

Pilgrim Award

Acceptance Comments

Donna Haraway, July 7, 2011

actually in California, virtually in Lublin, Poland, at the SFRA meetings

**SF: Science Fiction, Speculative Fabulation, String Figures, So Far**

To say I am astounded to receive the Pilgrim Award from the SFRA would be an understatement, as well as an acknowledgment of the Astounding heritage from science fiction and its people that makes me feel humbled and grateful. I look at the list of those who have received the Pilgrim Award before me, and I can't believe I am in the company of my heroes of all available genders and genres. I do not deserve it, but I am mightily glad! I am sad not to be in Lublin with you, but family obligations made it impossible to come to Europe this July, and so I hope this projected audiovisual digital recording can convey some of the gratitude I feel to the Pilgrim committee and to the SF community.

**First Contact: in honor of Naomi Mitchison's *Memoirs of a Spacewoman*, where no contact forged by a communications specialist goes either unrewarded or unpunished**



For fun, here is a picture of a first contact on my stovetop; this homely encounter tells of my first experiences with SF. Note the meeting of time-obsessed, broody technology with sour tentacular terran fruit. Which can be considered more a sign of SF: the plump plastic hen, courtesy of the history of industrial chemistry, DuPont's Purity Hall, and the story of clocks, or the magic of my modern lemon tree, courtesy of the International Citrus Genome Consortium and multi-floral vagaries ripened in developmental time?

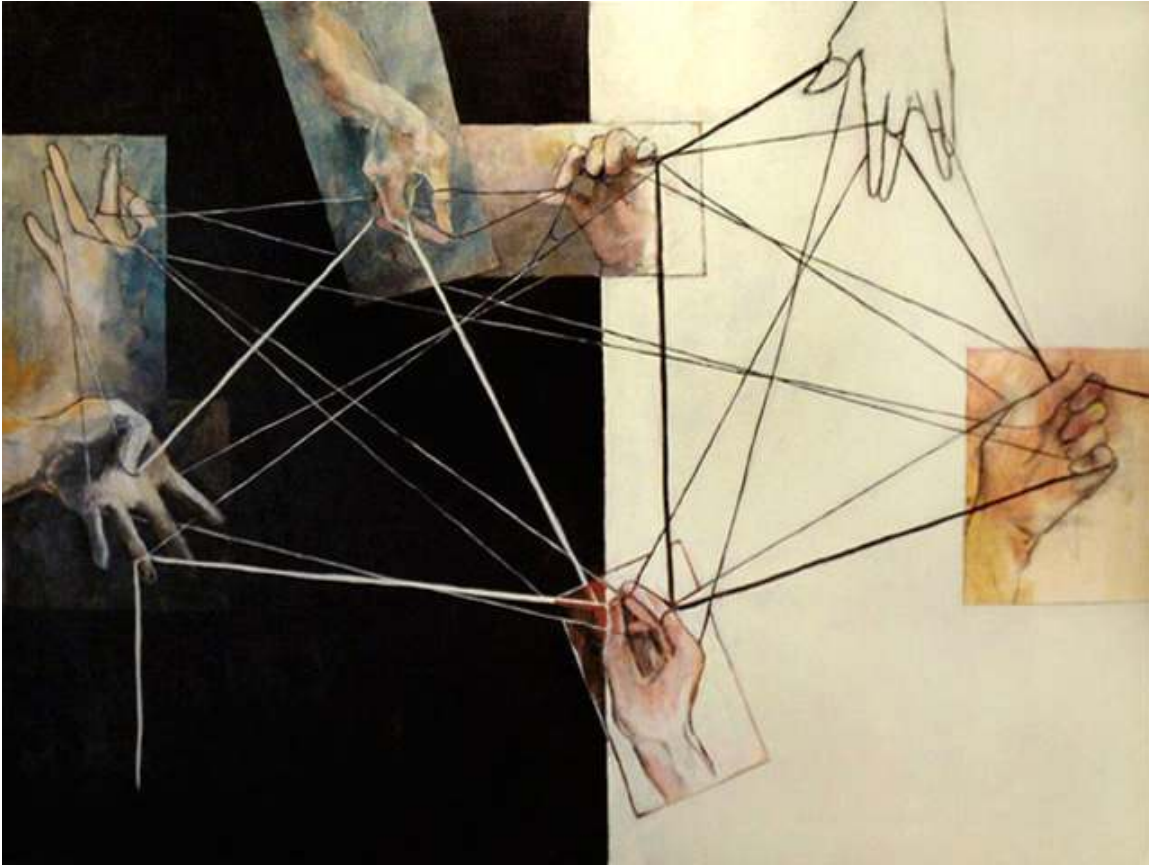
SF writers and thinkers have shaped me since the middle of the 1970s, when already an adult, I read Joanna Russ's *Female Man*, quickly followed by Samuel R. Delany's already decade-old *Babel 17*. Ignorant of almost everything in this multi-form worlding practice, I came to SF late, guided by companions who already knew how to read and why it mattered. They tossed me into turbulent and generative rivers of SF, from which I have drawn continuously, if not always legibly. I have tried to add my own rills to the flows of SF. I think of my craft as multispecies story telling in the feminist mode. Equipped with a PhD in molecular, developmental, and evolutionary biology, I have earned a living as a humanities scholar in science studies and feminist studies, with a kind of green card to reside under strict surveillance in biological and cultural anthropology. Art in the biological, ecological, and cyborg modes has only added to the SF *mêlée* that I call worlding. These knowledge-making and world-making fields inform a craft that for me is relentlessly replete with organic and inorganic critters and stories, in their thick material and narrative tissues. The tight coupling of writing and research—where both terms require the factual, fictional, and fabulated; where both terms are materialized in fiction and scholarship—seems to me to be built into SF's techno-organic, polyglot, polymorphic wiring diagrams. My multispecies story telling is inflected through SF in all the fibers of the string figures that I try to pattern and to relay.

## Brittle Stars



Taught by a stovetop hen and a developmentally challenged lemon, I am in the SF grip of what a former student of mine, Eva Hayward, calls “fingery eyes” or “tentacularity” and another former student, Katie King, calls “networked re-enactments” or “transknowledges.” “Fingery eyes” and “tentacularity” are Eva’s terms for sensual trans-ing, and interstitial jointings. Appreciating Hayward’s fingery eyes, Katie King writes, “Working out in a multiverse of articulating disciplines, interdisciplines, and multidisciplinarity, such transdisciplinary inspection actually *enjoys* the many flavors of details, offerings, passions, languages, things, even while also demonstrating that its own forms of validity are not entailed only within those elegant but divergent parsimonies of explanation. Instead, one index for the evaluation of transdisciplinary work is in how well it learns and models *how to be affected* or moved, how well it *opens up* unexpected elements of one’s own embodiments in lively and re-sensitizing worlds.” I think this criterion applies to SF in all its forms and modes. No surprise that Katie is one of those companions who taught me to read the voluptuous pleasures of SF in the first place.

## Cat's Cradle<sup>1</sup>



Baila Goldenthal, *Cat's Cradle/String Theory*, 2008, oil on canvas, 36" x 48

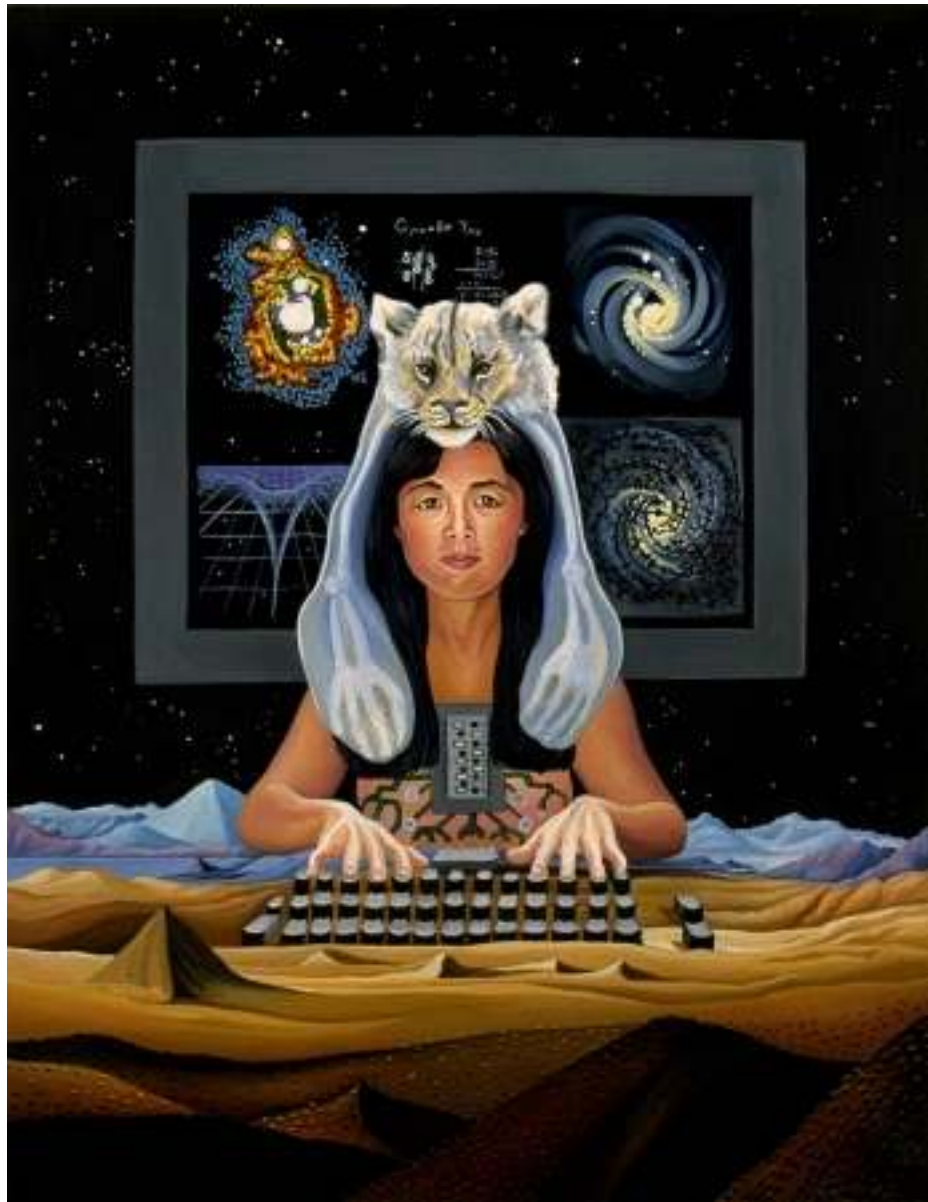
The British social anthropologist Marilyn Strathern, who wrote *The Gender of the Gift* based on her ethnographic work in highland Papua New Guinea (Mt. Hagen), taught me that “It matters what ideas we use to think other ideas (with).” [*Reproducing the Future* (Manchester UP, 1992), p. 10.] Marilyn embodies for me the practice of feminist speculative fabulation in the scholarly mode. It matters what matters we use to think other matters with; it matters what stories we tell to tell other stories with; it matters what knots knot knots, what thoughts think thoughts, what ties tie ties. It matters what stories make worlds, what worlds make stories. Marilyn wrote about accepting the risk of relentless contingency; she thinks about anthropology as the knowledge practice that studies relations with relations, that puts relations at risk with other relations, from unexpected other worlds. In 1933 Alfred North Whitehead, the American mathematician and process philosopher who infuses my sense of worlding, wrote *The Adventures of Ideas*. SF is precisely full of such adventures. Isabelle Stengers, a chemist, scholar

of Whitehead, and a seriously quirky Belgian feminist philosopher, gives me “speculative thinking” in spades. Isabelle insists we cannot denounce the world in the name of an ideal world. In the spirit of feminist communitarian anarchism and the idiom of Whitehead’s philosophy, she maintains that decisions must take place somehow in the presence of those who will bear their consequences.<sup>2</sup> In this same virtual sibling set, Marleen Barr morphed Heinlein’s speculative fiction into feminist fabulation for me. In relay and return, SF morphs in my writing and research into speculative fabulation and string figures. Relays, cat’s cradle, passing patterns back and forth, giving and receiving, patterning, holding the unasked-for pattern in one’s hands, responsibility, Octavia Butler’s Patternmaster series. My debts mount. Again and again, SF has given me the ideas, the stories, and the shapes with which I think ideas, shapes, and stories in feminist theory and science studies.

There is no way I can name all of my debts to SF’s critters and worlds, human and not, and so I will record only a few and hope for a credit extension for years yet to come. I will enter these debts in a short ledger of my teaching and publishing. I start with Marge Piercy’s *Woman on the Edge of Time*, a typescript of my curriculum vitae that was part of a file for consideration for promotion in the History of Science Department at Johns Hopkins in 1979-80, and a bottle of chalky white out. I had written an essay review of *Woman on the Edge of Time* for the activist publication, *Women, a Journal of Liberation* and duly recorded this little publication on the CV. “The past is the contested zone”—the past that is our thick, not-yet-fixed, present, wherewhen what is yet-to-come is now at stake—is the meme that drew me into Piercy’s story, and I was proud of the review. A senior colleague in History of Science, a supporter of my promotion, came to me with a too-friendly smile and that betraying bottle of white-out, asking me to blot out this publication from the scholarly record, “for my own good.”<sup>3</sup> He also wanted me to expunge “Signs of Dominance,” a long, research-dense essay about the semiotics and sociograms developed in mid-20<sup>th</sup>-century primate field studies of monkeys and apes.<sup>4</sup> To my shame to this day, I obeyed; to my relief to this day, no one was fooled.

Piercy’s temporalities and my growing sense of the SF-structure of primate field work made me write two essays for the brave, new, hyper-footnoted, University of Chicago feminist theory publication, *Signs*, and to title the essays in recognition of Piercy’s priority and patterned relay to me.<sup>5</sup> I could not forget—or disavow—Piercy’s research for *Woman on the Edge of*

*Time*, which led her to psychiatrist José Delgado's Rockland State Hospital experiments with remote-controlled telemetric implants, and my finding in my own archival research Delgado's National Institutes of Mental Health-funded work applied to gibbon studies in the ape colony on Hall's Island. The colonial and imperial roots & routes of SF are relentlessly real and inescapably fabulated. Later, living (non-optionally, in really real SF histories) with and as cyborgs, Piercy and I played cat's cradle again, this time with my "Cyborg Manifesto" and then her *He, She, and It*. Cyborgs were never just about the interdigitations of humans and information machines; cyborgs were from the get-go the materialization of imploded (not hybridized) human beings-information machines-multispecies organisms. Cyborgs were always simultaneously relentlessly real and inescapably fabulated. Like all good SF, they redid what counts as—what is—real. The obligatory multispecies story-telling script was written in 1960 United States space research, when Manfred Clynes and Nathan Kline coined the word "cyborg" in an article about their implanted rats and the advantages of self-regulating human-machine systems in outer space.



**Lynn Randolph, *Cyborg*, oil on masonite, 10" x 7", 1994**

Because no one was fooled by a palimpsestic CV painted with see-through white out, for precisely the same reasons and in the same month in 1980 I was fired at Johns Hopkins and hired in the first tenured faculty position in feminist theory in the U.S., in the History of Consciousness program at the University of California at Santa Cruz. If ever there was one in the Academy, HistCon is a SF site imbued with the spirit of Gregory Bateson (one of the early teachers in the program) and his kind of speculative adventures in thinking. In 1980 the program was usually pronounced HisCon. Thus provoked to give an inaugural lecture called HerScam, I shamelessly

used Galileo's conic sections to model 1) the tragic parabolic detumescence of HisCon's fantasies of escape velocity from Terra through a disembodied, flighty thing called "theory" (or were those just my hyper-feminist paranoias?); 2) the brutal, perfectly circular, futile, targeting strategies of a late capitalist, faithfully Kantian cosmopolitics in a state of permanent global war; and 3) the hyperbolic, bodily saturated, limit-defined lusts of HerScam's practice of feminist theory, aka the conic section I remain in love with. In this model-cylinder of the university ivory tower, we were left with the modest, historically pregnant, phenomena-saving ellipse, a shape with two foci that suggested co-promise. Somehow, a "t" found its way into the pronunciation of His(t)Con, and a deal was struck, even though my imputed story of causality here is highly suspect. What followed for me was a community of colleagues and students to die for, within which it was possible to write "The Cyborg Manifesto," "Situated Knowledges," "Teddy Bear Patriarchy," *Primate Visions, Simians, Cyborgs, and Women, Modest\_Witness@Second\_Millennium. FemaleMan©\_Meets\_OncoMouse™. Feminism and Technoscience, The Companion Species Manifesto, When Species Meet*, and now in progress, "Staying with the Trouble."

SF writers/thinkers/makers are among the stem cells of each of these efforts at scholarly multispecies story telling, sometimes obviously, sometimes cryptically. Remaking worlds within the matrix of abduction, forced generations and regenerations, and monstrous embodiment, Octavia Butler's *Xenogenesis* trilogy shaped my sense of field work in the history of scientific studies of free-ranging apes and monkeys. James Tiptree, Jr., was never very far away from my keyboards. Suzette Haden Elgin taught me and my students the power of Linguists. Feminist theory graduate seminars split vehemently in two between horse-crazy girls and psychoanalysts made of sterner theoretical stuff when we read Suzy McKee Charnas's *Motherlines*. Ursula LeGuin's now famous, then mimeographed and hand-circulated manuscript called "The Carrier Bag Theory of Fiction" gave me the courage and the conceptual apparatus to cheer for woman the gatherer in her argument with man the hunter in credible accounts of hominid evolution. Delany's *Tales of Nevèrjón*, especially the "Tale of Old Venn," and Fred Jameson's way of doing the cultural logic of late capitalism re-taught me semiotics after the trauma of researching "Signs of Dominance." That gave me more license to read and teach John Varley's story, "Press Enter v" and his rambunctious Gaeon trilogy as key feminist theory texts in graduate seminars,<sup>6</sup> an effort that, welded with Trinh T. Minh-ha's inappropriate/d others in her *Woman*,



*Native, Other: Writing Postcoloniality and Feminism*, resulted in an essay I titled "The Promises of Monsters: Reproductive Politics for Inappropriate/d Others." I learned more than I can tell from pluripotent SF stem cells seeded in my already promiscuous cyborg/canine/rodent/primate marrow: Sarah Lefanu, Pamela Sargent, Shulamith Firestone, Judith Merrill, Marleen Barr, Vivian Sobchack, Fran Bartkowsky, Eric Rabkin, Marilyn Hacker, Veronica Hollinger, Sherryl Vint, Teresa De Lauretis, Margaret Atwood, Monique Wittig, Istvan Csicsery-Ronay, Vonda McIntyre, Gwyneth Jones, Julie Czerneda, Joshua LaBare, and many more, earlier, later and ongoing—and always and again those who showed me and so many others how to live and die in the adventure in worlding, the adventure of thinking, called SF: Samuel R. Delany, Ursula K. LeGuin, and Joanna Russ.

Last year, I wrote an essay called "Sowing Worlds: a Seed Bag for Terraforming with Earth Others" for Helen Merrick and Margaret Grebowicz's *Beyond the Cyborg*. Merrick had incited me with her extraordinary book, *The Secret Feminist Cabal: a Cultural History of Science Fiction Feminisms*. LeGuin and Butler came back to me, this time bringing theriolinguists, ants, & acacia seeds and the U.S. teenage hyperempath Lauren Oya Olamina, named for the Yoruba Oya, mother of nine, the Orisha of the Niger River, with its nine tributaries. We will forever miss Butler's last parable, the unfinished *Parable of the Trickster*. Hyperbolic, limit-defining death is more than HerScam. Sheri S. Tepper's *The Companions* met my Klingon Warrior Princess agility dog companion Cayenne after I wrote *When Species Meet* (2008), but clearly Tepper's hyper-competent enhanced canines time-traveled back to render even more capable than they already were, the mundane critters I work & play with. *When Species Meet* is replete with all sorts of plant, microbial, animal, and technological critters engaged in terran work/play to learn to engage with response-ability, as companions, *cum panis*, with bread, at table together, when who is on the menu remains permanently at stake. Biologists are key players in *When Species Meet*, especially those who teach us about ecological developmental evolutionary biology, popularly known as EcoEvoDevo, i.e., to co-making of species with and by each other in a turtles-all-the-way-down sort of relaying and co-constitutive intra-acting. We have come full circle back to Strathern's commitment to the relentless contingency of relations. Partners do not precede the relating; the world is a verb, or at least a gerund; worlding is the dynamics of intra-action (Karen Barad's word from *Meeting the Universe Halfway*) and intra-patience, the giving and receiving of patterning, all the way down,

with consequences for who lives and who dies and how.

**Slide:**

**Ω**

$$\int_{\alpha} \text{Terra}[\mathbf{X}]_n = \iiint \dots \iiint \text{Terra}(\mathbf{X}_1, \mathbf{X}_2, \mathbf{X}_3, \mathbf{X}_4, \dots, \mathbf{X}_n, t) d\mathbf{X}_1 d\mathbf{X}_2 d\mathbf{X}_3 d\mathbf{X}_4 \dots d\mathbf{X}_n dt = \text{Terrapolis}$$

**α**

Companion species are engaged in the old art of terraforming; they are the players in a mathematical SF equation that describes Terrapolis. Finished once and for all with Kantian globalizing cosmopolitics and grumpy human-exceptionalist Heideggerian worlding, Terrapolis is a mongrel word composted in a mycorrhizium of Greek and Latin rootlets and their symbionts. Terrapolis exists in the SF web of always-too-much connection, where response-ability must be cobbled together, not in the existentialist and bond-less, lonely, Man-making gap theorized by Heidegger and his followers. Terrapolis is rich in world, inoculated against post-humanism but rich in com-post, inoculated against human exceptionalism but rich in humus, ripe for multispecies storytelling. This Terrapolis is not the home world for the human as *homo*, that ever parabolic, re- and detumescing self-image of the same, but for the human that is transmogrified in etymological IndoEuropean sleight of tongue into *guman*, that worker of and in the soil. My SF critters are beings of the mud, not the sky. My linguist and ancient civilizations scholar friends tell me that this *guman* is *adama/adam*, composted from all available genders and genres and competent to make a home world for Battlestar Galactica, in struggle certainly but no longer in a state of permanent war. This Terrapolis has kin-making, cat's-cradle, string-figure, SF relations with Isabelle Stengers's kind of fleshy cosmopolitics and SF writers' practices of worlding. This Terrapolis recognizes the tunneling Makers of Dune as planet-forming companion species.

**Microbial symbionts:**

**First, a fur mite on a koala bear fur shaft**



**And below, a protozoan with bacterial ectosymbionts**



An ordinary multiple integral equation fabulated for terran worlding, Terrapolis is a SF n-dimensional volume in earth's naturecultures. This SF equation reminded me that I learned about n-dimensional niche space from my mathematician-theoretical ecologist PhD supervisor, G. Evelyn Hutchison, in the late 1960s when I was a graduate student in Yale's Biology Department, a refugee in Hutchison's lab from a "genetic programming" sort of molecular biology lab that had no truck, or so I thought, with terran organisms in all their muddy, hyper-linked substances and indeterminate but quite definite processes. Hutchison gave me the mathematics, the reading habits, and the courage for the lumpy, roiling, biogeochemical flows and hyper-volumes of Terra. How could I have forgotten?

So, consider below a fictional multiple integral equation that is a flawed trope and a serious joke in an effort to picture what an intersectional — or intra-actional — theory might look like in Terrapolis. Think of this formalism as the mathematics of SF. SF is that potent material-semiotic sign for the riches of speculative fabulation, speculative feminism, science fiction, speculative fiction, science fact, science fantasy — and, I suggest, string figures. In looping threads and relays of patterning, this SF practice is a model for worlding. Therefore, SF must also mean "so far," opening up what is yet-to-come in protean entangled times' pasts, presents, and futures.

$$\int_{\alpha}^{\Omega} \text{Terra}[\mathbf{X}]_n = \iiint \dots \iint \text{Terra}(\mathbf{X}_1, \mathbf{X}_2, \mathbf{X}_3, \mathbf{X}_4, \dots, \mathbf{X}_n, t) d\mathbf{X}_1 d\mathbf{X}_2 d\mathbf{X}_3 d\mathbf{X}_4 \dots d\mathbf{X}_n dt = \text{Terrapolis}$$

$\mathbf{X}_1$  = stuff/physics,  $\mathbf{X}_2$  = capacity,  $\mathbf{X}_3$  = sociality,  $\mathbf{X}_4$  = materiality,  $\mathbf{X}_n$  = ??

$\alpha$  (alpha) = not zoë, but EcoEvoDevo's multispecies epigenesis

$\Omega$  (omega) = not bios, but recuperating terra's pluriverse

t = worlding time, not container time, entangled times of past/present/yet-to-come

Terrapolis is a fictional integral equation, a speculative fabulation  
 a "niche space" for multispecies becoming-with  
 Terrapolis is open, worldly, indeterminate, and polytemporal  
 a chimera of materials, languages, histories  
 companion species — not "post-human" but "com-post"  
 an equation for guman, for humus, for soil.

In this n-dimensional niche space, I am reminded that in her acceptance of the Pilgrim Award in 2008, Gwyneth Jones defined SF “as a volume, a set (overlapping with many others), in the vast, contained yet unlimited ocean of information—furnished with the icons of the genre.... Within *this* volume, every significant writer opens up a new Imagination Space.... Maybe the work of science fiction scholarship...[is] to forge links, build complexity, refine the details: and rescue the genuine novelty from each writer’s *generic* contribution.”<sup>7</sup> I like this approach, but I want to characterize the work of SF scholarship, and SF as a whole, also as a game of cat’s cradle or string figures, of giving and receiving patterns, dropping threads and so mostly failing but sometimes finding something that works, something consequential and maybe even beautiful, that wasn’t there before, of relaying connections that matter, of telling stories in hand upon hand, digit upon digit, attachment site upon attachment site, to craft conditions for flourishing in terran worlding. Like me, Jones says that she received her baptism in science fiction’s sexual politics from *The Female Man*. I want to end with string figures as SF partly in homage to Joanna Russ’s Janet Evason, who landed on a desk in front of, to her Whileaway eyes, oddly dressed men, whom we, in Joanna’s world, know to be in military uniform, and proposes a game of cat’s cradle to calm them down. They did not understand; they did not pick up the threads and marvel at the patternmaking. Innocent that she is, Janet reasoned that cat’s cradle is a universal sign of peace. It is surely one of humanity’s oldest games, but like guman instead of homo, string figures are not everywhere the same game.

Like all offspring of colonizing and imperial histories, I—we—have to relearn that all string figures are not exactly the same as English and U.S. American cat’s cradle. In the late 19<sup>th</sup> and early 20<sup>th</sup> centuries, United States and European ethnologists collected string figure games from all over the world; these discipline-making travelers were surprised that when they showed the string figure games that they had learned as children at home, their hosts already knew such games in greater variety. String figure games came late to Europe, probably from Asian trade routes. All of the epistemological desires and fables of this period of the history of comparative anthropology were ignited by the similarities and differences, with their undecidably independent inventions or cultural diffusions, tied together by the threads of hand and brain, making and thinking, in the relays of patterning in the “Native” and “Western” string figure games.<sup>8</sup>



**This picture shows the hands of Rusten Hogness, Donna’s partner, learning Ma’ii Ats’áá’ Yíłwoí, in English “Coyotes Running Opposite Ways.” Coyote is the trickster who constantly scatters the dust of disorder into the orderly star patterns made by the Fire God, setting up the non-innocent world-making performances of disorder and order that shape the lives of terran critters.**

In the Navajo language, string figure games are called na’atl’o’. They are one form of “continuous weaving,” practices for telling the stories of the constellations, of the emergence of the People, of the Diné.<sup>9</sup> These string figures are *thinking* as well as *making* practices, pedagogical practices and cosmological performances. Some Navajo thinkers describe string figures as one kind of patterning for restoring hózhó, a term imperfectly translated into English as harmony, beauty, and right relations of the world, including right relations of

humans and nonhumans. Not *in* the world, but *of* the world; that is what leads me to include Navajo string figures, na'atl'o', in the web of SF worlding. The worlds of SF are not containers; they are patternings, risky co-makings, speculative fabulations. It matters which ideas we think other ideas with; thinking or making cat's cradle with string figures with na'atl'o' is not an innocent universal gesture, but a risky proposition in relentless historical relational contingency. Janet Evason refused to hear Jael's claim that the wonderful world of *Whileaway* got its start from an act of biological warfare—genocide—that killed off all the human males. Like Joanna, we cannot afford that kind of forgetting. Anyone who recognizes the repeated acts of genocide that undergird that nonetheless precious thing called democracy surely knows this basic fact. How to be response-able is the consequential question in SF worlding.

String figure games are practices of scholarship, relaying, thinking with, becoming with in material-semiotic makings. Like SF, cat's cradle is a game of relaying patterns, of one hand, or pair of hands, or mouths and feet, or other sorts of tentacular things, holding still to receive something from another, and then relaying by adding something new, by proposing another knot, another web. Or better, it is not the hands that give and receive exactly, but the patterns, the patterning. Cat's cradle, string figures, na'atl'o' can be played by many, on all sorts of limbs, as long as the rhythm of accepting and giving is sustained. Scholarship is like that too; it is passing on in twists and skeins that require passion and action, holding still and moving, anchoring and launching.

So I end with renewed thanks to the SFRA and ongoing astonishment at receiving the Pilgrim Award. I hope that with others I can contribute to weaving this honor into the multicolored skeins and twists of SF worlding.

## Endnotes

<sup>1</sup> Kurt Vonnegut's 1963 *Cat's Cradle* is probably the first writing SF people think of when they hear the term, but in all my ignorance, my umbilicus for SF string games traces to *The Female Man*. In this year of Joanna Russ's dying, I need to record this matrix.

<sup>2</sup> Isabelle Stengers on relay, via Guattari, from "Relaying a War Machine":\_ "To try and take the relay, to try and become part of "an ambulant people of relayers, rather than a model city" [Guattari] produces a rather particular affect. ... More precisely, com-menting, if it means thinking-with, that is becoming-with, is in itself a way of relaying... But knowing that what you take has been held out entails a particular thinking "between ". It does not demand fidelity, still less fealty, rather a particular kind of loyalty, the answer to the trust of the held out hand. Even if this trust is not in "you" but in "creative uncertainty", even if the consequences and meaning of what has been done, thought or written, do not belong to you anymore than they belonged to the one you take the relay from, one way or another the relay is now in your hands, together with the demand that you do not proceed with "mechanical confidence"..... Haraway's own word for the kind of help she needs and loves unsurprisingly belongs to the register of the homely and the ordinary – cat's cradling, a child's game, apparently, but also a game versions of which exist in cultures all over the world. Two pairs of hands are needed [me in relay: or at least many tentacles, however attached to individuals or not], and in each successive step, one is "passive", offering the result of its previous operation, a string entanglement, for the other to operate, only to become active again at the next step, when the other presents the new entanglement. But it can also be said that each time the "passive" pair is the one that holds, and is held by the entanglement, only to "let it go" when the other one takes the relay. A complex dance indeed....."

<sup>3</sup> Haraway, Donna J. The Struggle for a Feminist Science: Reflections Based on *Woman on the Edge of Time* and *For Her Own Good*. *Women, a Journal of Liberation* 6/2. 1979, pp. 20-23.

<sup>4</sup> "Signs of Dominance: From a Physiology to a Cybernetics of Primate Society, C.R. Carpenter, 1930-70," *Studies in History of Biology* 6 (1983): 129-219.

<sup>5</sup> "Animal Sociology and a Natural Economy of the Body Politic, Part I, A Political Physiology of Dominance," *Signs* 4 (1978): 21-36. "Animal Sociology, P. II, The Past Is the Contested Zone: Human Nature and Theories of Production and Reproduction in Primate Behavior Studies," *Signs* 4 (1978): 37-60.

<sup>6</sup> The point was to read and teach these SF texts *as* theory, not as material to do theory *on*.

<sup>7</sup> Gwyneth Jones, "Pilgrim Award Acceptance. Imagination Space: a Thank-You Letter to the SFRA," *SFRA Review* 285, summer 2008, pp 11-12.



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<sup>8</sup> For the old-style ethnology, see Caroline Furness Jayne, *String Figures and How to Make Them: A Study of Cat's Cradle in Many Lands* (New York: Charles Scribner & Sons, 1906).

<sup>9</sup> Naabeehó Bináhásdzo (the Navajo Nation, the legal geographically defined territory for the semi-autonomous nation), or Diné Bikéyha (the People's name for Navajoland), is located in the Four Corners area of the Southwestern United States, surrounded by Colorado, Arizona, Utah, and New Mexico. For Navajo scholarship on their history, written in the web of Diné creation stories and the discipline of academic history, see Jennifer Nez Dineta, *Reclaiming Diné History* (University of Arizona Press, 2007). There are several sources for Navajo string games and string figures, with varied stories and names, e.g., [http://dine.sanjuan.k12.ut.us/string\\_games/games/opening\\_a/coyotes\\_opposite.html](http://dine.sanjuan.k12.ut.us/string_games/games/opening_a/coyotes_opposite.html) and the large Library of Navajo String Games, [http://dine.sanjuan.k12.ut.us/string\\_games/games/index.html](http://dine.sanjuan.k12.ut.us/string_games/games/index.html), © 2003 San Juan School District, Tucson, AZ. For an extraordinary video of an elder Navajo woman playing String Games, Margaret Ray Bochinlonny (called Grandma Margaret in this short clip), see <http://www.youtube.com/watch?v=5qdcG7Ztn3c>. Margaret Ray's grandson, Terry Teller, explains Navajo string figure star constellations at [http://www.angelfire.com/rock3/countryboy79/navajo\\_astronomy.html](http://www.angelfire.com/rock3/countryboy79/navajo_astronomy.html). Navajo string games are played mainly in winter, Spider Woman's story-telling season.