University of New Mexico Press), 212–13. “I like somebody that pokes in these things,” Clah said. Worth and Adair, Through Navajo Eyes, 214, 216.

5 Worth and Adair, Through Navajo Eyes, 217.

6 Frank Gillette writes about video art in similar terms. In the essay “Masque in Real Time” (1975), he writes that video can become “a record of the resonance” between the filmmaker’s visual-perceptual system and natural processes through “a kinesthetic signature which individuates the ‘loop’—eye-body, the technology itself, and the processes being recorded— the artist transmutes random information into an aesthetic pattern…. Thus, video is a primary ecological medium.” Suzanne Anker and Sabine Flach, eds., Axis of Observation II: Frank Gillette (Bern: Peter Lang, 2021), 353–54.
We might note that *Intrepid Shadows* embodies modes of environmental filmmaking, as defined by Nadia Bozak in her book, *The Cinematic Footprint* (2012). The significance of light and shadow in the film makes it legible as what Bozak calls “a proto-solar cinema,” and it is also an example of Bozak’s category of “secondhand cinema”: “Using available, natural light, the camera operator’s own energy and ambulatory mobility, a sustainable film practice takes for its pro-filmic environment that which is within the vicinity of the free or liberated hand,” Nadia Bozak, *The Cinematic Footprint* (New Brunswick, NJ: Rutgers University Press, 2012), 34, 166–67. In Worth and Adair’s book about the Navajo film project, they single out Clah’s use of motion to convey his “identification with his natural environment.” Worth and Adair, *Through Navajo Eyes*, 209. “It was Al himself,” they write, “with a camera at his eye—or rather his shadow—growing longer and longer—who searched and searched for knowledge and finally merged with the shadow of the wheel,” Worth and Adair, *Through Navajo Eyes*, 219.

URCHINS

Bateson learned about sea urchins while working with researchers at the Hopkins Marine Station in Pacific Grove, California. Sea urchin larvae, he explained, were tiny creatures that moved with the ocean currents. That meant that the sea urchins that researchers collected in the rocks by the Hopkins lab had come from somewhere else. To understand the lives of those tiny creatures in the rocks one had to grasp a much, much larger oceanic ecosystem.¹

Bateson’s sea urchin anecdote illustrates one of the laws of ecology defined by his contemporary Barry Commoner: “everything is connected to everything else.”² Bateson’s message is also that ocean systems were more complex, interconnected, and fragile than was often understood. “The sea is a very peculiar object,” he said, and should not be understood as a vast, undifferentiated entity, but rather as an amalgam of different bodies of water that do not always mix with each other.³ This argument is prescient given current concerns about plastic pollution.

Another sea-related anecdote that Bateson liked to tell concerns a newspaper clipping with the headline, “Man Wins Battle Against Birds.” The article described how sonar devices had made it possible for fisherman off the Peruvian and Chilean coast to reach shoals of fish before the seabirds, with the result being that the birds were dying of starvation. Bateson emphasized the ridiculousness of framing this story as a “battle” between men and birds. After all, the guano produced by those seabirds was a major part of the long-term economic stability of Chile and Peru, and so the short-term benefits of killing off the birds in order to ship more fish to the North American pet food industry—
which was where most of the fish were going—was putting the long-term viability of larger ecological and economic systems in jeopardy. “The value structure,” Bateson said with dry understatement, “is a little short-sighted, perhaps.”

Here is another critique of the unforeseen consequences that resulted from taking too narrow and anthropocentric an approach to systemic problems, and he concluded by asserting his motto: “the larger gestalt; the longer time.”

The cybernetic systems approach to environmental issues found in these anecdotes is something that Bateson shared with his first wife and collaborator, the esteemed anthropologist Margaret Mead. Peter Harries-Jones has described how several aspects of Bateson’s thought, such as an interest in patterns and learning, owe much to his collaboration with Mead.

Both Mead and Bateson helped to inaugurate a shift from “first-order” to “second-order” cybernetics (more on that distinction below), and both were early proponents of the environmental movement. Indeed, it was Mead, not Bateson, who gave the keynote speech at the very first Earth Day in 1970.

In her Earth Day speech, Mead stressed the interconnectedness of global environmental challenges, and oceans were a frequent illustrative example. “Never before have we faced together what is happening in the whole world, and it’s very important to realize that it isn’t a question of pollution versus conservation of the oceans versus the Vietnam war versus nuclear war … versus the population explosion. They’re all part of one problem. And unless we can work on them together we won’t get anywhere with any one… It isn’t going to do any good to polish up the Hudson River while somebody is destroying the Atlantic Ocean.” Counterbalancing her call for global action was Mead’s forceful assertion that the affluent Western countries most responsible for ecological
damage had to take the lead in addressing these concerns. “Unless we can practice what we preach in New York City we’re not going to get very far preaching to India and Africa and Korea.”

A few weeks before her Earth Day speech, Mead provided testimony at Congressional hearings on the issue of environmental education. Here again, aquatic ecosystems were an important part of the discussion. Mead described how children were sometimes given an aquarium as a lesson in managing an environment: “If they had tropical fish,” she said, “all they had to do was to unplug electrically heated aquariums and the fish died.” That model of environmental management (“playing God”) was outdated, Mead asserted. Indeed, the notion of human managers as “someone who can plug or unplug the system has got us in the difficulties we are in.” Instead what was needed was a model in which we “see ourselves as an essential component of the environment”; in which “we are, as it were, in the aquarium, too, and depend on the balance of temperature and water and animal life and plant life within it.” The distinction between the aquarium observed from the outside and from the inside is a concise encapsulation of the distinction between a “first-order” cybernetics that maintains a stance of objective detachment towards the systems it observes, and a “second-order” cybernetics that includes the observer in the analysis (see THERMOSTAT).

Mead stressed the political implications of that conceptual distinction for the environmental movement. “We have to put ourselves inside the system within which we live,” Mead said, “and if you live in a nice remote meadow somewhere in a low-populated state, you must learn to see [that] you cannot cut yourself off from the big cities nearby [and the problems of] slums, waste, pollution. The two things are totally
interrelated. That is the reason I don't want to talk about the environment without talking about hunger, because I don't think anybody is going to care what happens fifty years from now if they are uncompassionate about the fact that people are starving in the United States right now. And I think that is part of our handling of the environment.”

To use today’s terminology, Mead was calling for environmental justice to be a central component of environmental discourse.

The narrow outlook that keeps us on the outside of the aquarium and that is encapsulated by the headline, “Man Wins Battle Against Birds,” is critiqued in Pablo Naruda’s poem “Enigmas” (1950) (see CRUSTACEANS). In one of the climactic moments of Mindwalk, the poet Thomas stands on the beach and recites Naruda’s lines about how the ocean knows something about “life in its jewel boxes” that we do not. In the context of the film, the poem’s message is that, when we investigate isolated parts rather than wholes, isolated rocks by the Hopkins lab rather than larger oceanic systems, we are likely to wake up naked in the night, with nothing caught in our net except “a fish trapped inside the wind.”
Notes


7 “The First Earth Day,” website by Neha Jain (accessed on October 30, 2023):
https://34003789nhd.weebly.com/margaret-mead.html. Mead continued: “this is equally true in terms of the population explosion. It isn’t going to be any good for us to say… ‘It’s those other people that shouldn’t have children.’ Unless the most affluent people in the world say ‘We will show the way, we will cut down on the number of children we have,’ we cannot expect people in the rest of the world to pay attention.”


10 Morrissett and Wiley, The Environmental Problem, 85. “I can understand a poor mother with five children with no shoes … not being concerned about the bears [in Yellowstone Park],” she said, “We have to talk about both things at once.” Morrissett and Wiley, The Environmental Problem, 81–82.
Bateson told a number of stories about his father, William Bateson. In addition to being a distinguished geneticist, William Bateson was a collector of paintings (see OUTLINES). So it was that in 1924, he took Gregory and his mother to a horticultural conference in Holland so that they could visit an art gallery in The Hague where he had seen a painting by Nicolas Poussin. Gregory recalled a blazing August afternoon, making slow progress towards the gallery due to the need for regular stops so that his father could rest an aching leg by leaning on a walking stick. They finally arrived at the gallery and proceeded to the room where he had seen the Poussin. To their surprise, the room had been “entirely rehung with the works of Vincent Van Gogh.” Bateson remembered his father looking around “like a rat that somebody’s just triggered the trap on,” and then walking to the center of the room where he beat on the ground with his stick, screaming at the top of his voice, “I will not admire the works of Spirocheta Pallida!”

Apart from offering insights into Bateson’s family history, the Van Gogh story demonstrates the communicative power of art. Spirocheta Pallida is the organism responsible for syphilis, and Bateson’s father had assumed that the characteristics of Van Gogh’s art were due to the artist suffering from that ailment. His father was undoubtedly wrong in this diagnosis, Bateson said, but what was more important was that Van Gogh “got across to the old man, and that which the old man saw was undoubtedly there in the paintings.” Bateson’s father did not like Van Gogh’s expression of “a turmoil of the human mind,” but the artist had communicated to him across considerable distance nonetheless.
William Bateson could clearly be an intimidating figure. Gregory recalled that when he graduated from Cambridge with honors, the news was sent home by telegram. He handed the results to his father. After a long pause, his father said: “Well, you seem to be a little better than the others.” Bateson’s older brother Martin killed himself in 1922 when Gregory was seventeen years old. Bateson explained that Martin’s suicide was “a sort of protest against the whole Bateson way of life; Bateson value scale; the valuation of the intellect that we were all expected to bow down to.” Film director Terrence Malick also had a brother who killed himself, and that experience shaped The Tree of Life, though we are never told the cause of the brother’s death in the film (figure 109).
Notes


Bateson told the story of an Englishman named Wilson who sold vinegar. Wilson began to advertise his vinegar with some success, and attended an American conference on advertising. The American advertising men told him he’d been doing it all wrong, and that for half a million dollars they’d put on a major campaign for him. What was needed for the campaign, they said, was a sacred picture. “Where’s vinegar in the Bible?” they asked. “Sure, sure, see. Christ on the cross, the two thieves, the centurion with a sponge on a stick, and the words: ‘Take it Away, it isn’t Wilson’s!’”  

Bateson told this story as part of a discussion of the sacred, a concept that, for him, concerned cultural material that bound together shared values in a way that gave meaning to life. “What are you going to do,” Bateson asked, “when people use sacred material in order to sell vinegar?” On one level, it was fodder for a joke, but it could also be a more serious matter. The moral of the story for him, was that it was not a good idea to use “the central values of the culture as balancing rods.” The more the core variables of the system were used for short-term advertising or propagandistic purposes, the more they would cease to be the core variables of the system. Bateson’s cybernetic framework (feedback and calibration) is applied here to a social critique of advertising (see ACROBAT, MOVIE HOUSES, THERMOSTAT).

I don’t take from the Wilson’s Vinegar story that Bateson was an advocate for strict censorship or cultic secrecy. He was however, interested in “information which should not get through”; that is, instances when ambiguity or the withholding of information might benefit a communicative context. In the domain of the arts, a similar
dynamic has been articulated in Hubert Zapf’s cultural ecology. Zapf writes that it is
“precisely the indirect and indeterminate mode, the polyphonic complexity of literary
works” that facilitates their contribution to the “sustained ecological evolution of
consciousness and culture.” The “gaps, uncertainties, and indeterminacies” in aesthetic
texts may be seen as a hindrance to political engagement, but it is “these uncertainties and
indeterminacies which create a textual space for otherness,” Zapf writes, since they open
the text for “the active participation of the reader in the continual co-creation of those
relational complexities which constitute ecological awareness and existence.” It is in
their play and ambiguity, their “openness, sensory concreteness, and semantic
complexity,” that art and literature “express a deep-rooted human disposition to relate
otherwise neglected aspects of our interior worlds in sufficiently complex ways to
external environments.”

Bateson would agree I think, and he saw art, religion, and ritual as modes of
communication that did not speak solely to the conscious, rational mind. In fact, they
worked to complete a circuit between conscious and unconscious (see CHERRY TREE,
DARKNESS, WATER SNAKES). To demonstrate this idea, he translated the Lord’s Prayer
from the “language of metaphor” to the “language of simile,” with the following result:
“Of course, I know that you are not a human being and do not have a beard, but my
relationship to you is as if you were human, and since my relationship to human beings
tends to be a kinship relation, I will assume as if my father…. And I wouldn’t like
anybody to take this too literally because really it’s only true on something like another
plane, which I will call heaven … and so on.” “It’s a little shocking,” he concluded, “and
it obviously doesn’t belong in church.”
For Bateson, art was as much an example of the sacred as ritual and religion, and translating a scene from *The Tree of Life* from the language of metaphor to the language of simile is similarly jarring. “Of course, I know that Jack has not died and gone to heaven, but his encounter is taking place somewhere *like* a beach at sunset. And he is not literally reunited with his family but it is *as if* he meets them and feels something *like* a homecoming. And of course, all the people you have encountered at different times in your life do not *really* congregate together on the seashore, but it is *as if* memory creates its own kind of space with an unstable and uncertain relationship to the spaces of the physical world … and so on.” It’s a little shocking, and obviously doesn’t belong in the cinema (figure 110).
Notes


4 Zapf, *Literature as Cultural Ecology*, 126. See also Wendy Wheeler, *Expecting the Earth* (London: Lawrence and Wishart, 2016), 163. Kate Rigby makes a related argument, writing that poetry’s ecological potential arises from disclosing the nonhuman world as unsayable: “the literary text saves the earth by disclosing the nonequation of word and thing, poem and place.” Kate Rigby, “Earth, World, Text: On the (Im)possibility of Ecopoiesis,” *New Literary History* 35, no. 3 (Summer 2004): 440.

5 Bateson argued that the sacred usually does not make sense to rational modes of thinking, and “because it doesn’t make prose sense it has to be more or less secret, partly secret from the prose part of the mind. But that secrecy … is a protecting of parts of the whole process … to see they don’t neutralize each other.” UCSC, LCD10283, *Gregory Bateson Recordings 1973 and 1974*, “On the Ecology of Mind—Naropa, 1974,” 1974.

7 Notably, some critics disparaged the beach sequence because they felt it resembled the imagery found in advertising: the beach sequences looked to them “suspiciously similar to the white sandy beach last used to represent the hereafter or sell sanitary napkins, or life insurance, depending on which channel you chance upon.” Perhaps it’s a valid complaint that Malick could have found a more innovative visual vocabulary for this sequence, but the critique reminds me of Bateson’s anxiety about the collapse of distinction between different types of communication in our increasingly mediated experience. You can use images of spiritual redemption to sell life insurance, but before long those images cease to be images of spiritual redemption. See: “Review: The Tree of Life” on “These Violent Delights” a website by film critic Tom Shone, accessed at: http://tomshone.blogspot.com/2011/05/review-tree-of-life-dir-malick.html
WATER SNAKES

Bateson liked to quote the following passage from Samuel Taylor Coleridge’s “The Rime of the Ancient Mariner.” This passage was, Bateson said, the “central fulcrum—the turning point—of the whole poem,” and he always found it “singularly moving”:

Beyond the shadow of the ship,
I watched the water-snakes:
They moved in tracks of shining white,
And when they reared, the elfish light
Fell off in hoary flakes.

Within the shadow of the ship
I watched their rich attire:
Blue, glossy green, and velvet black,
They coiled and swam; and every track
Was a flash of golden fire.

O happy living things! no tongue
Their beauty might declare:
A spring of love gushed from my heart,
And I blessed them unaware:
Sure my kind saint took pity on me,
And I blessed them unaware.

The selfsame moment I could pray;
And from my neck so free
The Albatross fell off, and sank
Like lead into the sea.¹

This passage was, for Bateson, a way to explore his interest in “information which should not get through.”² The Ancient Mariner sees the water snakes playing and “the beasts are so bloody beautiful,” Bateson said, that he blesses them unaware. At that moment, the albatross falls off his neck and he finds himself able to pray. He sleeps, it rains, and the valence of the poem changes from getting worse to getting better, until he finally arrives back home. Bateson quipped that if the Ancient Mariner had gone to a psychiatrist and said, “Look, I have albatross trouble,” and the psychiatrist had advised that he go to the South Seas and find some water snakes and bless them, it wouldn’t have worked. “It is of the essence of that whole story that he blessed them unaware,” Bateson stressed; that he was “unconscious and unplanning, unpurposive at the moment when he blessed them.”³

Bateson’s argument here is a good example of what historian Daniel Belgrad describes as the central paradox of the “culture of feedback” of 1960s and 1970s environmentalism: the idea of “discarding purpose in order to achieve one’s purpose in a manner not predetermined.”⁴ Timothy Morton criticizes Bateson’s interpretation of this passage from “The Rime of the Ancient Mariner”: “It would be disastrous to maintain that the Mariner blesses the snakes only unconsciously,” Morton writes. “It would mean
we could only ever perform groundbreaking actions if we’re already wired for them….
‘unaware’ doesn’t mean ‘mindlessly’ or ‘automatically.’”
“I disagree with Gregory Bateson,” he continues, “who asserts that the only good decisions are unconscious ones”:
“What the Mariner performs with the water snakes isn’t just a random brain firing …
‘unaware’ doesn’t have to mean ‘automatically.’”

It seems to me that Morton misunderstands Bateson, who did not want to simply invert the hierarchy of conscious and unconscious, but instead to integrate the two. He was interested in how art could solve the problem of integrating “diverse parts of the mind.”

Making a cybernetic comparison of mind and electronic circuit, Bateson argued that consciousness was necessarily selective and partial, providing access to only a small part of “the circuitry of the mind” (see OUTLINES). If the total mind was “an integrated network,” and if “the content of consciousness is only a sampling of different parts and localities in this network; then, inevitably, the conscious view of the network as a whole is a monstrous denial of the integration of that whole. From the cutting of consciousness, what appears above the surface is arcs of circuits instead of either the complete circuits or the larger complete circuit of circuits. What the unaided consciousness (unaided by art, dreams, and the like) can never appreciate is the systemic nature of mind.”

This is where artistic communication enters the picture, and is valuable to the extent that it provides the wisdom of “correcting a too purposive view of life and making the view more systemic.” Bateson saw art as “an exercise in communicating about the species of unconsciousness,” a kind of “play behavior” whose function was “to practice and make more perfect communication of this kind.” Art communicates a sort of
message that carried the metacommunication: “This is a message about the interface between conscious and unconscious” (see Vinegar).¹¹

Timothy Morton presents an overly simplified version of Bateson’s thought. Moreover, Morton’s characterization of the unconscious as “wired,” “mindless,” and “automatic,” feels miles away from Bateson’s more capacious definition of mind, and incompatible with the biosemiotic imperative to acknowledge modes of thought beyond the conscious and symbolic. Bateson’s model of the unconscious is considerably richer and more complex than what we get in Morton’s gloss, given that he distinguishes between unconscious habit, processes of perception, Freudian repression, as well as the embodied skill involved in artistic performance.¹² I don’t hear Bateson saying that “the only good decisions are unconscious ones,” rather that the best decisions about certain systemic issues would emerge from the integration of both conscious and unconscious insights.¹³

Problems of integration are also central to The Tree of Life, which develops a contrast between the “way of nature” and the “way of grace” (see Bush). As Steven Rybin argues, Malick aims to show us how “both the ethereally spiritual and the brutally natural are intertwined.”¹⁴ One of the final images of the film is a majestic shot of a suspension bridge crossing an expanse of water, a visual emblem of the arc that completes a circuit (figure 111).
Malick is a filmmaker who is known for blessing his subjects unawares. That is, he has a reputation for taking advantage of chance occurrences captured by the camera. Dan Glass, the visual effects supervisor on *The Tree of Life*, said that Malick brings an improvisational style to live-action shooting: “He shoots very long takes, and he’ll purposely distract the actors so that he might capture an unplanned moment. Often, the bits of performance he prefers are those that happen after he has said ‘cut.’” In *The Tree of Life* for example, the captivating moment when a butterfly lands on Mrs. O’Brien’s (Jessica Chastain) hand was apparently a happy accident caught on film (figure 112).
Glass stated that Malick wanted to achieve the same improvisational style with visual effects despite the fact that improvisation is anathema to that kind of image production. “The great challenge of this project,” he said, “was to introduce an air of improvisation into the inherently deliberate and preplanned process of producing visual effects.”16 The legendary filmmaker and special effects guru Douglas Trumbull was brought in as a consultant to oversee the film’s images of astrophysical phenomena. Trumbull talked about how Malick was looking for “the unexpected, mysterious, beautiful, circumstantial event that would occur that none of us could plan.” “What I had to do,” he said, was create a circumstance where “something unusual could occur.” “Mysterious unexpected things occur that you can’t design and you can’t think up,” Trumbull said.17
Notes

1 Bateson and Bateson, Angels Fear, 73; UCSC, LCD10286, Gregory Bateson

2 UCSC, LCD10229, Gregory Bateson Recordings 1980, pt. 1, “Talk to Deamer’s

3 UCSC, LCD10229, Gregory Bateson Recordings 1980, pt. 1, “Talk to Deamer’s

4 Daniel Belgrad, The Culture of Feedback: Ecological Thinking in ‘70s America

5 Timothy Morton, The Ecological Thought (Cambridge, MA: Harvard University Press,
2010), 93.

6 Morton, The Ecological Thought, 100.

7 Bateson, Steps, 129.

8 Bateson, Steps, 145.

9 Bateson, Steps, 147.

10 Bateson, Steps, 137.

11 Bateson, Steps, 138.

12 Bateson, Steps, 134–35, 137. Hoffmeyer writes that Bateson’s work asserts that “nature
is not the mindless kind of thing the natural sciences have stubbornly tried to reduce it
to,” Jesper Hoffmeyer, “From Thing to Relation. On Bateson’s Bioanthropology,” in
Jesper Hoffmeyer, ed., A Legacy for Living Systems: Gregory Bateson as Precursor to
Biosemiotics (Cham: Springer, 2008), 28.
13 We might also note Kay Milton’s argument about the passage’s “basis in emotion”:
“The Ancient Mariner was able to bless the water snakes unknowingly because, in conventional dualist language, he blessed them with his heart and not with his head. He did not think the blessing, but felt it, as ‘a spring of love,’” Kay Milton, *Loving Nature: Towards an Ecology of Emotion* (London: Routledge, 2002), 104.


16 Jesser, “The Tree of Life,” 68.

Waves

Bateson observed that a considerable portion of Leonardo da Vinci’s notebooks were dedicated to the nature of waves. Bateson shared the artist’s fascination. What was so mysterious and compelling about waves for Bateson, was that they manifested different orders of change. Molecules of water get left behind while the wave moves on, and wave heads get left behind while new ones form in the wave train. Wave heads in the front are diminishing while those in back are growing. The wave train goes on but is continually made of different waves, and the wave goes on but is continually made of different molecules: two orders of change in one phenomenon.¹

Bateson’s discussion of waves and orders of change finds a correspondence with the distinction made in systems theory between patterns of organization and structure (see Bagels). Humberto Maturana and Francisco Varela write that organization denotes “those relations that must exist among the components of a system for it to be a member of a specific class,” while structure denotes “the components and relations that actually constitute a particular unity and make its organization real.” They give the example of a toilet, which has a pattern of organization (“an apparatus capable of detecting the water level and another apparatus capable of stopping the inflow of water”) but whose specific structure could be modified by replacing a plastic float with a wooden one without changing the fact that there would still be a “toilet organization.”² Donella Meadows explains that systems consist of “elements, interconnections, and a function or purpose.” “A football team is a system with elements such as players, coach, field, and ball,” she explains. Its interconnections are “the rules of the game, the coach’s strategy, the players’
communications, and the laws of physics that govern the motions of ball and players. The purpose of the team is to win games.”\(^3\) The distinction between patterns of organization and structure is operative here because you can change all the players on the team, but it is “still recognizably a football team.”\(^4\)

Capra and Luisi explain how these concepts apply to living systems. “The study of pattern is crucial to the understanding of living systems,” they write, because systemic biological properties arise from “a configuration of ordered relationships.”\(^5\) Likewise, Meadows offers biological examples as well as social ones. “Your body replaces most of its cells every few weeks, but it goes on being your body.” The system of your body goes on being itself even with “complete substitutions of its elements,” she writes, “as long as its interconnections and purposes remain intact.”\(^6\) Bateson used the same example, noting that most of the molecules in his body had been replaced since he was born, and yet he went on being “Gregory Bateson.”\(^7\) In *Mindwalk*, Sophia uses this example as a means to explain how living systems are “self-renewing”: “Like all living organisms we are constantly replacing ourselves in continuous cycles, and much faster that we can imagine. Your pancreas, for example. Do you know that it replaces most of its cells within 24 hours? That means you wake up with a new pancreas each morning, and a new stomach lining as well…. Though most of our cells are being replaced … the pattern of our organization is still the same. That’s one of the important characteristics of life—continual structural change, yet stability in the pattern of the system’s organization.”\(^8\)

Bateson found a literary embodiment of this idea in Lewis Carroll. “You remember Alice, going through the woods and finding a mushroom... On top of the mushroom is a caterpillar, who is the sort of a prototype of all psychiatrists. The
caterpillar, when he finally notices Alice (like a good guru, he pretends not to notice) turns to her and says, ‘Who are you?’ Alice says, ‘I don’t really know because you see I’ve been changing so much.’ The caterpillar says, ‘Explain yourself.’ And Alice says, ‘I cannot explain myself.’ That is, ... the that which has been changing is not something that you can point to.’” 9 In other words, it is a pattern of organization.

In Švankmajer’s Alice, we meet the caterpillar in the form of an animated sock who asks Alice to explain herself. The hybrid form of the film, as both live action and stop-motion, visualizes the mystery of Alice as pattern and structure by depicting her in multiple material embodiments. There is Alice as played by the actor Kristyna Kohoutova, but also Alice as a doll brought to life by stop-motion animation. There is also a strange intermediary state when the actor is encased in a giant sarcophagus-like doll. Finally, in the English-language version, a vocal Alice spoken by Camilla Power is over-dubbed onto this visual train of Alices (figures 113, 114, and 115).
The Tree of Life also presents a single person as a wave-train of four different actors:

Sean Penn is middle-aged Jack; Hunter McCracken is young Jack; Michael Koeth is Jack at five years old; and Finnegan Williams is Jack at two years old. Jack O’Brien goes on but is continually made of different actors.
After outlining some of the logical traps of language, Bateson asked, “What are you going to do? You cannot throw away language which happens to be the most beautiful and elegant tool that we are provided with in many ways. So you have to become conscious of the traps that language provides and work along with it as best you can. And
if you begin to forget about the traps then you should got back to your Alice and reread both Alice books very carefully.”
Bateson asked his audience to picture a wine glass. Wet your finger and run it along the top of the glass. The vibration creates stationary waves on the surface of the liquid. Now, if you place an object into the liquid, say a spoon, every stationary wave in the entire system will be different. One could then, in theory, perceive the position of the spoon from the changing state of the waves. The creature most concerned with this kind of problem, according to Bateson, was the spider. The spider’s web is a resonating structure, and the spider samples the vibrations of the web with its legs. When an insect strikes the web, the spider determines its location and promptly goes to get it (see INTRODUCTION).

Bateson’s attention to similarities across organizational patterns allowed him to connect nonliving systems like stationary waves in a wine glass to biological phenomena like the sensory apparatus of a spider. Bateson proceeded to make an additional conceptual leap to the mental process of memory. He began with the image of a fishnet with threads and nodes. Imagine, he said, that the fishnet was tweaked in several places to set up a resonance pattern. Next, instead of tweaking the same places, we tweak it at places appropriate to that resonance. This is a model for the process of information retrieval. To remember the name of a person you met the other day, you retrieve resonating information: he had a beard; we met at this restaurant; we talked about this subject. Ah yes, it was so-and-so! Memory works by setting up a resonance pattern among pieces of information, and that resonance generates the missing piece you’re looking for.
Bateson paired the spider web example with an anecdote about the neurophysiologist and cybernetician Warren McCulloch, who held a conference on information retrieval at his home in Connecticut. His ninety-year-old mother was living with him at the time, and became increasingly agitated by the discussion. McCulloch found his mother in the kitchen, where she complained that these intellectuals knew nothing about information retrieval. She had trouble with memory and so felt herself to be something of an expert. You don’t label pieces of information, and you don’t create a grid to keep everything in its place, she said. You “keep a little bit of everything everywhere.” That is, you leave some knitting in the living room, and some knitting in your bedroom, and you have one pair of glasses in the bathroom, and one pair in the kitchen, and everywhere you go you have some of everything you need.

This charming anecdote about the subjective experience of memory became the carrier wave for a lesson on systems thinking. The spider receiving a holistic picture of its web resonates with McCulloch’s mother’s approach to information retrieval. The Tree of Life is a film that resembles Bateson’s fishnet example, since it is a cinematic network of memories, with Jack piecing together fragments of his childhood in an attempt to find his lost brother. The film works by plucking first this memory, then that memory, until a resonance is set up that generates the missing information.
Notes


3 Memory also provided another avenue to explore the interface between pleroma and creatura in the case of a violin that remembers a good tone, an example of “hysteresis”: “the owner of a precious Stradivarius will not let some novice play it, lest the novice produce squawks and squeaks which the instrument will reproduce in the concert hall.” Bateson and Bateson, Angels Fear, 46–47.


A frog’s egg is spherical and radially symmetrical. There is no innate location on the egg that is set to be the future place of bilateral symmetry where the frog will be divided into a left side and right side. Bateson explained that this crucial meridian was determined by the entry point of the spermatozoa. The unfertilized egg only has information about making a bilateral form if and when it’s told where that meridian is. “That’s a heck of a situation for an organism to be in,” Bateson said. He described the egg as having an innate question built into it; a “readiness to respond when told the answer.” Remarkably, the process would unfold even without the spermatozoa. One could prick the egg with a camel’s hair and that point would become the bilateral meridian and the egg would develop into an adult frog “that will hop and catch flies,” though it will not be able to breed as it only has half the chromosomes that it should.

The idea that a frog’s egg has an innate question built into it is an important point of reference for Wendy Wheeler’s approach to biosemiotics. “Expectations are an important part of what it means to be alive,” Wheeler writes. “We all expect the Earth to be there when we put a foot out to walk or a fin to swim. We all expect the air to be there to breathe each day. We all expect daylight and night time, and weather and tomorrow.” “To expect something,” she continues, “is to be in relation to it.” Such relations could also be to an idea with no material existence but “great causal power”: “expectations are relations to no-things which have real causal and shaping powers” (see Dot). For Bateson, this was a defining characteristic of the living world (i.e., the creatura) since energy comes from within living organisms and does not have to come from an outside
source. “When I kick a stone,” he wrote, “I give energy to the stone, and it moves with that energy.” When I kick a dog, the dog “responds with energy got from metabolism”; that is, from its breakfast.5

Indeed, in the realm of the creatura, a message *not sent* can cause a response. Bateson gave the examples of the “thank you” letter that you *didn’t* send that might inspire an angry phone call, or the tax return that you *didn’t* submit that triggers a robust response from the IRS. The biblical story of Job probes related metaphysical questions: Why do bad things happen to seemingly pious people for no apparent reason? Why, Job asks, am I being punished when I haven’t done anything wrong? Joel and Ethan Coen found a clever way to depict this mystery in their cinematic adaptation of Job, *A Serious Man* (2009). In that film, the Job figure, Larry Gopnik (Michael Stuhlbarg), is plagued by messages from the Columbia Record Club, a company that was notorious for using the “negative option” marketing strategy whereby members were automatically sent the “Pick of the Month” disc if they failed to mail in a notification declining it. The letter not sent triggers a response. That’s a heck of a situation for an organism to be in (figure 116).
Notes

1 Bateson and Bateson, Angels Fear, 118; See also Bateson, A Sacred Unity, 178–79; Bateson, Mind and Nature, 154–55.


4 Wendy Wheeler, Expecting the Earth (London: Lawrence and Wishart, 2016), 12–13. On the frog’s egg, see 69, 156.

Bateson talked about the challenges of communication when two different cultures come into contact, as in anthropological fieldwork. Communication across cultural difference often resulted in simplification he said, and one of the easiest things to communicate was quantity. “How many yams for how many fish hooks? How much money? How much of this? How much of that?” At difficult meetings of two cultures, quantity took on an outsized significance because it could be easily understood.

In this example, Bateson puts an anthropological spin on his comparison of maximization and optimization (see Money). Another story that Bateson told about cultural contact had to do with the Cambridge University “high table.” After his first anthropological expedition to Papua New Guinea, he returned to Cambridge and ate a meal with the faculty. He became disgusted by the elegant conversation around the table, and decided that he could never live this life. On his second trip to Papua New Guinea, he discovered much more about New Guinea culture: about how the culture “sort of cogs together so that the way the women act and the way the men act fits with the way warfare is; it fits with the way growing sago is”; and the sorts of jokes people make. After this trip he returned to Cambridge and once again ate at the high table, but this time he was struck by the fact that this was “another of these beautiful ritualist societies, in which everything exactly fits together … and what the senior dons say fits with the way the junior dons pass the snuff, and so on.” He mentioned this observation to his neighbor and the man, shocked at the comparison, “went absolutely white—I mean already a white man—but he bleached. And turned to his neighbor on his left and started a conversation
about the weather.” This was a crucial moment for Bateson, when he realized that he had to look at “the culture matrix in which I was living” as the litmus paper to look at other cultures.\(^2\)

A notable aspect of this story is that it is one of the few explicit mentions of race in the Bateson audio archive. Bateson scholars need to find ways to extend his work so that it speaks more directly to environmental justice, postcolonial studies, and anti-racism. One place to begin that project is the work of Jamaican writer and cultural theorist Sylvia Wynter, who draws upon Bateson as well as systems theorists like Humberto Maturana and Francisco Varela.\(^3\) Wynter makes frequent reference to Bateson’s “Conscious Purpose versus Nature” essay, specifically his application of cybernetic models to link the human individual, society, and ecosystem.\(^4\) Bateson’s interest in locating patterns which connect these different systems seems to have been a useful point of reference for Wynter’s interest in humans as both biological entities and language-using, socioculturally shaped beings.

Wynter’s perspective reframes Bateson’s anecdote about trading yams and fish hooks: these are not universal conditions but historically and culturally specific ones. In fact, they are the defining characteristic not of all humans, but of what Wynter calls “homo oeconomicus.” The “high table” anecdote is a good illustration of Wynter’s observation that the “Western world-systemic societal order enacts and replicates itself” through institutions like Cambridge University that deny the historically based cultural narratives that constitute its particular order of truth and knowledge.\(^5\) This is precisely what Bateson realized when his colleague bleached and quickly changed the topic of conversation.
In *The Tree of Life*, the subject of racial iniquity is raised in a pair of contrasting scenes. Mr. O’Brien drives the boys through the wealthy part of town and complains about the phoniness of the people who live there: “they never talk about their money,” he carps. Meanwhile, the “wrong people” go hungry and die, he tells his sons. The “wrong people get loved,” he concludes, and “the world lives by trickery.” The existence of a social reality and patterns of injustice beyond the scope of his father’s worldview seems to dawn on Jack in the next scene, when the O’Brien family stops at a roadside food stand to buy barbecue brisket in what appears to be the Black part of town. Given that the film is an adaptation of Job, this pair of contrasting scenes extend Job’s metaphysical questioning to issues of race and class: not, “Why do bad things happen to pious people,” but “Why do the ‘wrong people’ go hungry?” To answer that question, we might need the whirlwind to deliver a different kind of thunderous explanation. That version of the whirlwind might seem less like a hazy cinematic special effect, and more like the storm of progress blowing from Paradise as described by Walter Benjamin, which piles “wreckage upon wreckage” at the feet of the angel of history (figures 117 and 118).
Notes


3 Wynter’s thought has compelling overlaps with the biosemiotic notion of “code duality,” and with Terrence Deacon’s arguments about the evolution of symbolic reference (see her concept of the “Third Event”).


Zoo

Bateson liked to stress that mammalian nonverbal communication was concerned with relationship. Animal communication consisted of an endless discussion of kinship conveyed by nonverbal sounds and gestures. When your cat makes a mewing sound when you walk into the kitchen in the morning, Bateson said, the cat is saying “Mama! Go the refrigerator and get me some milk.” Bateson’s most vivid example of nonverbal animal communication concerns a pack of wolves he saw in the Chicago Zoo. Some background: when young wolves are weaned, the mother sends the message by pushing the young wolf’s head down when it asks for milk. The wolf pack at the Chicago Zoo had an alpha male who had the presupposition that he should mate with the females when they came in heat. On one occasion, one of the junior males was mating with a female in heat. The alpha wolf rushes over to assert his dominant position, and the human observers braced themselves to see violent mayhem. Instead, they saw the alpha male push down the head of the naughty young male several times, using the weaning gesture, and then walk away fully satisfied that the relationship had been communicated: “You puppy, you.” “About non-verbal communication?” Bateson concluded, “That’s it!”

I think about nonverbal communication when I watch the final shot of King of Hearts. The inmates and Plumpick have returned to the asylum, and the Duke of Clubs (Jean-Claude Brialy) steps to the window and delivers the film’s final line of dialogue: “The greatest journeys are taken through the window” (see King of Hearts). Theme music crescendos and a slow fade to black begins, keying us to anticipate the end credits. During the dissolve however, the actor enacts a sudden and unexpected transformation in
his facial expression, his wistful smile melting away to reveal a more serious and even sublime emotional register. We see his mask fall away as the role of the Duke evaporates and we momentarily lock eyes with the actor, Jean-Claude Brialy.

Brialy’s surprising transformation sets off a chain reaction of ideas and associations, reframing and recalibrating my understanding of everything that’s come before. This final dissolve is an ecotonal interface between the narrative and the credit sequence: how does it relate to the constellation of other interfaces that permeate the movie? The window between asylum and town; between town and world; between Plumpick and the inmates; between the actors and the audience? Brialy’s mysterious nonverbal message makes the entire system of the film resonate at a new frequency and it is the ambiguity of this expression that lends it such far-reaching semiotic force. It’s a moment that I struggle to understand or explain. To borrow Bateson’s words, it has moved beyond what I can treat intellectually, and that seems to have something to do with why I find it beautiful. There’s something rather mysterious in that. Modulations of modulations of modulations (figure 119).
Notes

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