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The Diverse Meanings of Artificial Life

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A recurring image comes to mind when confronted with aspects of the future. It is the image of a single physical human pose. The figure faces forward, arms outstretched. The position of the arms varies considerably. In one version the arms are open and palms beckon inward while in the other, the arms are taut, pushing with palms braced against an inexorable movement forward.

This physical sensation of being dragged forward only coincides with the second pose, the one I interpret it as a fear of the future. Curiously enough, the welcoming variation of the same pose doesn't indude the dragging sensation, but instead finds the figure planted in the present It welcomes the future to where it stands instead of being dragged unwillingly towards a future it does not understand and fears,

I've found envisioning as well as physically recreating this pose in its variations has helped me understand the complex meanings in our reactions to the future, speclfically to concepts exilting in the present in embryonic form, but indicating possibilities of fuller existences to come. One of the most interestinq of these, and germane to much recent work by artists involved with interactive technologies, is the growing research program, artlficlal hie.

According to Stephen Levy1, in his book AITIliC10/*Ufe*, philosopher Elliott Sober doubts that a purely philosophical answer to the questiorr "ls it life?" is possible, nor is the question itself ultimately impor1ant. Sober comments:

If a machine can extract energy from its environment, grow, repair damage to its body, and reproduce… what remains of the issue whether it is "really" alive!

The question of whether or not artffidal life is "really" alive may not be ultimately important, but the questicn tends to threaten people. Most of us are "speciesists'; a term coined by Richard D. Ryder to mean those who practice prejudice towards animals essentially comparable to racism and sexism, and used by philosopher Tom Reagan2 to mean "attempt(s) to draw moral boundaries solely on biological cons1derations." Similarly physicist Gerald Feinberg and biologist Robert Shapiro have coined the term 'carbaquists' for the majority of the human race that feel life only exists if it iscomposed of the same matter as natural biological organisms.3

No one has successfully proven that life either could or could not exist in any other form. Neither have angels been proven to exist, or elves or goblins or ghosts or animal spirits, but throughout the world's cultures these entities, real or not, have meant something profound to people. They have been the carriers of diverse conceptual meanings: good, evil, spirituality, rnystidsm, the afterlife. In addition, however, they have been carriers of more mundane meanings, and I use the word "mundane' here in the sense of rooted in the everyday living culture of a people, such as the particular religious, ethnic, tribal, geographic or time based culture from which they have grown. One thinks of Christian angels, Irish elves, Medieval goblins, African ghosts, or Native American animal spirits.

If I seem to be making a connection between these various visible-only-to-the-initiated beings, what most scientifically oriented thinkers would dismiss, at best, as imaginative ideation by primitive cultures, and artificial life "creatures" or forms, you can be sure I am and it is a connection of meaning. It seems to me that the fascination we feel when engaged with artificial life forms comes from the same source as the fascination we have always felt for quasi life forms. They are arbiters between this actual reality and other realities we think might exist, whether that might be heaven, hell, the underworld, the place of our ancestors, or in the more contemporary version, the silicon future. What is interesting here is that rather than looking back as people before us looked to the past through these quasi-life forms for answers or guidance about the meaning of life, we are looking for answers about the future.

In order for us to understand what metaphorical meanings alife might generate for cultures with which it comes in contact, a look at the meanings and goals of the overall research agenda of life is necessary. Emmeche4 outlines four central tenants for what might be considered a "strong" alife stance, one that includes a belief that life is not dependent on the medium. This stance comes primarily from Christopher Langton and his shepardingof the artifidal life research cause through conferences and publications. It differs from other research agendas in ar1ifidal life, such as Francisco Varela's, who sees Langton as something of a traditionalist Varela's program emphasizes the interconnectedness of the process, the medium and the environment, instead of the function of a process emphasizedin l.angton's program. But Langton's overall agenda is by far the most accepted in the scientific community, and so let us look at what he emphasizes.

These four tenants are:

1) The goal *of* a life research *is* to render an environment for the study *of life* as it-could-be. This will allow a theoretical biology to emerge based on generalizable organizational laws, not merely based on earth's evolutionary sequence;

2) The use of the synthetic method, based not on analyzing living beings, but synthesizing life-assembling processes or behavior in computers or other media,

3) The insistence on real (artificial) life "emerging" from the process of interaction of individual components;

4) The general understanding that all life is form, a process governed by a logic independent of the medium (It is here that Varela disagrees).

For the purposes of this essay, I would like to concentrate on the first and fourth tenants, that of "life-as-it-could-be," and that of the assumption that life can be understood separately from the medium. To begin with, why study life as it could be? What meanings do the scientists themselves attach to this research agenda? Chm Langtonl explains:

'We sense rhar the evolurionary trajectory tnat did in fact occur on earth is jurr one out of a vast ensemble of possible evolutionary trajecraries – each leading ro a biology rhar could have happened in principle, bur didn'r in fact solely for reasons of accident combined wirh common generic descent. We sense that the regularities we seek would be revealed to us if we could just get a glimpse of rhar space of possible biologies "

On the surface, this paragraph indicates a desire for a more complete picture of the general laws of life and biology than now exists. We may intuit the desire for a more positive future, one that we might change through understanding it better. We may intuit another possibility besides our human-centric perspective, a perspective that has caused myopic and destructive behavior on our parts towards the world at large. I hear, however, in this paragraph, a tremendous longing for what could" be, not for study, but for a different reality. Underneath this first general principle of the artificial life research agenda rs the wish for perfection, for something other than what we have, other than what we are. Langton is the first to admit, even in this introduction, that the research agenda of artificial life raises tremendous ethical questions. His belief in the possibilities of his work to create a life combined with self knowledge allows him this perspective and I see that as a step in the nght direction, but artists are contributing to this process of critical involvement as well.

Artists Christa Sommerer and Laurent M1gnonneau6 are examples of artists who interpret the principles of artificial life in their own unique ways. They insert the human observer into both the previously dosed structure of the art *making* experience *as* well as into the artificial life interaction itself. By doing so, they undermine the fourth tenant af the artificial hfe research agenda, that life can be defined as independent of rts medium. They

•... assume, similar to Gregory Bateson rhat the patterns of mind (conmousness) and the patterns of matter are reflections of one another and part of an unbroken dynamic whole.•

But the human artistic agenda here, while welcoming the future does more than just accept the notions of artificial life for its *own* aesthetic *ends.* Without denying the possibility of artificial life, it insists on the indusion of the existing biological medium in describing that possibility. ln that way, it contributes to both a new understanding of the creative process and to a new paradigm of thinking about artificial life. ln talking about these metaphors of meaning it is important to understand the context in which they are developing and the mythologies they emphasize. Roger Malina7 makes this point best when he says:

'/ think that the new biological sciences and technologies force us ro break the distinction between the 'we' and "the other," and ro view carbon- and siltcon-based /tfp forms as an inter-linked system, within which artistic work can be carried out. Just as space exploration forces us to look at life on earth from tbe outside, so the new bia/ogical sciences force us to look ar life from rhe inside – as part of a continuum of self-organizing processes in rhe universe.•

This view is very different from that of the traditional Western dichotomy between human and nature, between body and mind. as well as l.angton's version of the alife agenda.

Jane Prophet's8 Technosphere has evolved as a process- and concept-based artwork in which "creatures" generated by users through the WWW affect the artificial life environment of Technosphere. Prophet's comments about museum and gallery based exhibitions of the project indicate that the users' continuing connection with their creature is an essential component of the success of the project. Though users' in museums or galleries are not emailed continuing information about their "creatures," they are snail-mailed infonnation. Receiving *a* postcard via human mail carrier on the condition of an artificial life form that you have created seems to me to be a wonderfully rich metaphor for the meaning of our relationship with artificial life research and its applications, artistic and otherwise.

Our physical environments, whether they be museums, galleries, our still unconnected schools, or our many computerless homes limit us in our abilities to interact with our digital creations. We still receive mail by postal worker, and he or she still hoofs it from house to house. We are in many ways ill equipped for the creativity we are capable of. Those limits are set by our own biological roots in the environments which support us to go on creating.

Though universal access is the new demand, Joe Lewis9 asks an essential question of the supposition that access to technology will automatically solve all the ethical questions engendered by its use:

•... wt/I equal access encourage tbe opposite, a drone underdass, economically, physically, and spiritually, dependent upon "virtualness" for its life tone?

One only has to think of the role artificial life based games for both young girls and boys are beginning to play m the formation of *a* young adult personality to understand the practicalrtyand foresight of Lewis's question.

Jill Scott's[10] new work at the ZKM, Medienmuseum Karlsruhe, *Digital Body-Auromato* asks similar questions. She says:

"These works suggest that a shifr in our notions of 'matter' and of 'nature' may change the way artists represent the human body. As miao-biologist5 have cloned a sheep and predict human cloning in the near future, I wander, both from the perspective of a woman and an artist what will happen to 'reproduction.•

Scott's work and comments allowed me to perform another visualization. This one involves mothering. If I allow myself to both conceptually and physically sense the experience of being a mother to these artificial life forms and the meanings they generate for the present and the future, I begin to find my first satisfying path through all the thinking and writing I have been doing about artificial life over the past year. Sara Rudd1Ck's[11] book *Maternal Thinking* makes the case for viewing maternal practice as demanding a distinctive reflective discipline, while not regulating this discipline to gender or biological qualifications for inclusion. She says:

'Daily, mothers thmk out straregies of prorecrion, nurturance, and training. Frequently conflicts berween strategies or berween fundamental demands provoke mothers ro rhink abaur the meaning and relative weighr of preservation, growth and acceptability."

This book, along with my own experience as a mother, has initiated *a* much longer conversation with the ideas posed *in* this paper. As artists, we have mothered, if by that we *mean* protecting, nurturing, our creations on the baSIS of a future goal, how we expect then to evolve, often only to find, to our surprise, that our creations have taken on a life of their own. They have turned out differently than what we had expected Not for better or worse, just differently. My experience as a maternal thinker have been faced with similar opportunities.

The second pose I described *at* the beginning of this essay, the one planted in the present welcoming the future to come to it, probably grows out of those maternal reflections. It may be that the discipline of maternal thinking coupled with the physical and conceptual poses I describe offer a helpful model for becoming involved with the development of artificial life. This model strives to nurture and protect the children of the present, both human and otherwise, while welcoming the needs of future children, both human and otherwise. This model weighs demands *of* both, while developing strategies of imparting these same values and meanings to their charges. Mothering the future is a role we all might wish to take on

1, Stephen Levy, *Arrific,a/ /Jfe* (New York: Vintage Books, 1992) p.8
2. Tom Regan, *The Case for Animal Rights* (Berkeley, Califomia: University of California Press, 1983) p. 155.
3. Levy, p.8-9.
4. Gaus Emmeche, *The Garden in the Machine* (Princeton, New Jersey: Princeton University Press, 1994), p.17-20.
S. Christopher G. Langton, "Editor's Introduction" in CG. Langton (ed) *Artificial Life. An Overview,* 1995), p.ix-xi.
6. Christa Sommerer and Laurent Mignonneau, "Art as a Living System" in R. Ascott (ed.) *Consciousness Reframed: Art and (onsaousness in the Post-Biological Era* (Abstracts of the Proceedings of the First International CAiiA Research Conference, held July 1997 at the University of Wales College, Newport) p.86.
7. Roger Malina (1996) Moist Realities: the Arts and the New Biologies" *Leonardo* 29(1), pp.351-353.
8. Jane Prophet, (1996). "Sublime Ecologies and Artistic Endeavors," *Leonardo* 29(1), pp.339-334.
9. Joe Lewis, "Isolation, Wired or Chained? Community Web Building in the Era of Global Testpadding" in R. Ascon (ed.) *Consciousness Reframed: Art and Consciousness in the Post-Bialogical Era* (Proceedings of the First International CAliA Research Conference, held July 1997 at the University of Wales College, Newport, in press).

10. Jill Scott, "Future Bodies" in R. Ascott (ed) *Consciousness Reframed:Art and Consciousness in the Post-Biological Era* (Abstracts of the Proceedings of the First International CAiiA Research Conference held July 1997 at the University of Wales College, Newport), p.82.

11. Sara *Ruddick,Matema/Thinking.Towards a Politics of Peace* (Boston,:Beacon Press, 1989).