

How Like A Leaf A Conversation with Donna Haraway Thyrza Nichols Goodeve



Lynn Randolph: Transfusion

Preface

A U.S. based, Cold War bred, terrifically ethical and deeply political once-upon-a-time Catholic girl – armed with a PhD in Biology and a fierce theoretical imagination – set out one day to answer an assignment: "Write 5 pages on what Socialist-Feminist priorities are in the Reagan years."¹ The result was none other than the hugely influential, *Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s*. First published in 1985, Donna Haraway's essay, and subsequent work on simians, cyborgs, primate visions, women, and "scary new networks" of nature-culture species of all kinds and habits, has occasioned the invention of a new mode [yes "new" even in this age of habitual recycling] of political theory and ontological location scouting. As she put it so succinctly in 1985: "The cyborg is our ontology; it gives us our politics."

Since the publication of the *Manifesto for Cyborgs*, an array of theorists, practitioners, artists, activists, scientists, and just plain folk have set out to use Haraway's theoretical imagination to understand – and inhabit ethically – the profoundly quotidian and other-wordly workings of cyborg worlds. Receptive or not, we face a universe where "human," "nature" and especially "human nature" are ever-enmeshed in high stake balancing acts. Thrown into a latter-day morphing arena – human and machine, organic and non-organic, material and semiotic, physical and non-physical – battle it out daily in high wire spectacles of genetic research, commodity fetishism, and information technology. It is from, and through, the intricate new figures and organisms of these ever-imploding areas of contemporary "life," that Haraway's latest book, *Modest_Witness@ Second_Millennium. FemaleMan©_Meets_OncoMouse™* takes off. And so, on the occasion of the *Fleshfactor* conference, Haraway and I sat down – she in California, I in New York – to explore *Modest_Witness*, her latest investigation of contemporary feminism and technoscience.

More Than Metaphor: Individual@Biology. Technoscience

TNG: In the opening statement of the *Fleshfactor* Net Symposium the organizers state that the focus of the conference is, among other things, "to develop ways of talking about the individual within a technocultural information environment." My question is, do we even have such a thing as "an individual" in contemporary technocultural environments?

DH: As you and I both know, "individual" is not a natural entity but a complex historical-discursive sedimentation. It's not that individuals aren't real, it's that they are made up of

discursive practices. Even more important, this notion of an "individual" is not the only mode of boundedness historically possible for us. The technocultural world is made up of knots of relatedness, not discretely bounded objects. Individuality must be understood as, by definition, always about historically specific kinds of relatedness.

TNG: Describe your methodology as a cultural critic. What I'm especially interested in is how your training as a molecular biologist has influenced, not just the themes of your work, but its very methodology.

DH: Words like "methodology" are very scary you know! [Laughs]. Rather than "methodology" I'd prefer to say I have definite methods of working that have become more conscious over the years. And most certainly my training in biology – in molecular, cellular, and developmental biology – matters to me. Particularly the way that it allows me to be alert to, and take tremendous pleasure in, biological beings and biological webs of relatedness.

I'm very interested in the ways that structural-functional complexes work at very tiny levels. I'm fascinated by the internal architecture of cells and chromosomes. And there is no doubt that I frequently think in biological metaphors.

TNG: There is a kind of biologism to how you write. You take something – an object of knowledge or culture – and you move further and further inside of it, to what its structure is. And then you move inside of whatever webs of meaning you discover from that analysis and so on and so forth. You use optical metaphors a lot in your writing and your method really has a kind of microscopic zooming-in effect to it, without, of course, ever leaving behind the big picture.

DH: Right. I'm fascinated by changes of scale. I think biological worlds invite thinking at, and about, different kinds of scale. At the same time, they are full of imaginations and worlds developed from quite extraordinary biological architectures and mechanisms. Biology is an inexhaustible source of troping. It is certainly full of metaphor but it is more than metaphor.

TNG: What do you mean by "it is more than metaphor"?

DH: I mean not only the physiological and discursive metaphors that can be found in biology but the stories. For instance all the various ironic, almost funny, incongruities. The sheer wiliness and complexity of it all. So that biology is not merely a metaphor that illuminates something else, but an inexhaustible source of getting at the non-literality of the world.

TNG: Finding the figural in the literal, or concrete, is very important to you. Your recent book *Modest_Witness @Second_Millennium. FemaleMan©_Meets_OncoMouse™* spends a great deal of time discussing figuration, not just in the discourses of biotechnology but in the very "flesh" of the gene itself.

DH: Yes.

TNG: Do molecular and developmental biology work that way? In other words are they as figural as they are literal phenomenon?

DH: Yes. But to back track a bit. There are two aspects to emphasize when discussing biology. The first is: We live intimately "of" and "in" a biological world. This may seem obvious but I emphasize it to reiterate the ordinariness or quotidian nature of what we are

talking about when we talk about biology. And the second aspect, which represents a major gestalt switch from the previous point is: Biology is a discourse and not the world itself. So while, on the one hand, I live discursively as an organism, and that's an historical kind of identity, immersing me – particularly in the last couple of hundred years – in very specific kinds of traditions, practices, and circulations of money and institutions, I am also inside biology as it is intricately caught up in systems of labor, systems of hierarchical accumulation and distribution, efficiency and productivity. In contemporary ecology there have been well publicized discussions about valuing the "services" that ecosystems produce. For instance, when the carbon dioxide production of industrial cultures is absorbed by plant materials, the plants themselves become service providers for industrial economy. Such a mode of thinking is more than metaphorical. It is a deep way of seeing how the natural-cultural world is constituted.

Living inside biology is about living inside nature-cultures. It is about being inside history as well as being inside the wonder of the natural complexity. I admit to finding the latter very important. But the final result, when we speak about biology, is that we are speaking about a specific way of engaging with the world. At the same time biology is produced as a discourse very much like political economy.

TNG: You make that connection quite explicit in *Modest_Witness* with the introduction of your theory of "genetic fetishism" developed from Marx and Freud, but reframed specifically in relation to the gene. I want to go back to this but for the moment, our discussion makes me think of the ways that biology has actually become the "Humanities" of the 20th century.

DH: Yes, it's part of everyday culture.

TNG: You say in *Modest_Witness*: "Biological narratives, theories, and technologies seem relevant to practically every aspect of human experience at the end of the twentieth century.²" And, "Biology, at its technical and scientific heart, is a subject in civics; biology teaches the great mimetic drama of social and natural worlds.³" In a seminar I took with Stephen Heath while in the History of Consciousness program, he spoke about literature as the great representing machine of the 19th century, and film as the great representing machine of the 20th century. Biology, woven in and through information technologies and systems, seems to be the great "representing machine" of the late 20th century.

DH: Yes, in the book, I talk about Scott Gilbert's⁴ ideas of biology as the functional equivalent of Western Civilization on the U.S. campus these days. Biology is not only the course most commonly taken by large numbers of college students, it is relevant to a huge range of careers – from the entertainment industry to the health industry, to culture and food processing, intellectual property law, environmental law and management, and so on. There is almost nothing you can do these days that doesn't require literacy in biology.

TNG: In the contemporary art world, an artist like Matthew Barney uses biology as the basis for his massive *Cremaster* epic.⁵ In the hands of someone like him biology and art suddenly become sibling mediums of transformation, and imagination. As an ex-pre-med student and sculptor-identified video-artist, he is interested in the intersection between biology and art in relationship to the development of forms. In his case, alternate stories for the embryo channeled through everything from horror, opera, musical genres to sports, and car racing. Art and biology are actually not as separate as they may seem.

DH: Even though there is a deep and braided history between biology and art, it has taken on a kind of intensity in the last decades.

TNG: Perhaps even necessity.

DH: Especially in relation to genetics which is a big part of this story. And with seeds, genes, brains, and ecosystems one can go a long way!

TNG: Those are your list of biotechnical hermeneutical objects from *Modest_Witness*. You list them as key cyborg figures: chip, gene, seed, bomb, lineage, ecosystem, database, fetus, race, and ... brain!

DH: Yes, that one.

Genetic Fetishism

TNG: Would you discuss the difference between "life" as you use it in your book and Sarah Franklin's term, "life itself."⁶ You distinguish "life" as a developmental, organicist temporality from "life itself," the temporality embedded in communications enhancement and system redesign. What is the distinction?

DH: There's a kind of relay from Foucault's notion of the development of "life itself" to Sarah Franklin's picking it up within the context of master molecule gene discourse, and then my picking it from Sarah, making use of both Foucault's and Franklin's layers of meaning, and adding my own.

TNG: So when I read "life itself" what am I supposed to think?

DH: I'm using it to refer to a kind of literalism, a kind of effort to turn the processual relatedness of the nature-culture world into a fixed code or a fixed program. Life contained and fixed and turned into a particular kind of fetish – the four part fetishism I outline in *Modest_Witness*.⁷ I am emphasizing the fetishism inherent to the study of "life" relating to all of Marx's analysis of the commodity form, complete with all the uncanniness. Fetishism is hardly a clear fixed, nonproductive process. There are amazingly creative aspects to commodity fetishism. And in genetics, obviously commodity fetishism is involved. But I was also interested in some other aspects related to gene fetishism that aren't always about commodity fetishism. One of them was what I call "cognitive fetishism" which I worked out from Whitehead⁸ using his notion of "misplaced concreteness." Cognitive fetishism, like other kinds of fetishism, involves a productive mistake or a productive mislocation. In the case of gene discourse, what takes place is the mislocation of the abstract in the concrete. For instance, when we're talking about genetics, the idea is often introduced of the human genome as the "program" for human nature. The notion of the "program" involves a cognitive fetishism where "the program" is mistaken for the thing itself. What is happening here is that the layers of abstraction and processing that have gone into producing notions of code and program are then mistaken for the real.

TNG: It sounds like what Roland Barthes was getting at in *Mythologies*⁹ – the kind of slipping of layers of sign production from connotation into denotation, where the connotative sign becomes the signifier in a new system of articulation – is mistaken as "fact" or truth [as merely a pure or "ur" signifier] – and becomes the signifier of a truth in a new system. Hence

the production of much information today follows the model of Barthes' myth. Clearly you are talking about a much more complex evolution of this system of semiosis.

DH: Cognitive fetishism is the process of producing "productive literalism;" networks of literalisms that I am trying to expose and be responsive to.

TNG: Is that what you mean in Part Three of your book, "Pragmatics: Hypertext in Technoscience" when you say "pragmatics is the physiology of semiotics"?¹⁰

DH: Yes – this is the kind of literalism – or concretizing of meaning into physiologies of meaning that I want to break up.

TNG: Or cut into – the surgical metaphor is applicable here. Certainly such analyses seem self-evident now when we go to analyze a film text or advertisement but the difference here is you are talking about a gene whose value is mistaken, or misplaced, as the "essence of the code of life," which it is, but it must also always be seen to be growing within the context of a kind of cultural petrie dish. Basically you include the petrie dish within your definition of a gene.

DH: Yes. And in addition, I'm seizing on all sorts of kinds of ideological stuff – some of it very boring and traditional and still very powerful. Straight forward notions of master molecules and single parenthood that work through the gene and all that kind of thing. But that's pretty straight forward ideological processing. But it is ideological processing that is rooted in the fundamental discursive productions of the gene in the form of "life itself" in a literalized form.

TNG: How would you define a gene. Or would you?

DH: A gene is a knot in a field of relatedness. It's a material-semiotic entity; a concretization that locates [in the mapping sense of locates] and substantializes, inheritance. Genetics is particular to the twentieth century with many phases to it so that by the late twentieth century we have a deep detailed understanding of the molecular basis of hereditary. But those molecules – the DNA molecules – are never working in isolation. They are always interacting with other cell structures. The most common way of saying it is that the smallest unit of life is the cell, not the gene, but the gene is always in interaction with these cellular histories. It is always in process, yet – and this is the issue – we talk about it as if it were a simple, concrete thing.

TNG: In other words the gene is a "subject in process." In your depiction of genetics I hear, the manner in which you write and work. How you go about analyzing culture through a kind of genetic analytical modeling of cultural analysis rather than the reverse – a cultural analysis of genetics. You have taken a scientific model and turned it into a model of cultural critique.

DH: That's right. I think analyses of what gets called "nature" and analyses of what gets called "culture" call on the same kinds of thinking since what I'm interested in most of all are "naturecultures" – as one word – implosions of the discursive realms of nature and culture.

Flesh: Semiotics Meets Catholicism

TNG: Which seems like a good place to begin to discuss flesh. I'm interested in the way "flesh" has always been important to you – not just through your training as a molecular and

developmental biologist, but in your deep commitment to the "flesh" of gender, race, species. "Flesh" stands in as a synecdoche for the way material reality signifies or is "tropic" as you put it. And one of your most pronounced critical strategies is to cut into and peel back the implosion of flesh and metaphor. For example, you flesh out metaphors – the "barnacle building of history" as you put it, as well as discover metaphorical relations within fleshy, material worlds. In this context then how would you define flesh?

DH: The first thing I'd say is that words are intensely physical for me. I find words and language more closely related to flesh than to ideas. Since I experience language as an intensely physical process I cannot not think through metaphor. It isn't as though I make a choice to work with and through metaphor, it's that I experience myself inside these constantly swerving, intensely physical processes of semiosis. Biochemistry and language just don't feel that different to me. There's also a Catholic dimension to all of this.

TNG: Explain?!?

DH: Because I came out of a very deep formation in Catholic symbolism and sacramentalism – doctrines of incarnation and trans-substantiation – which are all intensely physical. The relentless symbolization of Catholic life is not just attached to the physical world, it is the physical world. Look at the religious art of the U.S. Southwest, the Mexican, Latino, Chicano art and you get an intense example of that. Contrast that art to the more abstemious Protestant art and then imagine the inside of a church in Mexico city. I grew up within the art world of Mexico City, so to speak, even though I grew up in Denver, Colorado. It was an Irish Catholic scene, nowhere as rich as the Latino cultural tradition, but I grew up very much inside an elaborate symbolic figural narrative world where notions of sign and flesh were profoundly tied together. I understood the world this way by the time I was four years old.

TNG: Would you define flesh?

DH: My instincts are always to do the same thing. It's to insist on the join between materiality and semiosis. Flesh is no more a thing than a gene is. But the materialized semiosis of flesh always includes the tones of intimacy, of body, of bleeding, of suffering, of juiciness. Flesh is always somehow wet.

It's clear one cannot use the word without understanding vulnerability and pain.

Implosions: Flesh.Syntax.OncoMouse™

TNG: You use syntactical marks – "@," "©," "™" – to locate us in Modest_Witness:@ Second_Millennium.FemaleMan©_Meets_Onco Mouse™ This an example of the way your title successfully creates a new kind of syntax and figuration. The title Modest-Witness@ Second-Millennium. FemaleMan©_Meets_Onco Mouse™ is its own technocultural poem. You visualize and theorize through the words and syntactical marks of the title, situating us in late twentieth century history. That is wonderful because these marks are the new brands.

DH: Especially with the double meaning of brand as type and mark of ownership burned into the flesh. In regards to the title, there's a way that the whole book is in the title which is also a feature of how I work – through these constant implosions and unwindings.

TNG: Do you ever get tired? I mean you don't let a physiological or discursive knot pass. You are always so careful to show the contingencies and multiple constructions of everything that when I'm reading you I think – this is exhausting! Necessary but exhausting.

DH: But that part is energizing! What makes me tired is the way some readers insist on picking up one piece of the fabric and pinning everything to it.

TNG: Yes. You often receive the same kinds of reductionist readings of your work that experimental narrativists and artists like Yvonne Rainer¹¹ do for much the same reasons. Some people refuse to engage with the complexity. I associate this with an almost avant-gardist [to use an old term] anti-linear, anti-teleological aesthetic in your theory that is like Rainer's. Like you, she is constantly constructing analyses of race, gender, sexuality, desire via a complex relational-associational aesthetic that demands one does not stop her film at any one moment and say: this is Yvonne Rainer's statement. It's the same with your work, which, read unsympathetically, and if I may, stupidly, turns your work into an anti-materialist, technophilic – or technophobic – social constructionist view of science. Such readings are representative of an inability to work with subtlety that seems particularly American.

DH: It's a kind of literal mindedness. And that's why figures are so important to me because figures are immediately complex and non-literal, not to mention instances of real pleasure in language. The literalism that comes through when critics create positions that don't really exist like recycling urban legends of people saying, "You believe in DNA!?" is sad, shocking, and takes away from all the pleasure in language that animates so much of the serious work on the cultural study of science.¹²

TNG: Which brings us to OncoMouse™. OncoMouse™ is such a moving and upsetting story, as well as a perfect example of how you deploy an object from the scientific-phenomenal world as a figure of analysis. Perhaps you should describe exactly what OncoMouse™ is.

DH: OncoMouse™ is a transgenic organism. A transgenic organism is the entity made when genes from one organism are transplanted to the fertilized egg stage of another live organism. What results are transgenic creatures. Transgenic organisms grow up and breed children who continue to carry the transplanted gene. In other words the transplanted genes are conveyed through the eggs and sperm into subsequent generations. OncoMouse™ is the result of a transplanted, human tumor-producing gene – an oncogene – that reliably produces breast cancer. That is why I say in the book that whether I agree to her existence and use or not, s/he suffers, repeatedly, and profoundly, so that I and my sisters may live. And furthermore that if not in my own body, then surely in those of my friends, I will someday owe to OncoMouse™, or her subsequently designed rodent kin, a large debt.

TNG: It's so interesting how much outrage and anxiety has been let loose by Dolly the cloned sheep when transgenic manufacturing of new kinds of life forms has been going on for some time now.

DH: And transgenics is a much more radical technology. It allows molecular biologists to remove genes of interest from organisms that might be completely unrelated, for example something from a bacterium, and put it into a mammal.

TNG: It is an example of the scary promise of cyborg worlds that you unpack – worlds or beings that are neither simply utopian or dystopian.

DH: Not to mention just plain ordinary. The issues that concern us are not always found just in the ultimate – utopian ideals versus dystopian nightmares. The everyday dimensions of technoscience are also complex. But whatever the case, useful work often takes place at the cost of inventing new kinds of pain. The fact is there are currently new – or at least mutated – ways in which technoscientific people relate to other animals and organisms. It means there has been a deepening of how we turn ourselves, and other organisms, into instruments for our own end.

TNG: What then is cyborg ethics or subjectivity in the context of OncoMouse™? Where are "we" and "it" when subject and object are blurred? This becomes an ethical question in relation to cyborgs like who gets to decide this mouse is going to be made into a being that generates mammarian tumors.

DH: Or even more contentious are the questions of international intellectual property law. Will organisms such as this be patentable in the international realm and how? Although the United States Patents and Trademark Office has granted patents on genetic organisms, it is still a very contentious issue internationally.

TNG: What are the lines of debate?

DH: In Europe, particularly in Germany through the Green Party, and within the context of animal rights politics, there's been a lot of resistance to the patenting of transgenics and other biotechnological products from indigenous sovereignty movements. This conflict over property relations around biodiversity is a big theme in my book. Contestations over The Human Genome Diversity project having to do with whether various groups of human beings will or will not co-operate with the collecting of their genetic material for analysis. There are, as well, all sorts of problems surrounding commercial use. Who will profit from drugs developed from studies that take place in various geographic and cultural regions? Patent law is about protecting the process of producing transgenic beings, as well as patenting the being itself. In the case of OncoMouse™, the patent was issued to two researchers who assigned the patent to the Harvard Corporation, which licensed it to DuPont. That means that nobody can use that process, or these animals, without paying a fee for however many years the patent runs. So basically patenting ends up being about paying fees for the use of specific technological processes and/or objects. In this way patenting both stimulates and protects innovation. The inventor is prompted by the incentive of making a profit on the invention, and society receives the benefits of the invention. At least that's the philosophy.

TNG: A lot of these problems seem like they would still be there even without patenting.

DH: That's right. Patents are just a piece of the issue. But it's a particularly contentious part because of the symbolization – the extracting of materials from one area of the world and reaping the profits elsewhere. For example in India there are controversies over the Neem tree having to do with extracting substances from them. These substances have been used in health practices for a very long time in India, but are being brought back to First World laboratories, processed in various ways, and turned into a marketable product. At this point, none of the commercial benefit goes back to the source nation. But in a situation like this, it is important to emphasize that is not just sources as in "resources" that are taken, but knowledge. Knowledge is built into such "natural" material at every stage of the game.

TNG: Exactly.

DH: So there are sovereignty issues involved here. Whose knowledge is going to count? Are we going to be regarded as collaborators or just as raw material? Say there are materials that might be of pharmaceutical interest in the Rainforest and one is working with a local healer who knows the local plant life. How will that person's expertise be recognized in this system? And then, what if the community the person comes from does not live by individualistic premises? And what about the nation within which that group of people exists? What if they are a subordinated minority? If there is a national agreement by the national government of Brazil or Costa Rica, a major pharmaceutical company might or might not work for the benefit of the group of people who actually have the knowledge and the materials in question. So how are they going to be protected? Do they even want inclusion into the system or not? OncoMouse™ is just a concentrated figure of this matrix – a figure of the intense web of relationships and histories found in technoscience as it is practiced at the end of the twentieth century.

TNG: OncoMouse™ was developed in 1988?

DH: Patented in 1988. It was developed over the preceding years. But OncoMouse™ was early in the technology. It's now obsolete.

TNG: Really?

DH: Yes. Obviously transgenics is not. There are lots and lots of transgenic organisms being developed that are not patented. But as a particular moment in transgenics, OncoMouse™ is obsolete because it didn't work very well. It got too many spontaneous tumors.

TNG: In *Modest_Witness* you quote the President of GenPharm, David Winter, saying custom-made research mice are so common he calls it Dial-A-Mouse. Or the other GenPharm representative, Howard B. Rosen [Corporate Development Director] who describes custom-tailored mice as the "canvas upon which we do genetic transplantations."¹³

DH: Yes, and we must remember the "it" in all of these sentences is of course a living being. And a living being upon whom that crown of thorns in Lynn Randolph's painting "The Laboratory, or The Passion of OncoMouse" is not there by accident.¹⁴

TNG: Right, OncoMouse™ is an example of the Christian figural realism you find in so much of technoscience. In *Modest_Witness* you say, "Although her promise is decidedly secular, s/he is a figure in the sense developed within Christian realism: S/he is our scapegoat; s/he bears our suffering; s/he signifies and enacts our mortality in a powerful, historically specific way that promises a culturally privileged kind of salvation – a 'cure for cancer.'"¹⁵ Which brings us back to the ethics of cyborg subjectivity.

DH: And to flesh. I think for me cyborg subjectivity is about the manner in which we are responsible for these worlds. But not in a simplistic, "I'm for it or against it." You can't have some simple minded political heroics about resistance versus complicity. What has to happen is that literacies have to be encouraged, as well as many kinds of agency.

Both literacy and agency aren't things you have, but things you do.

TNG: How does this relate to the figure of the "modest witness"?

DH: "Modest witness," along with OncoMouse™ and the FemaleMan© [from Joanna Russ's book of that title], are figures I use in the book to stand in for new ways of imagining and doing technoscience¹⁶. In reference to "Modest_Witness@Second_Millennium" the reader sees immediately that s/he is the sender and receiver of messages in my e-mail address. But I am also relying on the complex history that "witnessing" and being a "witness" have within the stories of science studies in relation to Robert Boyle's development of the experimental method in the 17th century and the subsequent controversies over how facts are credibly established. For instance Thomas Hobbes repudiated the experimental way of life precisely because its knowledge was dependent on a practice of

witnessing by a special community, like that of the clerics and lawyers. I am interested in witnessing precisely because it is about seeing; attesting; standing publicly accountable for, and psychically vulnerable to, one's visions and representations. Witnessing is a collective, limited practice that depends on the constructed and never finished credibility of those who do it, all of whom are mortal, fallible, and fraught with the consequences of unconscious and disowned desires and fears. A child of Robert Boyle's Royal Society of the English Restoration and of the experimental way of life, I remain attached to the figure of the modest witness. My modest witness is about telling the truth – giving reliable testimony – while eschewing the addictive narcotic of transcendental foundations. It refigures the subjects, objects, and communicative commerce of technoscience into different kinds of knots.

Response: Responsibility XXX Innocence

TNG: This discussion relates to one of my favorite quotes from the 1985 Cyborg Manifesto where you state that your argument is for the pleasure in the confusion of boundaries and the responsibility in their construction.

DH: Exactly, we are talking about another instance of that process.

TNG: Responsibility is one of the most potent forces – and substances – in your work. In many ways it is at the center – if your work has a center. It's the hinge upon which all of your analyses hang. You teach us to be responsive to all the complexities in late twentieth century technoculture, and then you attach to this responsiveness the requirements of responsibility.

DH: Well, it is people who are ethical not these non-human entities.

TNG: You mean romanticizing the non-human?

DH: Right that is a kind of anthropomorphizing of the non-human actors that we must be wary of. Our relationality is not of the same kind of being. It is people who have the emotional, ethical, political, and cognitive responsibility inside these worlds.

TNG: So a responsible way of going about transgenics might be to use these situations of cross-gening as moments of learning about how these organisms behave, act, work, live, feel, etc., and therefore learning what might be the most responsible way of creating transgenic forms and worlds.

DH: Yes that might be an aspect of it – asking questions of who benefits, like does OncoMouse™ truly relieve human suffering of cancer or is it yet another high tech excuse for not paying attention to where cancers are really coming from? Or both? And who's hungry in this world and is transgenics addressing that? I think the issues of transgenics are – to use

Leigh Starr's question – cui bono – for whom?¹⁷ The suffering of the organism is a part of that question. Animal research is just another way of understanding how seriously we aren't, and can't be, innocent.



Lynn Randolph: The Laboratory or the Passion of OncoMouse

How like a leaf

TNG: How has the cyborg changed since 1985? I ask this because in the interview you did with Constance Penley and Andrew Ross¹⁸, you conclude stating the cyborg is female. In *Modest_Witness* you introduce Joanna Russ's *FemaleMan* and describe the cyborg as "the stem cell in the marrow of the technoscientific body"¹⁹ which is a pretty great image. I would assume that the cyborg is a figure in process as everything is for you.

DH: Yes. Sometimes I emphasize the cyborg as s/he, or introduce something like the OncoMouse™ which is a cyborg figure. But the real answer is that cyborg figurations are protean.

TNG: Experientially speaking, what is your most profound moment of encountering cyborgology²⁰ or cyborg-ness if we can call it that?

DH: Oi vei! [Laughter]

TNG: Or what are the moments when you remember it crystallizing for you?

DH: Well one is certainly my sense of the intricacy, interest, and pleasure – as well as the intensity – of how I have imagined how like a leaf I am.

TNG: Really!?!

DH: Quite seriously. For instance, my fascination with the molecular architecture that we share, as well as what kinds of instrumentation, interdisciplinarity, and knowledge practices have gone into the historical possibilities of understanding how I am like a leaf.

TNG: Now when you were a child did you experience such an epiphany or is this only as an adult?

DH: Clearly I'm speaking from an adult perspective. In regards to connectedness, my child consciousness was overwhelmingly religious. But I was fascinated by miniatures.

TNG: Miniatures?

DH: Everything from doll houses to imagining elaborate miniature people's worlds and playing with tiny figures in the grass. Basically I just spent lots of time in miniature worlds.

TNG: Which is what you're still doing. When did science enter into your consciousness?

DH: Not until college where I was a Zoology major simultaneously to studying English and Philosophy. All three always felt like part of the same subject.

TNG: Which brings us back to your "moment of being" – to use Virginia Woolf's phrase – with the leaf.

DH: What I was getting at, in relation to your question about the cyborg, are moments of aesthetic-moral unity that, for me, were deeply influenced by bio-scientific ways of thinking.

TNG: Your theory develops so "naturally" out of your interest in biology. But many people in your field are quite threatened by the way you think about biology and science, which is ironic since you owe your perspective to the deepest understanding and embodiment of biological worlds. Why is such an understanding then so threatening?

DH: Part of the discomfort comes from the fact that if you talk about the relentless historical contingency of experiencing your-self, or of crafting scientific knowledge, people hear relativism or pure social constructionism which is not what I am saying at all. But that's the kind of reduction that keeps getting made. And then there are the people who are threatened because they read such analyses as biological determinism! A kind of naturalism that they don't want because they are social constructivists and don't want to give too much weight to the biological or the natural. Since I'm trying to say both, and, neither, nor, a lot of confusion arises, and not a very productive kind of confusion. I'm talking about a mode of interacting with the world that is relentlessly historically specific. Technoscience is a materialized semiosis. It is how we engage with and in the world. Which is not the same thing as saying knowledge is optional. It's saying there is a specificity to it that you can't forget.

Cyborg Surrealism

TNG: I'd like to ask a question about form, particularly the form of writing you chose. It seems that the mode of straight forward analytical writing you use to get at your ideas is also, in some ways, a deterrent. In other words you are constantly being reigned in by the linearity and contiguities of sentence by sentence construction and argumentation when your whole point is to constantly ask us to keep a multi-relational, multi-dimensional, associational thick reading – a hypertext modality – as we go. Have you ever used another modality than academic writing or would you? A hypertext CD-Rom for instance. Or is that not the point?

DH: I have thought about it and it is certainly why I have as many visual elements in the book as I do. But I think finally what I am good at is the words. But the collaboration with the painter Lynn Randolph in this book was very important.

TNG: How did that collaboration come about?

DH: Randolph was at the Bunting Institute at Radcliffe College in the late 1980s and they read The Cyborg Manifesto. She painted a cyborg as her response to that essay. Sometime

after that she mailed me a picture and I wrote her back saying how excited I was by it. And then there was a fairly long lapse but we just started mailing one another again. I would send her drafts, she would send me slides. There was no deliberate connection but I would see her paintings and some of them would really influence me. And similarly, my work was incorporated into her painting. But it was never a conscious decision for the two of us to collaborate on any one theme. For instance the image on the back of the book, *The Laboratory, or the Passion of OncoMouse* [1994] she painted in conversation with my *OncoMouse™* argument. But after I saw it I did more writing. So the relationship with Randolph was an interchange between the two of us where we never deliberately collaborated but, in fact, were constantly collaborating. I think of her visual contributions to the book as arguments, not just illustrations.

TNG: They are almost like Catholic allegories.

DH: Yes, we joked about my kind of cyborg surrealism and her metaphoric realism.

TNG: I actually had problems with the paintings – and this may just be a matter of taste – precisely because of the kind of realism she uses. They make her historical context too literal for me.

DH: Some of them do but that is not true with say *Transfusions* and *The Passion of OncoMouse* which are my two favorites. But even in paintings that I don't like as much I love the kinds of juxtapositions she sets up, the use at moments of Renaissance space and references interwoven with DNA strands, galaxies, microchips and so forth. Randolph is committed to certain 'realist' conventions and narrative pictorial content in order to foreground the joining of form and content. She takes up a resistance to the imperatives of abstract formalism as the only way to paint.

TNG: What she calls metaphorical realism.

DH: Exactly and for her, and me, this metaphoric realism – or cyborg surrealism – is the excessive space of technoscience – a world whose grammar we may be inside of but where we may, and can, both embody and exceed its representations and blast its syntax.

TNG: The cyborg is usually analyzed as a spatial and a physical category. But in *Modest_Witness* you also discuss temporality. You say condensation, fusion, and implosion are the temporalities of the cyborg. Why is temporality crucial for us to study in relation to "fleshfactors"?

DH: One answer would be a phrase I use in *Modest_Witness* from John Christie's 1993 *A Tragedy for Cyborgs*. He was actually writing about the *Cyborg Manifesto* and the "already-written future" of genetics.²¹ I think he was the one who first made me notice the shared temporality between genomes and financial instruments in contemporary technoscientific culture. For instance the way debt-schedules write the future. If you are subjected to a certain kind of debt repayment schedule with a mortgage, or as a developing nation, the debt schedule locks you into various kinds of food production systems, tourist industries, marriage practices, etc. The future is literally locked into the debt repayment obligation. It's an already-written future, with a bounded notion of temporality already built into it, in fact one way of thinking of genetics is in relation to the notion of scripted futures.

TNG: Genetics is wedded quite intimately to temporality – from the emphasis on heredity – the past – at the turn of the century to the emphasis on what genetics can tell us about one's future now – our genetic tendencies or potentiality.

DH: Yet, just as the debt repayment schedules don't determine what people are going to do with such a structure, the gene merely lays out tracks so to speak or matrixes within which "life itself" is going to occur. Yet the way genomes are institutionalized into distributed data bases and then made use of in other knowledge practices – for instance pharmaceutical development – does set up matrixes for the future including forms of resistance and contestation.

TNG: So it is about a profound shift in temporality?

DH: Yes, genetics, as it is developing today, is about a materially different kind of temporality.

Passion and Irony

TNG: As far as ending, I took the liberty of selecting a fragment from *Modest_Witness*: "the point is to learn to remember that we might have been otherwise, and might yet be ..." ²² I love that sentence fragment because it exposes the constant tensions and questions about our being that you are continually interrogating. And the way you state it is important: "to learn"

"to remember," so it is not just learning [an action in the present that builds the future] but remembering [using the past]. In other words, we must be involved in learning and remembering the ways and whats of how we might have been otherwise. I love the syntax there. And this isn't just a poetic thought but a technoscientific fact.

DH: Yes, for all of the temporality of the "already-written future," the future and present are, in fact, not finally written. But this must be thought without the hype of technophilic utopia.

TNG: That is what is always hardest for people to grab onto in your analysis. Your "Janus-faced" political theory, to use your phrase. The "both, and, neither, nor" story you are telling.

DH: Right, but I guess what I'd say finally is quite simple. All I am really asking for is permanent passion and irony, where passion is as important as irony.

TNG: A mutated technoscientific Catholicism mixed with the molecular poetics of a leaf for instance?

DH: Passionately! [Laughs]

1 The editors of the *Socialist Review* had presented her with this "modest" assignment and according to Haraway, this is the origin story of the *Manifesto*. "The moral of the story," she joked, "don't give me an assignment."

2 Donna J. Haraway, *Modest_Witness@ Second_Millennium.FemaleMan©_Meets_OncoMouse*TM New York, Routledge, 1997, 117

3 Haraway, 1997, 103

4 Scott F. Gilbert, *Bodies of Knowledge: Biology and the Intercultural University*, forthcoming. *Changing Life in the New World Dis/Order*, edited by P. Taylor, S. Halfon, and P. Edwards, Minneapolis: University of Minnesota Press

5 The cremaster muscle controls the ascension and descension of the testicles. Matthew Barney's biological video-sculpture epic explores the stages of conflict of a prenatal reproductive system as it develops towards its final form.

6 Sarah Franklin, *Life Itself*, paper delivered at the Center for Cultural Values, Lancaster University, June 9

7 "... gene fetishism is compounded of a political economic denial that holds commodities to be sources of their own value while obscuring the sociotechnical relations among humans and between humans and non humans that generate both objects and value; a disavowal, suggested by psychoanalytic theory, that substitutes the master molecule for a more adequate representation of units or nexuses of biological structure, function, development, evolution, and reproduction; and a philosophical-cognitive error that mistakes potent abstractions for concrete entities, which themselves are ongoing events. Fetishists are multiply invested in all these substitutions. The irony is that gene fetishism involves such elaborate surrogacy, swerving, and substitution, when the gene as the guarantor of life itself is supposed to signify an autotelic thing in itself, the code of codes. Never has avoidance of acknowledging the relentless tropic nature of living and signifying involved such wonderful figuration, where the gene collects up the people in the materialized dream of life itself." Haraway, 1991, 147

8 Alfred North Whitehead, *Science and the Modern World*, New York

9 Roland Barthes, *Mythologies*, New York: Hill and Wang, 1975

10 Haraway, 1997

11 Yvonne Rainer, artist, writer, filmmaker. *MURDER and murder*(1997) is her most recent film.

12 See Barbara Ehrenreich and Janet Macintosh, *Biology Under Attack*, in: *The Nation*, Vol. 264, #22, June 9, 1997, 11-16

13 Haraway, 1997, 98

14 She is referring to "Laboratory, or The Passion of *OncoMouse*" by Lynn Randolph

15 Haraway, 1997, 79

16 The modest witness represents the story of science studies as well as of science fiction. The FemaleMan is the chief figure of feminism. *OncoMouse*TM is the figure of biotechnology and genetic engineering

17 Susan Leigh Star, *Power, Technology and the Phenomenology of Conventions: On Being Allergic to Onions*, in: *Sociology of Monsters: Power, Technology and the Modern World*, edited by J. Law, Oxford, Basil Blackwell, 43

18 Constance Penley and Andrew Ross, *Cyborgs at Large: Interview with Donna Haraway*, in: *Technoculture*, Minneapolis, University of Minnesota Press, 1991, 1-20. See as well, Donna J. Haraway, *The Actors Are Cyborg, Nature is Coyote, and the Geography is Elsewhere: Postscript to "Cyborgs at Large"*, 21-26

19 Haraway, 1997, 14

20 See *The Cyborg Handbook*, New York, 1995, edited by Chris Hables Gray et al.

21 John R. R. Christie, *A Tragedy for Cyborgs*, in: *Configurations*, 1993. 1: 171-196

22 Haraway, 1997, 39

