Gregory Bateson's Search for "Patterns Which Connect" Ecology and Mind

Richard J. Borden[1]
Rachel Carson Chair in Human Ecology
College of the Atlantic, Maine, United States

Figure 1: Gregory Bateson
Source: Institute of Intercultural Studies. Now in the public domain.

1   Author contact: rborden@coa.edu

Background and early life

Gregory Bateson was born near Cambridge, England, in 1904. He died in California in 1980. His grandfather, William Henry Bateson, was master of St. Johns College, Cambridge. His father William, a naturalist, was professor of biology, also at Cambridge (Levy & Rappaport, 1982).

Shortly before the turn of the century, William Bateson was conducting research on hybridization in birds and insects when he discovered the papers of the Austrian Monk Gregor Mendel. He immediately recognized their importance given his own experiments, had them translated into English, and became a strong supporter of the Mendelian laws of inheritance. Bateson is credited with coining a number of pioneering biological terms, including "genetics," "alleles," "zygote," "heterozygote," and "homozygote", among others. He was also instrumental in founding, in 1908, the Cambridge School of Genetics. It was fitting, perhaps, that his first-born son would inherit his given name from Mendel.

Gregory Bateson grew up in a rich intellectual environment. From childhood, he was surrounded by a lifeworld of preeminent scientists, philosophers, and scholars of history, the classics, and literature. But Bateson belonged to no academic discipline. He took his bachelors at Cambridge in biology and then switched to anthropology for graduate study.

His anthropological concerns were rooted in the natural biological sciences, not only as a result of his early academic training, but also from the intense informal childhood and adolescent education with his father and his father's circle. His father's interest in biological morphology (particularly questions of symmetry and asymmetry) and its generation, maintenance, and disruption was shared by Bateson, who enlarged it to include the morphology of behavior.

His early fieldwork was among the Latmul of New Guinea (1929–1933), and was the subject of his first book in 1936 (Bateson, 1936). During this time, he collaborated with—and married—Margaret Mead. His interest in behavioral morphology, which for him involved structures of meaning and communication, led him to be distrustful of reductionist models of cause and effect, which seemed to leave out too much and to distort understanding. He felt that explanations—and thought in general—that were not of the proper complexity in relation to the events being described were not only false in ways that he tried to specify, but were dangerous in that they led to destructive action.

Bateson developed his way of thinking and extended it to other issues, including cultural transmission, the study of play, of dance and of ritual, frequently relying on filmmaking as a methodological tool. Later in the 1940s and 1950s, he developed this style of thought further in relation to psychiatry (especially schizophrenia), social

organization, cybernetics, and communication in general. In the 1960s, he returned to his early interests in biology, embryology, and morphology, integrating them into his own broad-based and unique approach to problems of epistemology, evolutionary processes, and, ultimately, human ecology.

At the core of his thinking was "the relationship of mind and nature"—a theme that permeated his most widely read books: *Steps to an Ecology of Mind* (1972) and *Mind and Nature: A Necessary Unity* (1979). He collaborated closely on these, and other works, with his daughter Mary Catherine, who was herself a cultural anthropologist and successful author. Bateson also produced many hours of recorded lectures at Esalen, Lindesfarne, Saybrook, and Santa Cruz. I was given copies of these recordings many years ago, totaling more than 30 hours, and have listened to them multiple times.

According to Bateson, the major problems in the world were the result of the difference between how nature works and the way people think. His major goal was to discover "the pattern which connects" the realms (Bateson, 1978). This phrase comes from a letter to his fellow regents of the University of California in the late 1970s about the shortcomings of western education. He put it this way: "Break the pattern which connects the items of learning and you necessarily destroy all quality" (Bateson 1979, p. 8). This was his overarching aim—not only with regard to education, but to the living world as a whole (Bateson, 1979; Nachmanovitch, 1982).

To my ear, he was voicing something much like what Alfred North Whitehead once said. Near the end of his life, Whitehead wrote a synthesis of his philosophy for *The Library of Living Philosophers*. The book begins with a "philosopher's summary" of the work. The preface also includes a facsimile of Whitehead's final handwritten letter to the editor: "The progress of philosophy," he noted, "does not primarily involve reactions of agreement or dissent. It essentially consists in the enlargement of thought, whereby contradictions and agreements are transformed into partial aspects of wider points of view" (Whitehead, 1926, p. 664).

Whitehead was surely among Bateson's favorite references. But so were a great diversity of others, from Lamarck, Darwin, and Conrad Waddington to R. G. Collingwood, Von Neumann, Norbert Wiener, Lewis Carroll, William Blake, Samuel Butler, St. Augustine, and the Bible. He drew liberally from all of them to weave his way of thinking.

Bateson tended to move from general principles of the highest order of abstraction directly to (and from) examples, which he connected by metaphor or analogy, without seeming to be concerned with middle-range analytic problems.

Logic, psycho-logic and eco-logic

Let us begin with deduction. Bateson knew Bertrand Russell and Whitehead; he was also well versed in the rigor of their "Theory of Logical Types" (Whitehead & Russell, 1910). However, he believed that the project of classical logic left out most of the things he wanted to study. As he put it: "The if … then of causality contains time, but the if … then of logic is timeless. It follows that logic is an incomplete model of causality" (Bateson, 1979, p. 58).

One way to grasp Bateson's position is to look at the ways that human thinking relies on processes of story-like patterns. But even here, Bateson was skeptical about our rational bias for explaining life, rather than discovering *how to experience it*. At the heart of this confusion is something we frequently encounter in the comparison of denotative and connotative modes of meaning; namely, the problem of different kinds of mind.[2] Bateson illustrated the problem by comparing two types of syllogism. The first form, from classical logic, goes like this:

> Humans die;
> Socrates is human;
> Socrates will die.

The conclusion is reached deductively from the first (major) premise and the second (minor) premise. The basic structure of this logical tool is built upon classification. The predicate ("will die") is attached to Socrates by identifying him as a member of a class whose members share in that predication. Despite its honored role at the core of logical reasoning, Bateson maintained that this logical device is of little use in understanding how the mind actually works.

Induction

On the other side of the coin, he was likewise familiar, and unsatisfied, with inductive logic. And here I am quoting Bateson (1972):

> Many investigators … seem to believe that scientific advance is predominantly inductive, and should be … They believe that progress is made by the study of the "raw" data, leading to new heuristic concepts. The heuristic concepts are then to be regarded as "working hypotheses" and tested against more data. Gradually, it is hoped, the heuristic concepts will be corrected and improved until at last they are worthy of a place in the list of fundamentals. About fifty years of work—in which

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2   Portions of this paper were drawn from a discussion of metaphor and figurative language, which appears in my book *Ecology and Experience: Reflections from a Human Ecological Perspective* (2014).

thousands of clever people (men) have had their share—have, in fact, produced a rich crop of several hundred heuristic concepts, but, alas, scarcely a single principle worthy of a place in the list of fundamentals. (p. xix)

Bateson came to see the sociopsychological forms with which he was concerned as related to larger processes of evolution and adaptation. He discerned systematic relations of a number of kinds between processes of evolution viewed as phylogenetic "learning," and the learning that takes place at the individual human and cultural levels.

Abduction

To overcome the limitations imposed by the deductive and inductive methods, Bateson invoked a quite different form of syllogism, known as abduction (a notion he got from C. S Pierce):

> Grass dies;
> Humans die;
> Humans are grass.

The logical error here is known as affirming the consequence. But the "syllogism in grass," as Bateson called it, is the very basis of metaphoric relationships. Consider Walt Whitman (2006): "I bequeathe myself to the dirt, to grow from the grass I love; If you want me again, look for me under your boot-soles" (p. 105). Whitman's thoughts may be bad logic. But they are good poetry. That is precisely what Bateson wanted us to realize. Metaphors are not logical deductions. Nor are they instances of enumerative induction. They constitute an entirely different type of thought, illuminated best in the mind-like processes of abduction; and they are enormously widespread.

He called this *abduction* "the lateral extension of abstract components of description," which he took to be as important as deduction and induction. "Metaphor, dream, parable, allegory, the whole of art, the whole of science, the whole of religion, the whole of poetry, totemism … the organization of facts in comparative anatomy—all these are instances or aggregates of instances of abduction" (Bateson, 1979, p. 142).

He then, characteristically, pushed the idea further in his search for analogies of order. "But obviously the possibility of abduction extends to the very roots also of physical science, Newton's analysis of the solar system and the periodic table of the elements being historical examples" (Bateson, 1979, pp. 142–143). Bateson saw "mind-like" (abduction) processes throughout evolution and ecology; he likewise saw evolutionary ecological-like features throughout mind. In short, his aim was post-Cartesian, and his main tool was the study and elucidation of "syllogisms of grass."

One of his major themes was the recasting of epistemology. For Bateson, epistemology was not a minor branch of philosophy. He used the term in a much broader sense, as a "knowing how" to make connections common to all living things. A plant knows how to be a plant, in its own sort of way. Though not conscious of its epistemology, as we might epistemologically know how to do something, plants nonetheless carry within themselves an embedded knowledge-ability.

Bateson was not concerned with the specific features botanists used to classify a particular plant. He knew them. But his way of looking at an organism was more similar to what Goethe had done in his 1790 *Metamorphosis of Plants.* Like Goethe, Bateson went beyond normal scientific thinking. He wanted to penetrate the living sphere of creative morphology and expose the internal language of biological epistemology. This biological language, of how an organism's parts are held together and develop, was at the core of how the world fit together for Bateson.

He was not satisfied with explanations in terms of anatomical, physiological, or taxonomic definitions of what an organism *is*. Instead, he was seeking to comprehend how individual life forms develop, how they change, and, ultimately, the pattern through which all living things are connected. From his perspective, evolution was an ongoing process (like learning). And to understand it, according to Bateson, we must learn to think in terms of contextual relations.

It may be helpful here to consider the work of Jean Piaget and his theory of cognition known as "genetic epistemology." Genetic here does not refer to genes, but rather the broader meaning of genesis; that is, "the growth" of (epistemological) operations from birth to adulthood (Piaget, 1971). Most people consider Piaget to be a child psychologist. In fact, though, Piaget's doctorate was in biology–malacology, or more precisely in his case, the study of snails. His mapping of the stages of cognitive development is a close analog to how snail shells adapt and grow over time in their aquatic environment. The reciprocal adaptive processes of assimilation (taking in the environment) and accommodation (physical growth changes), seen in the progressive re-patterning of the organism, as Piaget discovered, are likewise characteristic of human mental growth.

For Piaget, the psychologist, cognitive development is about the adaptive growth of complex thinking and finding ever-better answers for cognitive problems. For Bateson, it seems to me, the issue was more on the side of "How do questions arise?" and the role of abduction-like processes in mind and in nature.

Metaphor

According to Bateson, "to fight all syllogisms in grass would be silly … These syllogisms are the very stuff of which natural history is made. When we look for regularities in the biological world, we meet them all the time" (Bateson & Bateson, 2004, pp. 26–27). This is Bateson's real jumping off point. Metaphors are a universal feature of life's connection to life, essential for understanding the unity of ecology and mind from his point of view.[3] "Metaphor, dream, parable, allegory, the whole of art, the whole of science, the whole of religion, the whole of poetry, totemism … the organization of acts in comparative anatomy—all these are instances of abduction" (Bateson, 1979, pp. 142–143).

The cure for the inadequacies of consciousness, of purposive rationality, is not to reject it in favor of a passionate non-rationality—and here Bateson separates himself from the extreme romantic position—but to augment and complete it. For him, the inadequacies of linear, purposive, discursive processes of consciousness were corrected by enlisting the aid of the non-discursive, pattern-comprehending, emotionally saturated "primary processes"—akin, in some respects, to the early psychoanalysts' descriptions of the unconscious. As he himself put it:

> Freudian psychology expanded the concept of mind inwards to include the whole communication system within the body—the autonomic, the habitual, and the vast range of unconscious process. What I am saying expands mind outwards. And both of these changes reduce the scope of the conscious self. A certain humility becomes appropriate, tempered by the dignity or joy of being part of something much bigger. (Bateson, 1972, pp. 462–463)

He had extended his idea of "mind" beyond the skin. He extended it once again, particularly in his last book *Mind and Nature*. There, he elaborates the characteristics of systems that seem to him to have the essential features that also characterize human mind. He found them essential aspects of living systems in general (including ecological systems comprising "living elements"), as well as of complex cybernetic systems constructed by humans.

To bring this back to the article by Cittadino (this volume), I am reminded of something Paul Sears once said: "The scientist climbs and climbs the mountain, and when he gets to the top, he finds the footprints of the poet" (cf. Burch & Carrera, 2003, pp. 420–421). Bateson was one of that rare breed of intellectuals who could get there both ways. This may be why he has been so difficult for most people to understand and appreciate.

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3   For a useful exploration on the psychology of metaphorical thought, see Glucksberg (2001).

The Batesonian metalogue

In my experience, it is far better to hear Bateson that to read him. His talks were not organized in the style of a formal scholarly lecture. He was, instead, performing a "metalogue"—a communication whose form is meant to illustrate its content. According to his long-time friend and colleague Lynn Hoffman, what Bateson was doing was an enactment of T.S. Eliot's paradigm of literary criticism, and particularly his notion of "the objective correlative." For Eliot, as Hoffman (2008) explained:

> a poem or a novel that was successful often contained a symbolic reference that stood for the meaning of the work. The Great White Whale in *Moby Dick* seemed to represent the obsessive quality of Ahab's search; in like fashion, the compass in John Donne's "The Lovers" pointed both to the outer arm that traces a distant trajectory and the center one that stands for the lover's return.

In sum, the epistemological error Bateson was fighting was what he called the "thingification of nouns." This correlates, I believe, with Whitehead's "fallacy of misplaced concreteness," and is similarly, perhaps, why Whiteheadian process philosophy is so difficult to grasp. For Whitehead, the ultimate nature of reality is not material (that is, matter, substance, or stuff). It is process. In other words, what we take to be "things" are actually more like "events"; akin to standing waves that come and go over time, though they may appear to be permanent, they are variable, transitory concrescences.

As Roger Keesing put it in his 1974 review of *Steps to an Ecology of Mind*, "Gregory Bateson has been blessed, and cursed, with a mind that sees through things to a world of pattern and form that lies beyond" (p. 370). He then adds, "To have a vision of the world one's fellow members (men) do not share is lonely and even frightening" (Keesing, 1974, p. 370). On a more upbeat note, here is the closing paragraph of the Oxford human ecologist Philip Stewart's (1975) review of Bateson's ideas:

> What is Bateson's contribution to human ecology? The answer is perhaps that he makes it possible for the first time to conceive of a unified and rigorous science which will embrace both a man's material relation to his physical environment and his mental relation to his informational environment … With this new insight, the old partition between nature and culture fades to nothing, and one wonders how borderline phenomena were ever assigned to one or the other. Bateson's … essays show that he was the first to take some of the essential steps. They deserve to be read and reread by every human ecologist. It is my guess that we shall be adapting our minds to these new ideas for a long time to come. (p. 60)

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