The Embodied "Autopoietics" of Ammons's Long Poems

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In the often fastidious world of poetry criticism, A.R. Ammons really gets around. He is beloved of the prodigious Harold Bloom, who reads him as the neo-romantic heir of American Transcendentalism, and embraced by postmodern critics such as Marjorie Perloff, Kevin McGuirk, and Cary Wolf, who see him as decidedly post-romantic and experimental. What is it about his poetics that fulfills a Harold Bloom's notion of identity as presence, and a Marjorie Perloff's notion of identity as play? The answer lies, I will argue, in the way Ammons's poetics marries organicism and cybernetics by shifting the locus of organicism to the level of DNA code.

A self-proclaimed avid reader of *Scientific American*, Ammons was most certainly familiar with Norbert Weiner's theory of cybernetics, which came out in a 1948 issue. Cary Wolfe usefully outlines Ammons's engagement with cybernetic theory in his long poems, citing evidence such as his emphasis on "the becoming, rather than the Being, of nature" and his references to "information," "bit-nature," and "ideal organizations" (374, 375). However, Ammons doesn't fall prey to the criticism that Katherine Hayles levels against cybernetics, that it erases the important role of the body. Indeed, Ammons seems to respond to this very problem with cybernetics in his insistence in "Essay on Poetics" that "more takes place by way / of event, disposition and such in a single cell than any computer / we now have could keep registration of" (*Collected* 308).

One influential theory of cognition and the emergence of consciousness that grew out of Wiener's early cybernetic theories is "autopoiesis." Biologists Humberto Maturana and Francisco Varela first theorized autopoiesis as the process of "self-making" by which

autonomous organisms generate and maintain their internal structures and organizations. Ammons describes a kind of "autopoietic" poetics in the essay "A Poem is a Walk" when he writes, "Each poem in becoming generates the laws by which it is generated" (*Set in Motion* 14). Like a hike through the woods or a stroll around the neighborhood, a poem's rhythms and structures, strides and duration, emerge through the *process* of the walk, or the act of writing, itself. But Ammons's "autopoietics" of the walk is far from disembodied. He also emphasizes the crucial role of the body in forming the structures and organization of the poem and the walk. He writes,

> each makes use of the whole body, involvement is total, both mind and body. You can't take a walk without feet and legs, without a circulatory system, a guidance and coordinating system, without eyes, ears, desire, will, need: the total person…. [A]s with a walk, a poem is not simply a mental activity: it has body, rhythm, feeling, sound, and mind, conscious and subconscious. (*Set in Motion* 16)

Ammons thus engages and plays with cybernetic models of consciousness and nature in his "autopoietic" poems, but also attempts to keep embodiment in the picture.

Ammons's description of the relationship between his poetics and the body is reminiscent of Charles Olson's organic poetics famously outlined in his 1950 essay "Projective Verse." In it, he calls for a poetry that is projected from the poet's body, ear, and breath; the poem is "energy transferred from where the poet got it," and the poem must embrace *process*, must be in motion: "ONE PERCEPTION MUST IMMEDIATELY AND DIRECTLY LEAD TO A FURTHER PERCEPTION" (240). These two principles of the body and process are

certainly evident in Ammons's poems, as we have seen. Ammons makes this connection to organicism directly in his long poem "Essay on Poetics."

> poems, of human make, are
>
> body images, organisms of this human organism: if that isn't
> so I will be terribly disappointed: it sounds as if it ought to
> be right: consonants, vowels, idioms, phrases, clauses (tissues),
>
> sentences (organs), verses (organ systems), poems (living worlds):
> (*Collected* 312)

But isn't it odd to read the claim that "poems…are body images" in a poem with such a boxy and artificial-looking structure of three-line stanzas? Ammons violates Olson's third principle of organic form in his long poems: "FORM IS NEVER MORE THAN AN EXTENSION OF CONTENT" (240). For Olson, content comes first, and the poetic form emerges from it. Olson's organic forms thus sprawl and flow with differing line lengths and stanza sizes. But Ammons in his long poems forces his content into an artificially-imposed form like the adding machine tape or the stanza and strophe sequence. The final stanza of the long poem "Hibernaculum" is a good example of how Ammons seems to reverse Olson's dictum about form and content. Here the content seems to be more in service of the form:

> … I'm reading Xenophon's *Oeconomicus* 'with
> considerable pleasure and enlightenment' and with
> appreciation that saying so fills this stanza nicely. (*Collected* 388)

Ammons only seems to flout this one aspect of an organic poetics, however. If it turns out that poems are not body images, he writes, "I will be terribly disappointed: it sounds as if it ought to / be right." If he means us to read his long poems as "body images," as imitations of the flow of content within an embodied consciousness, then what are we to make of his seemingly inorganic use of form? Ammons addresses this question directly later in "Essay on Poetics" when he examines "the transcendental vegetative analogy" of organic form.

> …the analogy is so appealing, so swept with
>
> conviction, that I hardly ever have the strength to question it:
> I've often said that a poem in becoming generates the laws of its
> own becoming: that certainly sounds like a tree, growing up with
>
> no purpose but to become itself… (*Collected* 315-16)

Again, Ammons references a kind of "autopoietics," an organic "self-making" mechanism behind the emergence of a poem, a tree, or of consciousness. But then he takes this notion of autopoiesis to an even more fundamental mechanism of the body—genetics.

> …but actually, a tree
> is a print-out: the tree becomes exactly what the locked genetic
>
> code has pre-ordained—allowing, of course, for variables of weather,
> soil, etc.: so that the idea that some organic becoming is
> realizing itself in the vegetative kingdom is only partially
>
> adequate: real change occurs along the chromosomes, a risky business
> apparently based on accidence, chance, unforeseeable distortion: (316)

As it emerges and grows, a tree does not create some new and unique form and organization. This is why we can recognize a white oak tree, no matter what its size or its permutations, and can distinguish it from, say, a gingko or a sycamore. For different species of trees and animals there are certain structures and organizations that are "pre-ordained," making organisms, to a certain extent, a "print-out" of their genetic code. Ammons's long poems themselves resemble a kind of "print-out" of information with their uniform columns and lines. As a result, through his imposition of a "pre-ordained," uniform organization onto the content of his poems, Ammons does not negate his desire for his poems to be "body images." Instead, the form of his long poems seems to enact a more realistic organic emergence than more traditional models of organicism. The version of "autopoiesis" expressed in the long

poems does not allow for "self-making" in a vacuum, ex nihilo. It explores the notion that a true organic poetics involves an autopoiesis of and within already given structures.

Ammons writes of this poetics that he is "not so much // arguing with the organic school as shifting true organismus from / the already organized to the bleak periphery of possibility" (316). He shifts the possibility for organizational change to the level of the chromosome, where "accidence, chance, unforeseeable distortion" can generate "harmful" or "potentially favorable mutations." But the ratio of harmful to favorable mutations is "like 50,000 to 1." Natural mechanisms protect an organism by causing it to repeat its favorable organization, to be a print-out, "not allow[ing] haphazard change to riddle it," but also allowing species "the capacity to adjust, / should adjustment be indicated or allowed" (316).

The analogy of a "print-out," of course, can have disturbing implications. DNA was originally discovered in 1953 and so was a relatively new concept when Ammons wrote "Essay on Poetics" in the late 1960s, but his analogy of the "print-out" seems even more relevant today since the Human Genome Project has sequenced human DNA. Visit the HGP's website, and one can view the actual sequence itself, which consists of long columns of letters and numbers, incomprehensible to the layperson, fascinating, but somehow unsettling. Those long columns represent a code that when "printed out" results in a human being, a representation that introduces the specter of biological determinism. If an organism is merely a "print-out" of its genetic code, then where is the possibility for creativity, diversity, and motion in all of this? Understanding an organism or a poem as a "print-out" seems incompatible with Ammons's desire to make "a home of motion."

If we examine Ammons's enactment of this "print-out" metaphor in his long poems, however, this incompatibility disappears. For while Ammons's poems might resemble a

print-out in *structure*, they are far from uniform and rigid in the flow of *content*. In fact, Ammons seems to work hard to subvert the organic whole of a stanza, deliberately dangling words like *a*, *with*, and *of*, at the ends of lines, stanzas, and even strophes. The uniform structures of his long poems, like the genetic and bodily structures behind human consciousness, offer him an opportunity and a place to play and create. "Hibernaculum" offers a helpful description of this relationship between "pre-ordained" forms and motion.

> I depend utterly
>
> on my body to produce me, keep me produced, don't you:
> the autonomy of the mind! who could desire it, staying
> up all night to keep the liver right, the pancreas calm:
>
> I prefer like the sweet brook to be at ease with my
> findings: I prefer the strictures that release me into
> motion: … (*Collected* 358-59)

The body structures, mechanisms, and organizations that are "printed-out" through the genetic code are certainly "strictures." Human beings can flap their arms all they like, but they will never take flight in the same way a bird's organization allows. Nor can we see a field of flowers as a bee does or experience the olfactory landscape around us in the same way as a dog. We can only respond to our environment based on our bodies' internal structures and organizations.[1] But these "strictures release [us] into motion" in myriad ways. The brain stem and limbic system take care of multiple systems in the body's interior for us, regulating heart beat, digestion, body temperature, and breathing so we don't have to stay up at night keeping "the liver right, the pancreas calm" (Edelman 117). Because of these "strictures" and structures of the body's organization, the conscious parts of our brains are "release[d] into

[1] This notion of organizational determinism is part of the original theory of autopoiesis, outlined by biologists Humberto Maturana and Francisco Varela in *Autopoiesis and Cognition: The Realization of the Living* (see Hayles 10).

motion," opening up time and space for us to experience the world outside our bodies, to analyze it and build and create within it.

Ammons's imposition of an adding machine tape or a strict stanza and strophe sequence onto the flow of content in his long poems, a form that "releases [him] into motion," thus imitates the ways in which the body's codes and structures shape the content of an organism's mind and experience of the world. He addresses this connection in terms of his poetics in the long poem "Extremes and Moderations":

> constructing the stanza is not in my case exceedingly
> difficult, variably invariable, permitting maximum change
> within maximum stability, the flow-breaking four-liner lattice
>
> of the satisfactory fall, grid seepage, currents distracted
> to side flow, multiple laterals that at some extreme spill
> a shelf, ease back, hit the jolt of the central impulse:… (*Collected* 329)

In this metaformalist passage, Ammons compares the structure of the poem to a "lattice," a grid that paradoxically permits "maximum change / within maximum stability." The structure of the lattice remains stable, while the content flows and changes within it. While Ammons is overtly writing about the structure and mechanism of his poem here, as we have seen, his metaformalism also works at the level of biological structures and mechanisms. If we replace "the stanza" in the passage above with "consciousness," this higher level of metaformalism becomes evident. For constructing consciousness is not "exceedingly difficult" for us; however complex its structures and processes may be, they are autopoietic, "self-making" structures—biological "givens" that we have no control over. Furthermore, these structures and processes of consciousness do function in some ways as a lattice, releasing us into motion, "permitting maximum change / within maximum stability."

Ammons's use of a lattice structure in his long poems to imitate the flow within a body's autopoietic structures "printed out" from the lattice of the genetic code also reflects Gerald Edelman's theory about how consciousness emerges. According to Edelman's Theory of Neuronal Group Selection (TNGS), the genetic code for each species "imposes a set of *constraints*" on the development of an individual's neuroanatomy. Nevertheless, Edelman explains that within those constraints, individual brains develop many variations in structure (*Bright Air* 83). Consequently, no two brains are "wired" in exactly the same way. Through developmental selection, cell division and cell death, a "primary repertoire" of neural networks is formed within an organism's brain (83). This primary repertoire then functions as a kind of lattice through which consciousness, knowledge, and memory flow. Synaptic connections are then strengthened or weakened within this lattice through the organism's behavior, forming a "secondary repertoire" of neuronal groups (85). These primary and secondary repertoires form maps which are then connected through a process called "reentry," and it is the complex patterns of interconnection between these neuronal groups that is the basis for behavior according to Edelman (85).

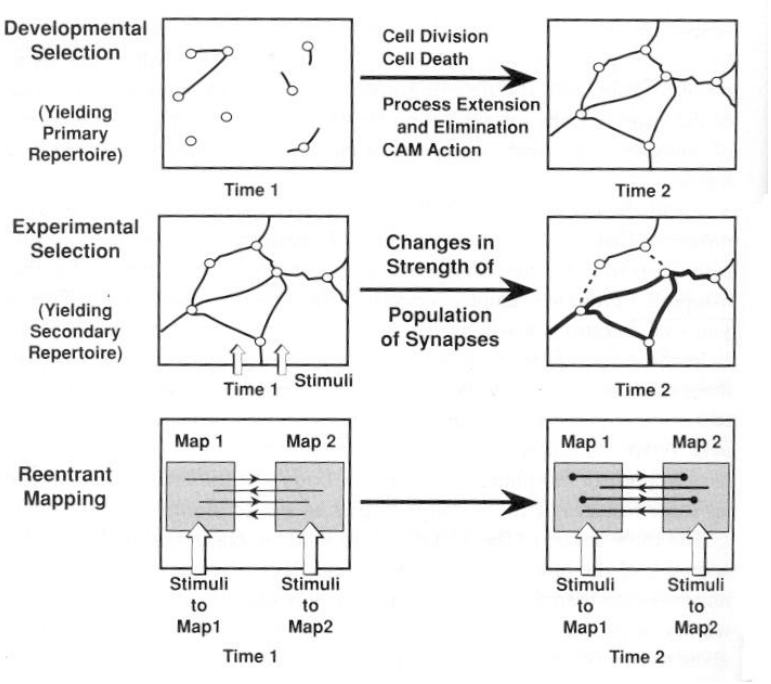

*FIGURE 1. Edelman's diagram of the TNGS depicts the brain's neural connections that form the primary and secondary repertoires in a way that resembles a lattice (*Bright Air *84).*

Edelman's TNGS (Figure 1) figures consciousness as a *process* that permits "maximum change" as connections between neurons and reentrant connections between maps are strengthened and weakened through behavior, as well as "maximum stability" within the lattice of those connections that were built through the genetic code and early developmental selection. Like the long poem's structure, the neuroanatomy of the brain remains "invariable"—permitting information to flow and vary within it, breaking off at times onto particular tangents, "spills," or "side flows" to create new connections between maps, but never losing track of the "central impulse" of the brain's activities. Ammons's imposition of a structural "constraint" upon the flow of his long poems thus enacts bodily mechanisms, even at the levels of genetics and neurology, behind the emergence of consciousness and behavior.

As Edelman's TNGS makes clear, the autopoietic processes behind the emergence of consciousness are not closed processes—merely structural "print-outs" of genetic code in the brain. The "primary repertoire" is formed through developmental selection as the organism interacts with its environment, not solely via the genetic code, which only provides "constraints" for how this process of selection and structure-building occurs (83). "Autopoiesis" was first theorized by Maturana and Varela as a kind of closed, circular process of self-making, but Varela would later revise this aspect of autopoiesis, arguing instead that embodied engagement with the environment, a process he calls "enaction," is crucial to an organism's development. According to his theory, the environment can have powerful transformative effects on the emergent structures of consciousness.[2]

Ammons is clearly interested in the "enaction" of an organism within its environment. In "Essay on Poetics" he acknowledges that "variables of weather, / soil, etc." can alter the genetic "print-out" of a growing tree, and that genetic mutations can allow "adjustments" to environmental changes (316). This examination of the effects of the environment on the structures of the mind/body is not confined to the *content* of the long poems, however. In "Hibernaculum" he also examines the process of "enaction" in the *form* of his poem. As I have demonstrated, Ammons seems to use the long poem form to imitate the "constraints" that the lattice of the genetic code and bodily structures place upon the flow of consciousness. The boxy stanzas and strophe sequences with equal line lengths offer a rigid format for his content to flow within. They are "strictures" that "release [him] into motion" (359). And yet the line lengths subtly shift in "Hibernaculum." How does this shift in form relate to embodied consciousness and enaction?

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[2] See Varela, Thompson, and Rosch.

As the title suggests, this poem, for the most part, is set in a winter environment. As Ammons is wont to do in the long poems, he periodically gives "weather reports" on the latest snowfall, observes the effects of the snow pile-up on the evergreens and the birds, speaks of "shoveling the driveway" (355), and even does a mental excavation of the "several strata" of his "garage roof snow" (359). Somewhere around strophe 70, though, his wintry content begins to shift to springier things as he ponders how the "gravity of a ladybug tipped down a blade of grass" (374), examines leaves, grass, and hollyhocks, and chronicles his encounters with a fly and earthworms (375-76). Interestingly, along with the springy and summery content, the stanzas' lines begin noticeably to lengthen until we reach strophe 76:

76

> …to my own: nothing's changed with all the divisions
> and terrors: the physical drowns and buoys, divides and comes
> together: the bird's song-air's in my range, comes on my air:
>
> I wrote the foregoing passage in July last year, which accounts
> for the change of weather and some summery tone: and a
> slightly longer line: winter is different, shortening:
>
> if you believe in equivocation as a way then you
> must also believe in univocation because that is one
> of the possibilities of equivocation: and if you…
>
> (*Collected* 376)

I quote all of strophe 76 here to illustrate the shift in form. The long lines that were stretching across the page in the previous strophes, which we now learn were written in July, are suddenly cut short again. The middle stanza is an interesting one in that its first line seemingly attempts to continue the longer-lined structure of the earlier stanzas written in the summer. But summer and apparently autumn as well have passed by the time Ammons again takes up the poem in mid-strophe, and so the next line appears a bit shorter. In the third line we see him "give up" his attempt to continue the longer line with the curt explanation, "winter

is different, shortening:." The lines continue at this shorter length through the rest of the poem, which remains in a winter landscape, ending with a description of starlings alighting in the snowy yew bush in his back yard.

Though Ammons's long poems explore the consequences of applying a rigid lattice form to the motion of poetic content, "Hibernaculum" demonstrates that this autopoietics is not a closed system. The environment pushes back on the structures of the poem. The dim light, low temperatures, and hibernating tempos of the winter environment cannot sustain the "summery tone" and "longer line" of the stanza written in July. Ammons demonstrates this environmentally-dictated organizational transformation well in the stair-stepping middle stanza. But of course, the transformation it engenders is not drastic. The poem does not break out of its lattice of three-stanza strophes with three-line stanzas, just as a white oak tree does not transform into a sycamore through the "variables of weather, / soil, etc." (316). The organizations given and "printed out" in an organism (or a poem) offer constraints that conserve it, give it its particular identity, and "release [it] into motion." But, like Varela and his theory of "enaction," Ammons is careful not to reduce organic emergence, whether of a poem or of consciousness, to a *mere* "print-out," and asserts the crucial role of embodied interaction with the environment in the development of that organism.

This analysis of the "autopoietics" of Ammons's long poems began with his analogy "A Poem is a Walk." As with the process of a walk, "Each poem in becoming generates the laws by which it is generated" (*Set in Motion* 14). That becoming is certainly structured by the "strictures" of the walker's body—the tempos of his internal mechanisms, the organization of his body/limbs, as well as his bodily senses and particular mental and emotional state. To be sure, a walk is also fundamentally structured through the walker's

bodily interaction with the environment. Though Ammons does not pursue this aspect of the analogy in the essay, the walking analogy certainly is consonant with the theory of "enaction." For a walk does not happen in a vacuum. The walker's body must be in constant interaction with the environment: avoiding obstructions, shifting the balance as the terrain rises and falls, adjusting body temperature as the temperature outside grows hotter or colder, reacting properly to potential threats that present themselves, etc. The analogy suggests that the environment in which the walk takes place also offers "strictures that release [us] into / motion," in which we, "like the sweet brook" making its way through the contours of a particular landscape, "[are] at ease with [our] / findings" (*Collected* 359). For Ammons, the autopoietics of a walk, an organism, or a poem is not only embodied in "pre-ordained" code and emergent structures, but it is also the result of embodied "enaction" within the strictures and structures of a particular environment.