donna haraway
live theory

joseph schneider

Donna Haraway: Live Theory

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In remembrance of my
dear friend and colleague,
John Itsuro Kitsuse

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Joseph Schneider
Des Moines
August 2004

Chapter 1

Introduction

This book aims to do two things, at least. First, it reduces the many academic writings by Donna Haraway to one short book that presumes to capture the major themes and qualities in her work. That is a fraught project for any writer, however, and one that can only produce one's own readings or versions of the author or topic at hand. It is, inevitably, a reduction that the more you read Haraway directly, the more it would strike you as lacking or perhaps even a 'distortion' of what you take to be the arguments of those primary texts. The second aim follows directly from the first one: to strengthen your desire to go directly to her writings – listed in the bibliography – to read and write your own 'Donna Haraway: Live Theory'. In these aims, this book is like a door that opens into a fascinating and complex space of objects, subjects, and sensations that come in/through the words, sentences, paragraphs and pages to follow. But this door closes quite quickly and allows you only a glimpse of what could await your own careful reading of and thought about her work. If you stop your study of Haraway with this book, then, you will know only my version of Haraway, which is considerably different from what you would read/write in your own encounters with her texts. I hope you will go on with Haraway as or after you read here.

My wanting you to go directly to Haraway's writing comes from my own experience with it, an experience that has been expansive and stimulating, although, certainly, not without challenge. While I make some effort here not to be hagiographic, my enthusiasm for Haraway's ideas and writing will become obvious. And that returns me to the first aim or task noted above: that of reducing,

summarizing, and critiquing. After more than three decades of writing academic papers and books, I know rather well the conventions of scholarly criticism, especially in the humanities and social sciences. Without rehearsing those fully here, there is one practice that I want to discuss and deflect at the onset.

Perhaps the simplest way to describe this strategy of criticism is to say that it aims to forefront what is missing from the arguments and ideas being considered; it focuses on lack rather than on contribution, giving contribution a secondary place relative to lack. From the position of what Thomas Kuhn (1970) called 'normal science' done within a dominant paradigm, this is always reckoned in terms of how the research and writing under review contributes to 'what "we" already know', which is to say how the work under review contributes to 'knowledge' *within* this paradigm (although this last prepositional phrase is often omitted). This understanding of knowledge sees it as corporate or shared among a certain collection of experts, all of whom are assumed to know what is 'already known' and what "we" need to know or discover' in order to approximate more closely complete knowledge. There is often an agonistic or conflict-and-struggle-infused quality to this kind of criticism that, while sometimes productive and desirable, leaves little space for generosity and a more contemplative response to what the critic approaches, especially in terms of the assumptions or givens on which that thing rests. Although I perhaps caricature a bit, such notions are the result and practice of a particular kind of discipline and disciplining of and by the community of experts that is linked to this knowledge defined in terms of the dominant paradigm and its canonical works.

While this way of writing review and criticism does accomplish certain things, I will not use it here. That of course is not to say Donna Haraway's work is above criticism, an idea that would surely make her laugh.[1] Rather, it is more a question of what strategies of reading and thinking about new ideas might be most productive for thought and learning. It seems to me that a better way to approach something about which one has curiosity is to ask what one's encounter with it offers rather than to look for what it lacks. Similarly, I encourage you to be open to what your attention to a thing can allow you to receive rather than to how your attention to

or encounter with it can leave the thing reduced and 'known/owned' in its 'essence'.

This is, again, not to say that a focus on lack or absence and an attempt to see a thing primarily in terms of an agenda the critic brings to the encounter are never appropriate or productive. Indeed, much of the best of critical thought has come from developing an awareness of and giving sustained attention to that which has been silenced, ignored, distorted, and simply left outside consideration by the one/s who write/s. Marxism and feminism, arguably encompassing and inscribing some of the richest critical writing of the past and current centuries, are two examples of bodies of work that require us to search for what has been silenced and denied in order to help one say and see and live more; toward something new in thought and practice that is built from such criticism. And the best versions of these criticisms are, in my view, those that acknowledge their own dependence on what they critique; that draw from them those resources that help one see and think differently and with greater appreciation of the moral and ethical positions and implications of one's own and of others' life practices. Criticism and deconstruction do not require destruction, and they benefit greatly from serious and strong humility and modesty.

I try here to avoid a critical approach to Haraway that is judged useful only to the extent that it simplifies what is complex and essentializes things in terms of what they are not *and* what the critic thinks is missing – even beyond consideration of some corporate standard. While that kind of criticism easily can build and reduce the egos of the knowledge workers involved – and we should never dismiss the importance of 'the personal' in any human social behaviour – it has endured because it is a style or mode of practice linked to and serving other dominant and interested structures common in scholarly work and the many worlds to which such work is connected.

Having said this, you no doubt will find instances in the pages that follow where I seem to be doing just what I have said that I want to avoid: making judgements of ideas and arguments primarily because they do not fit my own agendas for this book or Haraway's for her work – at least as I read them: they are not useful

'resources' for my own ways of seeing Haraway. Indeed, there are criticisms of Haraway's writing that I will not detail here because they strike me as beside the point or based on misreadings – sometimes perhaps wilful and sometimes not. Without being egregiously self-serving, suffice it to say that I want to encourage the more generous approach to Haraway's work because the less generous and agonistic – even destructive – ways of criticism are common enough (arguably, even dominant) to insure their survival and reproduction. Sometimes they even seem necessary and in any case should not be disallowed, although we should be more accountable than we usually are – personally and collectively – for their use. In any case, this kind of criticism or inquiry should not be the only way we try to learn and to live.

Finally, even if one did want to adopt the reductive or paradigm-defending kind of criticism described above, the thoroughly interdisciplinary and multi-literate nature of Haraway's work would make that quite difficult. Indeed, one of the dilemmas that interdisciplinarity and multiple literacy present to criticism is precisely in terms of what standards the critic should use in framing criticism; there is no 'normal science' in terms of which Haraway's writings easily can be judged. Of course, there are disciplinary standards that can be used, say, by historians or sociologists of science. Similarly, certain feminist or Marxist standards of criticism could be used to judge Haraway's work. But insofar as Haraway's writing has helped to build and continues to build feminist technoscience studies, there is nothing like a normal science paradigm in terms of which one could enact a proto-disciplinary critique, even if one were so inclined.

What follows here reflects the outline set down by the publisher for all books in this series: first, there is an introduction to and overview of Haraway's work, her background, and her career; then the major themes in her work are detailed in Chapters 2 through 4: the work on primate science; the cyborg project and examination of 'related kin', including the current work on companion species; the feminist critique of science, followed by a lengthy interview with Haraway done expressly for this book, and a concluding brief chapter that offers a list of recommendations why you should read Haraway directly, on your own.

Life stories of origin and career: an Irish Catholic girl becomes an internationally famous feminist scholar of technoscience

Donna Haraway loves to tell and to live serious – and often playful and humorous – stories. The humour in her writing and performances/presentations is not gratuitous or dropped in merely to punctuate or supplement. Sometimes it isn't even funny, as she herself says in Chapter 5. She has called it a 'way of being in the world' and it is intellectually important to what she does. And Haraway loves to write with and through metaphors and figures, which is to say that she loves and appreciates the richness, materiality, and movement of/in language. One could safely say that her 'theory' is found primarily in her highly imaginative use of a range of metaphors and figures drawn from biology, feminism, Christianity, and science fiction; and often from all of these at once. Her narratives and their agents, dramas, and passions – even when they are somewhat fantastic – are always grounded in details of lived reality or embodied material at the same time that they invite us to think, act, and relate in hopeful ways that point beyond but intersect with these current 'real' local arrangements and practices toward new but also always 'real' possibilities. She has described this quality of her work as insisting on both the literal and the figural at the same time – something like literal/figural (Haraway, 2000a: 106–8).

To read Haraway is to be encouraged to imagine and begin to tell and to live new stories that are themselves technologies for altered worlds of shared life by diverse, active (and occasionally passive) entities that she has come to describe with the compound adjective 'material-semiotic' rather than or in addition to the more famous 'cyborg'. She has told stories of her own lives that reflect these commitments and those stories – both in previously given interviews and in her own books and papers – provide an unusually rich source for my retelling here.

The early years

Donna Jeanne Haraway was born in 1944 into a white Irish Catholic middle-class family in Denver, Colorado. The stories

she tells of herself now almost always note the importance of her early life as a 'good Catholic girl'. That is, she not only went to church but she lived in a world deeply shaped by the stories, practices, and figures that make up Catholicism – what she now might call a 'worldly practice'. She saw herself as part of a world populated by symbolic entities that had a quite real existence in and connection to her everyday life. And she learned well how to believe and to see what difference that belief could make to her. In her subsequent academic writing and life, some three decades later – when she makes a point of having given up those *beliefs*, calling herself 'a committed atheist and anti-Catholic' (Haraway, 2004a: 334) – she says she is convinced that this 'Catholic sacramentalism' of her youth remains important in shaping her analytic vision. She took that sensibility of figural realism into her life and thought as a scholar. She calls her insistence on 'worldliness' an 'act of faith' to resist the separations between the material and the semiotic that define conventional thought. For her, 'the fleshy body and the human histories are always and everywhere enmeshed in the tissue of interrelationship where all the relators aren't human' (Haraway, 2000a: 106). And as is apparent in her interview comments in this book, there is an interaction or synergy of sorts in Haraway's thought involving Catholic cautions against the idolatry that naming risks and the 'misplaced concreteness' that Alfred North Whitehead found so problematic in scientific thought.

From the stories of her selves that she tells, it seems clear that her present sense of the permeability of boundaries that define categories that to others seem unbreachable and not open to debate was operative and consequential early on in her life (this, surely, is part of what she means about the influence of Catholic sacramentalism). Like so many other high school graduates, Haraway went off to a college not too far (but far enough) from home – the liberal-arts-and-sciences-strong Colorado College. But unlike so many college undergraduates, there she pursued a triple major in subjects that were thought to appeal to – indeed, to create – quite distinct interests and aptitudes, not to mention kinds of people: zoology, philosophy, and English literature (Haraway, 2000a: 13). After graduation in 1966 she went to Paris for a year

on a Fulbright scholarship at the Faculté des Sciences, Université de Paris, and Fondation Teilhard de Chardin.

Although her life at home in Denver and at college, especially at that time, would not have left her politically naïve, the year in Paris brought a new depth to Haraway's appreciation of leftist politics. She is, as she so often notes, 'a child of the Cold War, Sputnik, and American post-World War II militarism'. We might add to this list, a white, middle-class, privileged child of the Vietnam War; of the student movements in the United States and in Western Europe; and of the burgeoning Civil Rights, Women's, and Gay Rights Movements of the late 1960s. Back from her year abroad, she took advantage of the federal financial support available for young people who wanted to study science to begin a PhD in biology at Yale University. There she became immersed in the swirling anti-Vietnam War, anti-racist, and feminist campus politics of the day.

At Yale

Haraway's experience at Yale was of course formative, but not exactly in the ways she might have anticipated. Being a 'real biologist' meant excelling in the laboratory, but that was a space that did not attract her and where she felt she did not excel. This crisis in confidence led her to search out G. Evelyn Hutchinson, a renowned British-born ecologist in the department who was known for allowing a greater range both in the kinds of questions and projects his students pursued as well as in their persons. Haraway notes that he had a reputation for being supportive of 'heterodox women' (Haraway, 2000a: 19; and see Haraway, 2004d). It was in Hutchinson's lab, along with other students who worked with him, that Haraway began to shape her own particular interests as an historian of biology and of science, although she did not call herself that at the time. There she pursued the historical and philosophical study of biology and embryology as practices of knowing about the world through a set of rich and detailed organic metaphors. She reports that she became fascinated with how these metaphors open up and enable thinking about nature and society in quite concrete and figural ways. Her dissertation,

Crystals, Fabrics, and Fields: Metaphors of Organicism in 20th Century Developmental Biology (2004b [1976]), took up Kuhn's (1970) notion of paradigm as a way to understand stability and change in the history of science. Haraway's question was the extent to which Kuhn's concept could describe the changes from vitalism and mechanism to organicism that took place in the late nineteenth- to early twentieth-century history of biology.

Reading backward from Haraway's current work to this first book, one is struck by the disappearance of many of the political and critical themes that are signatures of the later work. While it is possible to read a sympathetic appreciation of the socialism found in Joseph Needham's writing – one of the three key shapers of organicism whose work she analyses – Haraway's own socialist, feminist, and anti-racist commitments are not apparent. Of course, that was her dissertation and then her first book, published by a prestigious university press and in a relatively new field of study, written by a biologist. It had at its core a quite focused question about the history of developmental biology. Academic politics, even for a promising young scholar such as Haraway, likely would have produced readings by editors and reviewers of any such 'political' arguments as inappropriate to her inquiry. And, of course, it was a different historical moment during which such discourses were only beginning to coalesce. But things were happening in Haraway's life at the time she was finishing her dissertation – as a faculty wife and a part-time faculty member at the University of Hawaii in Honolulu – that, with her experiences from graduate school political activities and within the historical and social contexts of the day, helped to change dramatically her subsequent writing and the voices in it while leaving very present a commitment to organic and metaphoric thinking and a resistance to reductionist argument.

Hawaii and Hopkins

From an Irish Catholic white girl living what she calls the unmarked experience that these latter labels index; in a Denver made up of 'Mexicano, Chicano, worlds; African-American worlds' where 'Irish, Italian, Mexicano, Chicano Catholics populated' the schools

she attended but which and whom she did not exactly 'see' then as 'racial' (Bhavnani and Haraway, 1994: 20), Haraway's stories of herself underline the significance of her early 1970s life in Hawaii, worlds away from New Haven and from the earlier Denver that she knew. In 1970, fellow graduate student, friend, lover, and then husband Jaye Miller and Haraway left New Haven for Honolulu where he would take up a tenure-track position in History at the University of Hawaii. There Haraway worked on and completed her dissertation and taught general science classes. With a colleague named Dorothy Stein, she also taught a course called Biology and the Psychology of Sex Differences, which would become important to her developing feminism.

Jaye Miller, Haraway's husband, was also active in gay liberation politics and was increasingly living as an openly gay man. In her stories of herself, Haraway speaks carefully – characteristically – about her relationship with Miller, clearly one of the most important friendships and loves of her life. Using humour to gloss what was a complex pairing and set of projects, she says that, finally, she and Miller decided that they would give up their 'brother-sister incest' and live separately. At about the same time, Miller was denied tenure in the History Department at Hawaii due to what she characterizes as vicious and pervasive homophobia. It is clear from her comments about this period that these experiences were painful and life-changing for both of them. By 1974, Haraway had completed her dissertation and found a job in the Department of the History of Science at the elite Johns Hopkins University in Baltimore. Miller found a job at the University of Texas and more fully embraced a gay identity. They already had decided to live separately and so they left Hawaii and their marriage to begin new careers and lives under quite different circumstances.

Haraway's experiences in Hawaii are told as important ones for her later politics and sense of herself as a white woman of privilege. She notes that the ethnic and racial diversity in Honolulu – Anglo and European ancestry are minority positions there – was such that she experienced herself in the context of imperialism and colonialism in ways she had never experienced before; she noticed and lived difference there in ways that she had not as an Irish Catholic white girl among similar others, back in Denver. The course she

taught with Dorothy Stein was important for her, Haraway says, not because they explicitly theorized it in racial or postcolonial feminist terms, but because 'it was a very important moment for putting together the politics, the theories and the experiences of identity in our teaching as Women's Studies people in a colonial university' (Bhavnani and Haraway, 1994: 21).

She also began to see more clearly connections between biology as an intellectual and academic enterprise and the larger historical formations of which it is a part but that can so easily fade to background and 'context' in the stories typically told in the history of science. In one conversation about this period of her life, she tells her interlocutor, 'Identity is that set of effects which develop from the collision of histories. It is not an abstraction' (ibid.: 21). A number of diverse histories came together for Haraway in Hawaii that were consequential for her subsequent personal and intellectual/professional paths.

Johns Hopkins and the Department of the History of Science were academic home to Haraway for six years. In this powerful and rich university deeply implicated in histories of foreign policy, defence research, medicine and public health reform in the United States, Haraway says she became an historian of science, a field she felt she had not really studied much before that time. Joining the Marxist-feminist Women's Union there – a small group of radical women faculty and staff – and living communally in a racially mixed black/white neighbourhood, she experienced a new sense of community and collective politics of difference. Haraway and colleague Nancy Hartsock read 'lots of science fiction' and pursued questions of sex/gender in their teaching and research: 'what we would now call feminist theory' but did not then. It was during this time at Hopkins and through her involvement in socialist feminist and anti-racist politics that her knowledge and understanding of Marxism and science, feminist issues in science, the importance of racism in the development of science, radical science critiques of militarism and chemical and biological warfare became central to her academic and intellectual work.

Not coincidentally, this also was when she began the writing that much later became *Primate Visions: Gender, Race, and Nature in the World of Modern Science* (Haraway, 1989a), her first new book after

the dissertation and one full of the perspectives that have come to define her work. In this and other writing that began during this time, Haraway became fascinated by the complex relationship between humans and animals and the ways scientific stories about primates were crucial to the development of the racial and sexual stories humans told themselves about their relationships to and differences from others. She also saw that dominant notions of nature and culture and sex and gender were 'at stake' in these stories involving primates. Haraway says she saw these primates as important figures variously used by primatologists and others to create and sustain a set of stories fundamental to Western science, society, nature, and culture. She saw that these stories were, at their heart and among other things, powerful moral and ethical tales about who and what could count as human and about the foundations of knowledge that were far from the neutrality that was claimed for them.

At Santa Cruz and Healdsburg in the 1980s

In the late 1970s, Hayden White, the noted literary historian and philosopher, was given the task of reshaping and revitalizing an emerging interdisciplinary academic unit at the University of California at Santa Cruz called the Board in the History of Consciousness or, as it came to be known, simply 'Hist Con'. Already established as an experimental and elite campus of the University of California system, Santa Cruz asked White to find young scholars doing cutting-edge work that crossed and troubled the usual disciplinary boundaries of study in the humanities and social sciences. He had successfully hired the anthropologist James Clifford and was looking for someone in feminist theory – apparently the first position defined explicitly as such in the United States. Through her provocative papers on primatology and sex/gender and race that had appeared in *Signs*, a leading journal in women's studies and feminist theory (1978a, b) and in *Radical History Review* (1979), and with the publication of her dissertation, Haraway had come to the attention of White and Clifford. Feeling a lack of fit between her own developing scholarly interests and the scholarly preferences of the department at Johns Hopkins, Haraway was interviewed and was hired at Santa Cruz and in 1980 began a

career that has brought together the study of science, feminism, and anti-racist criticism in both pathbreaking and pathmaking ways. As she often notes, UC Santa Cruz has been an extremely fertile and supportive place for her, both personally and professionally. In her first decade there, Haraway published a series of remarkable papers and books that were to establish her as an internationally known scholar of feminist science studies and a distinctive culture critic. Moving to Santa Cruz also began a love affair of sorts with northern California that included many new lessons about racial and ethnic differences she says she could not have learned in Baltimore.

In one published interview with Haraway, former graduate student Thyrza Nichols Goodeve comments on her own sense of how much Haraway actually 'live[s] the theory you write and teach' (Haraway, 2000a: 63). They talk of Haraway's life in Santa Cruz and, three hours to the north, near the small Sonoma County town of Healdsburg in the early 1980s. There is a house there that she now shares with her partner Rusten Hogness and dogs and cats and plants around and in which move a set of stories that I think give meaning to Goodeve's characterization about living the theory Haraway writes.

After she and Jaye Miller ended their marriage but not their close friendship – Haraway says that they took their 'divorce trip' in 1975 '[s]ince we never did a honeymoon' (Haraway, 2000a: 35) – she met and began a relationship with Hogness, then a graduate student at Hopkins who was finishing an MA degree in the History of Science and who sat in on some of her classes. Hogness, a pacifist from what Haraway calls 'an intellectually privileged family', shared with her a knowledge of science, a leftist politics, and a deep commitment to social justice and service work that made an academic career too detached to appeal to him. Hogness and Miller, meeting first in 1975, became friends and in 1977 the three of them together with a fourth friend bought three acres of stunningly beautiful land in Healdsburg with a dilapidated house on it. It was something of an investment in a future not yet fully imagined but full of hope; something like 'dreams on hold'. Miller left his job at the University of Texas, moved to California, and taught high school in San Francisco. By the early 1980s, after

Haraway took the job at Santa Cruz, these dreams were becoming reality in a community of four people who constituted an extraordinary household in Healdsburg: Haraway, Hogness, Miller, and Miller's lover, Robert Filomeno. Miller and Filomeno had been together since 1980. A 'Filipino-Chicano man from Watsonville', Filomeno came from an immigrant working-class family whose stories are entwined with what Haraway calls the 'racist history of . . . the anti-miscegenation laws in California' (Haraway, 2000a: 62). This way of characterizing Filomeno by both personal reference and historical-cultural location is a signature of Haraway's writing. He was a man personally close to her but also always linked to and shaped by the histories of class, race, and state that 'locals' of all sorts always simultaneously carry. Nothing – least of all humans – comes without a history, she later would write, although these (hi)stories often are not made explicit in much disciplinary academic writing.

One should resist the urge here to think of 'family' and 'couples' as the most fitting descriptions for these early 1980s relationships in Healdsburg, although Haraway stories the people involved in those terms in that interview with Goodeve. Rather, Haraway would urge us to see the relationships that developed among these four people more in terms of complex and multi-layered friendships that had over- and outgrown the boundaries marked by the more *familia*-r words we use to name sustained personal intimacy and commitment. More than a decade later, Haraway would write pointedly against supporting the dominant, preferred categories of the heterosexual family and blood and race as ways to understand and see human-human connection:

> I am sick to death of bonding through kinship and 'the family,' and I long for models of solidarity and human unity and difference rooted in friendship, work, partially shared purposes, intractable collective pain, inescapable mortality, and persistent hope. It is time to theorize an 'unfamiliar unconscious,' a different primal scene, where everything does not stem from the dramas of identity and reproduction. Ties through blood – including blood recast in the coin of genes and information – have been bloody enough already.
>
> (Haraway, 1997: 265)

But she also argues, characteristically, that 'inhabiting' words and figures that one often has little choice of – perhaps even including 'family' and 'couple' – and living them 'against the grain' can produce surprising and even hopeful results.

Life for Haraway in Healdsburg in the early 1980s was, arguably, a mundane but very serious and particular instance of people trying to work out their lives together in ways different from but also of course in relation to the hegemonic and relentless weight of heterosexual, bourgeois, sexual, and racial conventions. It was also, she reports, a time of notable happiness. That Goodeve might have read these entwined stories around the house in Healdsburg as an instance of the more abstract claim that things, life, might be otherwise and that Haraway might be said to 'live her theory' underline a quality of Haraway's work that emerges strongly at that time and remains so, as her recent work on dogs and companion species makes clear.

One way to mark this would be to reiterate her commitment to the literal/figural meld, to her sense of the 'material-semiotic' as a way to help one 'stay connected' to the worlds in which one lives with so many different others and that one also studies and tries to change in the very living. Her regular footnoting of Catholic sacramentalism from her youth and of biological organisms from her academic foundations; her Marxist-socialist understandings of the way the worlds of lives and things are put together in terms of private property, commodities, profits, and markets; the brand of postcolonial, anti-racist feminism that she has brought to the study of technoscience; and her love of humour-infused crossing and confounding familiar and power-saturated categories in all of these evidence her strong sense that one's 'theory' and one's 'life' can happen only together, all mixed up; at the same time.

The first decade in 'Hist Con' at Santa Cruz was incredibly productive for Haraway's career and stature as a socialist-feminist critic and historian of technoscience. Work on primatology begun at Hopkins progressed and new lines of argument and analysis developed, especially those focused around her figure of the cyborg. Major publications from this period are those for which she has become famous, including 'Teddy Bear Patriarchy: Taxidermy in the Garden of Eden, New York City, 1908-1936' (1984/1985);

'Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s' (1985); 'Situated Knowledges: The Science Question in Feminism as a Site of Discourse on the Privilege of Partial Perspective' (1988); 'The Biopolitics of Postmodern Bodies: Determinations of Self in Immune System Discourse' (1989b); the prize-winning 1989 book, *Primate Visions*, and in 1991 her third book, *Simians, Cyborgs, and Women: The Reinvention of Nature*, in which many of these and other earlier essays are collected. During this time, Haraway also established herself as a respected teacher, colleague, and 'good citizen', serving as supervisor for a long line of distinctive dissertations, regularly teaching both undergraduate and graduate courses, and contributing to faculty committees and university governance.

But that decade of success and happiness was tempered by great sadness and pathos. Bob Filomeno fell ill with AIDS in 1985 and died the following year at Healdsburg, where Jaye Miller, Haraway, and Rusten Hogness had cared for him. Soon after, Miller himself was diagnosed with AIDS. As he grew weaker, Haraway and Hogness cared for him, in turn, until he died in 1991. The deep appreciation she had developed in her earlier life as a Catholic, and later as a biologist, for the connection of life to death and how the former always takes meaning from and depends on the latter were embodied in and by these experiences in ways that added new layers of vision and complexity to her work and her life. The last essay in the 1991 *Simians* book, 'The Biopolitics of Postmodern Bodies', links back in time to the personal experience of having loving and loved friends who are dying of AIDS and her growing attention to how the human immune system and self typically are described and understood in medicine – as a relentless attack by and defence against alien 'others' – at the same time that the essay looks ahead in a series of questions about relational complexity and location that would become major themes of her work in the new decade.

An example of Haraway's attention to complexity, boundary blurring, and her affection for biological entities that serve as metaphors for social and cultural analysis and criticism might be useful here to illustrate one aspect of her thought and writing. Appearing first in the Foreword she wrote to *The Cyborg Handbook*,

'Cyborgs and Symbionts: Living Together in the New World Order' (Haraway, 1995), with an appreciative footnote to fellow biologist Lynn Margulis, the biological entity *Mixotricha paradoxa* is introduced. Both empirical description and theory, *M. paradoxa* is a 'concrete', living entity as well as a 'model' of contradiction and complexity that immediately confounds the simple but central distinction of the bounded self or separate 'agent' existing independent of that which is thought to be 'outside' and context for it. It is also a clear instance of Haraway's vision of the world in terms of a literal/figural meld and an example of her interest in issues of scale and changes in scale that close attention to biological – she might say all physical – entities produces. Finally, it helps us appreciate her sense that attention to such entities often involves a troping or swerving of focus. While following one line of movement or operation, one's eye or thought suddenly has moved to an elsewhere that is linked to but also different from where it was and for which both the questions and the questioner have changed, a sense one also might get when reading a hypertext.

M. paradoxa is a microscopic creature who/that lives in the hindgut of the South Australian termite – what Haraway calls 'a mixed-up, paradoxical, microscopic bit of 'hair' (*trichos*)'. In Haraway's hands, the redescription of this single-cell organism throws into crisis simple notions of what is 'individual' and what is 'collective'. What is to count as an 'it' becomes a puzzle in that this being exists only in 'obligatory symbiosis with five other kinds of entities':

> Each has a taxonomic name and each is closely related to bacteria because they don't have a cell nucleus. They have nucleic acid, they have DNA, but it's not organized into a nucleus. Each of these five different kinds of things lives in or on a different region of the cell . . . So you have these little things that live in these folds of the cell membrane and others that live inside the cell. But they aren't in the full sense part of the cell. On the other hand, they live in obligatory symbiosis. Nobody can live independently here. This is codependency with a vengeance! And so the question is – is it one entity or is it six? But six isn't right either because there are about a million of the non-nucleated entities for every one nucleated cell. There are multiple copies. So when does one decide to become two?

> . . . And what counts as a *Mixotricha*? Is it just the nucleated cell or is it the whole assemblage?
>
> (Haraway, 2000a: 83)

The significance for Haraway of blurring notions of the one and the many, of the self and the other – indeed, of the self – apparent here goes far beyond its relevance to poststructural criticism about subjectivity, although she is not hostile to that criticism. Rather, it arguably is a signature quality of her vision of connection, complexity, interimplication, and contingency that is apparent in her writing on primates, cyborgs, sex/gender, technoscience, race, and, most recently, dogs as companion species.

A renowned scholar of feminist science studies

This vision and the writing that materializes it can be challenging for readers first coming to them. This is less because they are abstract or filled with 'jargon' – Haraway humorously quips that she has 'an extremely non-abstract consciousness, pretty nearly an allergy to abstraction' (Haraway, 2000a: 107) – than because they enact precisely the kind of boundary blurring that she calls for in the stories she tells. In particular, they blur the familiar and central distinction between the literal or material and the symbolic or semiotic, one of the most fundamental for her being that between 'nature' and 'culture', which she renders as 'natureculture'. She writes stories that are not only about material-semiotic entities, but her way of working, of writing and speaking, seeks to erase the distance usually imagined between words and worlds, between the word and the 'flesh', to use one of her favourite terms. For Haraway, the literal is tropic and the tropic, most productively, should be literal. All the material-semiotic entities found in Haraway's writing – among the best known being primate, cyborg, mutated modest witness, OncoMouse™, and companion species – are objects with specific histories that help her tell specific stories.

Haraway's insistence that her objects for analysis be specific and grounded means that they always have 'sticky threads' that then make it more difficult to isolate or decontextualize the object in

question and our analysis of it toward some kind of abstract universal. For instance, having foregrounded the image and reality of the creature above, she notes: 'Our relationship with *M. paradoxa* is produced by technoscientific relations that include the laboratory machinery, airplane travel, the whole history of zoology and taxonomy, as well as of colonial science in Australia' (ibid.: 84). In this sense, Haraway's entities are not abstractions. Rather, they are – her theory consists of or is a practice of – redescription in which the thing redescribed 'becomes thicker than it first seems', just as does her rendering of *Mixotricha paradoxa*, above (ibid.: 108). You will read many examples of this practice in the pages that follow.

Her philosophic resources are more Alfred North Whitehead, Charles Peirce, Martin Heidegger, and Michel Foucault than Jacques Derrida and deconstructive literary theory, although she does not disparage that more literary tradition.[2] With some patience and a willingness to think of theory as indeed 'live' in the sense of lively, mobile, open, and tropic, the reader begins to see the intellectual and practice-related possibilities in this 'worldly' way of seeing/thinking in literalized stories, even if it is marked as unusual in academic work. Of course, such marking implicates the conventions of academic disciplinary scholarship as much as it does the particularities of what is marked.

Haraway's commitments to complexity, materiality, democracy, partial and strong objectivity, truth, feminism, antiracism, semiotics, and socialist criticism in technoscience and all knowledge projects are carried forward and powerfully elaborated in her fourth and also prize-winning book, the 1997 *Modest_Witness@Second_Millennium: FemaleMan©_Meets Onco_Mouse™: Feminism and Technoscience*. Using the syntactic marks @, ©, and ™ in the title to help locate her project in a late capitalist or postmodern virtual (but real) and actual (but tropic) space, this book is, among other things, Haraway's (1997: 15) own 'exercise regime and self-help manual for how not to be literal minded while engaging promiscuously in serious moral and political inquiry about feminism, antiracism, democracy, knowledge, and justice in certain important domains of contemporary science and technology'. Written from an email address and an historical but virtual

spacetime and with the help of three new figures – the Modest Witness, FemaleMan©, and OncoMouse™ – creating what she elsewhere calls her 'menagerie of figurations', Haraway tells a critical but also hopeful set of stories about how a non-innocent feminist study and criticism of science and technology – technoscience – in the Third Christian Millennium might change the worlds and lives of living beings for the better. Organizing the book around her sense of the three parts of the science of semiotics and 'the anatomy of meaning' – syntactics or 'the formal structure of signification'; semantics or the 'contents and figures of a communication'; and pragmatics or 'the physiology of meaning-making' – with both humour and high seriousness, she adds a fourth branch to make it the kind of semiotics she could live with: diffraction.

Diffraction is her term for the kind of critical scholarship that aims always to 'make a difference' in the world in the very doing of the scholarship itself. She borrows this word from Lynn Randolph's painting, *A Diffraction*, which shows 'a split [female] figure moving through a screen into a world where interference patterns can make a difference in how meanings are made and lived' (Haraway, 1997: 14). Diffraction is an optical metaphor that she describes as involving the recording of difference patterns that result as light is passed through a prism or a screen with planes that make the rays change direction, move elsewhere; they are, in short, diffracted. Diffraction, both in Randolph's painting and in Haraway's text, is about making, keeping, and attending to this record of change, of passage and, in effect, about doing a kind of critical scholarship that aims to embody it: 'What we need is to make a difference in material-semiotic apparatuses, to diffract the rays of technoscience so that we get more promising interference patterns on the recording films of our lives and bodies' (ibid.: 16).

Haraway's love of the figural and of serious stories drew her to Randolph's provocative paintings as an important resource to help her think and write the chapters of this book. She uses images of ten paintings throughout the book to help her say and to help readers see her kind of analysis, including *The Laboratory, or The Passion of OncoMouse*™, which appears on the book's back cover and shows a white mouse with female human breasts wearing a crown of thorns and sitting inside an observation room with pairs of eyes

peering through windows. OncoMouse™ is both a biomedical and biotechnical laboratory animal produced for breast cancer research – a real transgenic organism – but also she is the first patented living model produced by genetic engineering. Randolph's painting and Haraway's narrative show OncoMouse™ also as 'a Christ figure'; 'her story,' Haraway insists, 'is that of the passion' (ibid.: 46–7). Here and in her discussions of the other figures who/that populate this book – the so-called Modest Witness from the Scientific Revolution of the seventeenth century to help her imagine a mutated and arguably more truly modest witness for the twenty-first century; FemaleMan from Joanna Russ's 1975 science fiction novel *The Female Man* to give materiality to mobile and mixed categories of transnational feminism; the vampire, from Central and Eastern European mythology of the late eighteenth century to help her write against the fantasies of the racially and biologically pure – Haraway reiterates the importance of Christian figural realism and salvation stories in the history and present of technoscience even as she seeks to confound and rework, to remould these stories for today and tomorrow. On this point and others, it appears that Randolph's paintings sometimes provided helpful material for Haraway's thought and Haraway's writing sometimes was resource for Randolph's painting.

Here, as in her earlier work, Haraway writes in a densely exampled prose that is closely grounded in the work of others and in historical-material detail. Whether it be the origins of the history of Western science in the Royal Society of seventeenth-century London and Robert Boyle's laboratory, the entwinement of reproductive politics, race, and class in technoscience; the representations of the Human Genome Project and the rhetoric of human genetics, or the characters and details of plot in science fiction tales, her text is anything but abstract. What was framed in the mid-1980s as cyborg here has become her preferred 'material-semiotic entities', and she offers up a mantra-like list of figures that she calls 'stem cells of the technoscientific body' – a 'family of cousins or siblings' – that can be seen as 'objects into which lives and worlds are built'; 'imploded atoms or dense nodes that [can] explode into entire worlds of practice': the 'chip, gene, seed, fetus, database, bomb, race, brain, ecosystem' (Haraway, 1997: 11).

Her strategy is to complicate and make historically dense these imploded nodes in the worlds of technoscience, nodes that she sees as 'figures that map universes of knowledge, practice, and power'. She encourages scientists and knowledge workers to develop and combine 'mixed and differential literacies' that will help them see and pursue these and other nodes and worlds in technoscience 'without the totality, appropriations, apocalyptic disasters, comedic resolutions, and salvation histories of secularized Christian realism' that frame the dominant stories of technoscience today (ibid.: 11). Rather than the developmental kind of time that frames those stories of fulfilment and containment, Haraway looks to a mutated time-space for these 'cyborg figures', one of 'condensation, fusion, and implosion'. Extending Foucault's notion of biopower, Haraway here writes of what she calls 'technobiopower' operating at the level of a net she calls the 'global'.

Trying to avoid being misread while knowing that is, finally, impossible, Haraway joins a range of intellectual debates that have come to characterize and in some cases polarize scholarly work on science and society at the end of what she calls the Second Christian Millennium. But she joins these debates using her own metaphors and figures rather than the familiar languages of theory and philosophy in terms of which they have been defined. In part, this is to avoid being drawn into certain arguments and positions in those arguments stated in terms of just those dualisms she has criticized, arguments she takes to be more or less unpromising, unproductive, and all too familiar. This is not to say that she avoids addressing the circumstances that have given rise to these debates. Rather, it is her sense that more theory of the familiar and abstract kind will not produce the insights and actions in knowledge projects that will help to change the worlds to which they are linked. Like Foucault, Haraway hopes not to offer up even a quasi-grand 'theory' of anything. Rather, she hopes to encourage a way of seeing, thinking, and acting together that begins to change the way humans and the many others to whom they are connected know and live together now and in the future. She hopes, like Foucault, to encourage us to do this differently. The first steps in such a movement are about imagining and then embodying these as real possibilities. She is convinced that they are.

This way of writing is one source of the difficulty some find when encountering Haraway's work: the terms of the discussion are not the ones readers familiar with many of the relevant intellectual and academic debates might recognize, be they readers of feminist theory, Marxism, poststructuralism, biology, or the social and historical studies of science. In these ways, Haraway challenges us to open ourselves up to the metaphors and figures she uses and to the complexity of her vision, even as their links to more familiar theories and their concepts are not always at first apparent. Haraway is an advocate of multiple and cross-cutting literacies, which she believes are essential both for reading the complex and global issues of technoscience and society today and in the future, and for active and consequential citizen intervention in those local debates toward shaping worlds as more free, democratic, just, and with more promise for all beings.[3]

Toward these ends, she works to transgress many categories that define the modern Western Enlightenment tradition going back to Aristotle, which she believes have come increasingly to dis-serve 'us', especially as evidenced in hierarchical structures of sex, gender, race, and nation. The encrusted divisions are deconstructed. The material *or* semiotic becomes material-semiotic; nature *or* culture becomes natureculture; realism vs. relativism becomes figural realism; arguments over validity become questions of foregrounding or backgrounding discourses; the givenness of the division between human and machine is troubled in the work on the cyborg and the separation of human and animal is blurred in the analysis of primatology and again, twenty-some years later, in the current work on dogs and people in technoscience, where ' "the relation" is the smallest possible unit of analysis' (Haraway, 2003a: 20). The machine and inanimate are, as in Bruno Latour's writing, seen as far from inactive, and the relationship between humans and the inanimate is taken seriously.

With *Modest Witness*, Haraway had become the internationally famous figure announced at the beginning of this section. As Charis Cussins Thompson, a former student and now a feminist science studies scholar in her own right, said when introducing her at the Rothschild Lecture in the History of Science at Harvard University in April 2002, Donna Haraway has become 'just about

as famous as it is possible to be in the academy'. In addition to the Gustavus Myers Human Rights Award in 1990 and the 1992 Robert K. Merton Award from the Science, Knowledge, and Technology Section of The American Sociological Association for her book *Primate Visions*, Haraway received the 1999 Ludwick Fleck Prize from the Society for the Social Studies of Science for the best book in science and technology studies for *Modest Witness*, and the 2000 J.D. Bernal Prize from that same Society and the Institute for Scientific Information for her outstanding lifetime contribution to the disciplines of the social studies of science. A recent publication, *The Haraway Reader* (2004a), collects essays that reprint and review some of her most notable past work as well as discussing her current project.

Rather than resting on these accomplishments, Haraway has set off in a new but of course related direction in her most recent work, a project that she calls 'The Birth of the Kennel', a study of and meditation on the relationships between dogs and people. Beyond another compliment and allusion to Michel Foucault – recalling his 1963 *Naissance de la Clinique*, published in English as the 1973 *The Birth of the Clinic: An Archaeology of Medical Perception* – this writing illustrates and enacts the kind of diffractive analysis that Haraway calls for in *Modest Witness* as she sets out to help us see technoscience in ways quite different from those that the noun typically might call forth.

This project on human–dog or companion species relationships arguably has thus far produced some of Haraway's most accessible writing. Several published papers join a small pamplet, her 2003 *Companion Species Manifesto: Dogs, People, and Significant Otherness*. Although alluding to her earlier manifesto for cyborgs, the early writing from this project enacts quite different voices and is offered out of a very different space–time, for Haraway and for us all. Commenting on the central figures of these two manifestos, Haraway says again that all her figures are located and have particular histories. Her famous quip regarding the cyborg – 'it wasn't born in a garden but it definitely has a history' – makes this point. While Haraway's cyborg is a figure connected to the science and technology of militarism, Cold War, the space race, and communications, the figure of companion species comes with an end-of-millennium

history and presence of speed, collapsed distance, implosion, condensation – all contexts for her discussions in *Modest Witness* – and the experience of global and seemingly endless difference and the challenges linked to these that now face and will confront humans worldwide. While not putting aside her cyborg companion, Haraway believes that her current work on dog–human relationality offers more promising possibilities for helping humans in the new millennium on planet Earth – how shall it be marked? – live more peacefully and productively together with the other beings and entities with whom they share this space. Here one can see many of the themes that have been so central to her past work but now framed in a way that takes us deeper into the details of the challenges that difference – and, as she calls it, 'significant otherness' – presents. Looking, listening, and living attentively in concert with another species as 'companions', Haraway speculates, might just give humans new forms of relationship practice to use productively both among themselves and with a 'menagerie' of emergent others.

Chapter 2

Science as Stories of Nature: The Case of Primatology

Donna Haraway's reputation as a major historian and cultural analyst of science began with response to the critically acclaimed *Primate Visions: Gender, Race, and Nature in the World of Modern Science* (1989a). The book had been in process for some time and was the object of much anticipation. Calling it 'long awaited', the feminist philosopher of science Sandra Harding (1990: 295) began her review by saying that its 'advance reviews ... are sprinkled with phrases such as "ingenious," "formidable," "extraordinary," "enormously stimulating," "brilliant and original."' Harding adds: 'They are not exaggerating.' Although its reception by primate scientists was mixed to 'cool', its reviews by most in the human sciences were clearly positive to laudatory.[1]

Physically out-sized, over 400 pages, with 16 chapters, many photographs and images, and a hundred pages of footnotes, bibliography, and index, the book is big in a literal sense consistent with what a reader learns from it, both about the study of primates and from the remarkable critical analyses of science and/as society that it offers. While a study of the science called primatology, the book's themes, says Haraway (1989a: 369), are 'repetition, identity, cooperation, whole, difference, change, conflict, fragment, reproduction, sex, and mind'. The list suggests something of the scope of the questions she takes up.

Her interest in the scientific study of primates – monkeys, apes, and 'Man' – began soon after she took the position in the History of Science at Johns Hopkins in 1974. The more she looked into the stories that primatology told, the clearer it became to her that this

loosely organized and interdisciplinary scientific speciality – made up of biologists, physical anthropologists, psychobiologists, zoologists, among others – offered an extraordinarily rich site for many of the questions that were becoming central to her work: the historically situated scientific constructions of nature, culture, sex/gender, and race. The writing of *Primate Visions* was done during the heady time of the mid-to-late 1980s at Santa Cruz and finally at the Institute for Advanced Study, in Princeton, New Jersey. This was about the same time that she was writing versions of her famous manifesto for cyborgs and the other essays subsequently collected in the 1991 *Simians, Cyborgs, and Women*. Both of these books are multivocal and draw together a set of critical themes, figures, and moral/ideological commitments that recur throughout the rest of Haraway's writing to date.

Although Haraway regularly describes herself and her perspectives as 'socialist', what marks the papers that began to emerge in the late 1980s and that characterizes *Primate Visions* is a more distinctly 'cultural studies' style of argument (see Haraway, 1992a). By cultural studies style, I mean that the writing positions taken up are complex and heterodox with a 'left' or neo- and/or cultural-Marxist flavour but without the 'starch' that often marks such positions; the conceptual resources are clearly interdisciplinary if not explicitly non- or anti-disciplinary.[2] Haraway's deconstructive arguments are reflexive and open; and the very process of making and dealing in knowledge, including cultural studies knowledge about science – which is to say her own project – is a prime topic for critical scrutiny. Although there is no missing the occasional sharpness of Haraway's criticism, her tone is not mean-spirited or supercilious, and certainly not so in her characterizations of the scientists and knowledge workers she describes.[3]

Closure, totalization, self-certainty and self-righteousness, essentialism, and claimed or desired detachment or 'objectivity', all are pointedly avoided. Passion, critique of domination, especially those of sex/gender and race; rigorous and creative scholarship; partiality in argument and an appreciation of more limited forms of political coalition are the aims, all written with an abiding sense of her own implication in the worlds and practices she critiques. Finally,

Haraway's writing here is full of empirical detail, which is not always true of cultural studies work. The anthropologist Robert Young (1992: 103) comments on Haraway's writing and stories in *Primate Visions* as follows:

> What strikes me as so powerful about Haraway's story is that she sets new standards for sheer immersion in the texture of the history of ideas, institutions, research traditions, individuals' reflections in themselves. It is exhausting to read, and her style makes no concessions to mellifluous cadences, yet it is very, very exhilarating. It is 'too much' in the best sense. She takes us through the minutiae of complex networks, the mediations, the resolutions of forces that lead to scientific patronage, conception, research, publication and dissemination. The texture is *so* fine, the networks *so* highly-articulated that any hope of maintaining a dichotomy between the substance and the context of science or between science and ideology becomes forlorn. Context and substance are not just interdigitated but inextricably intertwined or mutually constitutive.

This style is perhaps most clearly on display in the following *Primate Visions* essays: (1) 'Teddy Bear Patriarchy: Taxidermy in the Garden of Eden, New York City, 1908-1936' (in which the life and work of Carl Akeley and the construction of African Hall at the American Museum of Natural History allows insight into the details of how 'nature' was literally crafted as white, 'civilized', Western Man's 'Other', with all the predictable erasures mostly in place); (2) 'Apes in Eden, Apes in Space: Mothering as a Scientist for National Geographic' (in which the [male] fantasy of transcending the limitations of life on earth is examined and the fetish of communication is shown to take the place of history in popular natural science stories of white women – especially Jane Goodall – portrayed as 'alone in/[with] nature' – read with chimpanzees in the wild – as a soothing trope for dying colonialist regimes in Africa at a time of national liberation movements there, and in which the storying of important scientific work being done is given); (3) 'Metaphors into Hardware: Harry Harlow and the Technology of Love' (in which the comparative psychologist created a set of (in)famous laboratory experiments combining sadism

and masculinism to produce monkey performances for scientific observation to underwrite a 'more humane' and 'warm' view of 'mothering' than the mere stimulus-response and psychoanalytic models offered); and (4) 'The Biopolitics of a Multicultural Field' (in which Japanese primate research, its quite different orienting questions about the individual, the group, the unit of analysis, and the research reports are contrasted and compared with those guided by US and British researchers who initially were oblivious to what their Japanese colleagues were doing).

She invites us to see primatology, and science more generally, as a collection of stories framed by 'a particular aesthetic, realism, and a particular politics, commitment to progress' always written out of specific historical times and places (Haraway, 1989a: 4). In tales of ever-more clear sightings and sitings of monkeys, apes, and human beings, this science constructs reality and nature as settled, ordered in particular ways, and there to be discovered; as *always* having been there to be found and appropriately named by those with special vision.[4] While she is drawn to much about the work of telling and living these familiar scientific stories, Haraway wants to trope them to suggest different and better ways to write science and live lives. '[T]he history of science,' she insists, can be told differently:

> as a narrative about the history of technical and social means to produce the facts. The facts themselves are types of stories, of testimony to experience. But the provocation to experience requires an elaborate technology – including physical tools, an accessible tradition of interpretation, and specific social relations. Not just anything can emerge as a fact; not just anything can be seen or done, and so told. Scientific practice may be considered a kind of story-telling practice – a rule-governed, constrained, historically changing craft of narrating the history of nature.
>
> (ibid.: 4).

To see science in this way requires that we see it not as separate from society but rather as inextricably part of it; as party to creating it. And stories always have to be told by tellers who are themselves historically located, with all of the associated investments, resources, opportunities, desires, anxieties, and blindnesses. Here

and elsewhere, Haraway is deeply interested in considering and pointing out just what difference these particularities make in the worlds these stories bring into being.

The familiar notion that science is somehow separate from the social and cultural is one of the hegemonies that block a vision of the multiple ways that science and its practices are entwined with masculinist, racist, and colonial histories and worlds, among various others that are more desirable (such as feminist, just, anti-racist, democratic, and so on). Indeed, the permeability of this putative boundary between science and society as well as a clearer view of the ideological work it does have become core tenets of science studies thanks in no small part to this work by Haraway and other science-friendly feminist critics such as Sandra Harding (1986, 1992, 1993, 1998), Evelyn Fox Keller (1985, 1992, 1995), Sharon Traweek (1988, 1992), Karen Barad (1995a, b, 1999), Adele Clarke (1998), Adele Clarke and Virginia Olesen (1999), and Susan Leigh Star, (1991), among others. And while not feminist, Bruno Latour's work often makes similar claims, insisting that the boundary between science and society is porous and a site of much more traffic than the 'modernist settlement' has portrayed it to be (see Latour, 1999). Going beyond the more familiar arguments that the effects of 'society' on science have been deleterious and distorting, arguing for the porousness and even absence of this supposed division enables Haraway and others to make just the opposite and cautiously hopeful argument: that by building a revisioned and 'successor' science (cf. Harding, 1986, 1992) it may be possible to help make a better society; that science and society constitute one another with possibilities that have only begun to be considered.

In this chapter, I aim to convey a sense of Haraway's cultural studies analysis of primatology and of science, highlighting some of her key arguments and reviewing a few of the dominant stories that shaped this science in the twentieth century. This can only be a cursory overview, and you should engage this rich and complex discussion directly for the empirical details that secure it (and see Haraway, 2000b). Second, drawing on the final section of *Primate Visions*, I offer examples of how Haraway is not afraid to read and story hopefulness – which, she has pointed out, is not the

same as optimism – for a better future science and society. Next I turn to the claim that arguably draws together *Primate Vision*'s diverse chapters.

'Primatology is simian orientalism'

This claim is a section heading in the introduction to *Primate Visions* that is paired on the facing page with a reproduction of Tom Palmore's 1976 painting, *Reclining Nude*. The painting shows us a large gorilla lying on his or her right side, left knee bent modestly forward across the mid-body, head on folded arm, face full forward, lips slightly parted, with recognizing eyes meeting our gaze. It is a striking image that, at first, seems humorous, perhaps because of its humanizing title. Upon sustained examination, however, the humour fades and we sense something more serious at work as our eyes return to those of the painting's subject. The gorilla is looking at us looking at him or her – Haraway's analysis later in the book might encourage us to decide 'him' but the way Palmore presents the image would suggest 'her' – and the expression is one of calm intensity if not uncertainty, as if to register awe (if not yet shock) at the possible consequences of this vulnerability to human gaze. Given the stories of human–ape encounters that follow, the concern is not surprising. To the left, across the book's open pages, Haraway (1989a: 10) writes:

> . . . primatology is about an Order, a taxonomic and *therefore* political order that works by the negotiation of boundaries achieved through ordering differences. These boundaries mark off important social territories, like the norm for a proper family, and are established by social practice, like curriculum development, mental health policy, conservation politics, film making and book publishing. The two major axes structuring the potent scientific stories of primatology . . . are defined by the interacting dualisms, *sex/gender* and *nature/culture*. Sex and the west are axiomatic in biology and anthropology. Under the guiding logic of these complex dualisms, western primatology is simian orientalism.

One might wonder: is she writing about monkeys and apes or humans? And then one remembers that, of course, 'we' all are

primates. What of the differences between us and how will they be storied by Man and to what/whose end/s? We look again at the image of our sisterbrother reclining, nude.

Something has changed; there is a new discomfort. But now it grows in the one who looks rather than readable only in the face of the ape. Indeed, we readers may now better understand the gorilla's apprehension. Haraway would be pleased at this, for her hope in writing these stories about the stories science tells is that they will help to provoke greater critical awareness about how the above-named dualisms, along with others, work to sustain thought and practice that reinscribe, often without reflection, sustained relationships of hierarchy and domination: the primate order and of course Man's prime place in it, in the company of his and her prim(ary)-mates. In choosing to read primatology as an orientalism, she announces that her analysis will be no simple tale of villains and victims, but one that distributes implication and agency broadly and appreciates the often dark complexity and consequence of 'good intentions', paternalism, and love. There are no innocent positions; even in science, an argument on which Haraway insists.

The key word in this organizing claim comes from Edward Said's 1978 book, *Orientalism*. Said, a noted Palestinian intellectual and literary scholar, helped with that book to anchor the emerging academic fields of cultural studies and postcolonial analysis and criticism that began to emerge in the 1980s. Describing and enacting many of the qualities I have named to characterize such writing, Said was interested in analysing certain qualities of European and North American scholarship about the Orient. He saw that work as 'a way of coming to terms with the Orient that is based on the Orient's special place in European Western experience' (Said, 1978: 1). The parallel for Haraway is the 'special place' that monkeys and apes have in the stories primatologists have written about the nature of what it is to be, what it means to be, (hu)Man, but especially – although not explicitly so – what it has meant to be a 'civilized' white man in the 'First World', all terms that rely on the 'other' half of dualisms that have shaped that/those privileged worlds.

Although the immediate objects of Said's own analysis are literary and scholarly texts, these texts are connected to elaborate

and multi-layered durable practices to be found outside those texts in both the Occident and the Orient, similar to those that Haraway names in the long quote, above. The main object of analysis is what Foucault (1973) called 'discursive practices': discourse, its forms and logics, including aesthetics; its objects, and subjects; as well as the array of linked generative and reinforcing activities that some might call non-discursive practice, for lack of a better way to put it. Describing his method, Said (1978: 21) writes:

> My analysis of the Orientalist text therefore places emphasis on the evidence . . . for such representations *as representations*, not as 'natural' depictions of the Orient. This evidence is found just as prominently in the so-called truthful text (histories, philological analyses, political treatises) as in the avowedly artistic (i.e., openly imaginative) text. The things to look at are style, figures of speech, setting, narrative devices, historical and social circumstances, not the correctness of the representation nor its fidelity to some great original.

Orientalism tells stories about the contact between worlds different in ways that are deeply consequential both for those who see from the outside – the preferred and privileged position – and for those illuminated by this narrative gaze. For Said, this gaze comes from the 'Occident' and stories the 'Orient'; but, of course, *both* are created in these texts. For Haraway, the gaze comes from the white, Western scientists and lights up monkeys and apes as what might be called 'almost (hu)Man' or, better, 'original', 'precultural' or 'natural' Man. Again, *all* of these are thus inscribed/created as objects of knowledge. While in each case the latter, the Other, is written as fully distinct from and subordinate if not inferior to the former – the Self and source of light and vision – the two sets of figures, along with a whole list of related dualisms, work or create meaning only as *inter*dependent positions. Sex/gender; nature/culture. Specification and understanding of the one rely on its difference from the very details that define the other. The supposedly superior and distinct position or object *depends on* the subordinate for its sense of distinctness and superiority. Without that which is cast as lesser – as resource – the greater, for instance, the genius

of culture, could not be what it stories and enacts, embodies itself to be. There is then much at stake in maintaining the boundaries as drawn in such dualisms, for if the boundaries are hopelessly blurred, those particular stories no longer can be so effectively told. This blurring and disruption of dominant stories are often precisely the work of a cultural studies critic such as Said and Haraway, and Harding (1990: 297) says that is just what *Primate Visions*, among other things, does.

Haraway examines the texts of twentieth-century primate studies as highly consequential narratives in and through which nature and sex are the natural ground from which human culture, the gender order, home, and 'the family' have emerged and on which they properly work in the name of ordered knowledge and progress. And, she argues, these dualisms have been particularly important for females and racialized bodies as a result of the ways that sex has been 'seen' in these 'natural' populations of non-human primates with dark skins, brought from/studied in places where other dark-skinned human primates live under circumstances dramatically different from but linked to those that the white scientists and others who observe them enjoy (Haraway, 1989a: 12). This *inscribed* nature has been used to underwrite particular cultural forms – such as male dominance hierarchies seen to ground a certain concept of the ordered 'community'; male aggressiveness, female sexuality and passivity; heterosexual and patriarchal family structures and forms of cooperation – as themselves 'natural', foundational for both meaning and practice.

Constructing nature, making facts, writing fictions

In *Primate Visions*, Haraway examines in detail – from the pre-World War II taxidermy and dioramas of Carl Akeley in African Hall opened in 1936 at the American Museum of Natural History in New York City[5] and the roughly simultaneous academic work of psychobiologist Robert Means Yerkes at Yale, the comparative physiological psychologist Clarence Ray Carpenter at Columbia, and evolutionary biologist Stuart Altmann at Chicago; through

the post-war research, writing, and teaching of physical anthropologist Sherwood Washburn (author of the universalizing 'Man the Hunter' hypothesis) and psychologist Henry Harlow in the 1970s (and his especially cruel and misogynist experiments with young monkeys' attachments to 'mothers'); to the early 1984 Center for Advanced Study in the Behavioral Sciences' second Primate Project and its publication, *Primate Societies* (Smuts *et al.*, 1987) – how nature in the form of non-human primate form and behaviour was spoken, written, and, literally, assembled for display, consumption, education, moral training, and study. While she writes of these various projects and figures respectfully – but often with anger (see, especially, her discussion of Harlow) – she clearly writes to destabilize the realist (and in these forms, sexist) logic that insists the scientific texts of primatology are founded on a correspondence with a natural world that is simply there to be discovered. She argues, by contrast, that this natural world is primarily an accomplishment of particular human work, a factual fiction that is available to us for observation and study in the most influential of those scientific texts and the practices to which they are linked.

When she argues that primatology has 'constructed' nature, she is not of course arguing that there was no material reality for those scientists to know, see, and touch, a view she considers preposterous. Haraway means that our notions and understandings of nature and its particular instances are shaped profoundly by these very human and culture/symbol/narrative-saturated attempts/practices to know and describe them; and, moreover, that these images and understandings always are linked intimately to the social and historical moments in which they emerge, are struggled over, and changed. That the images of non-human primates, the anxieties about human social harmony and difference, and the masculinist and racist stories organized around the importance of male dominance hierarchies to maintain that harmony that she finds in the writings of primatology reflect the collective as well as the personal hopes, fears, fantasies, and dramas of those white, First World men and women who have lived them should hardly surprise us, even though these influences on scientific work usually are denied, except as error and 'bias', by scientists themselves.[6]

Such claims are sometimes misread by critics to suggest an extreme relativist position that seems to ignore material reality. But Haraway repeatedly criticizes a simple-minded or 'cynical' relativism that leaves one 'with no standards beyond arbitrary power'; she insists that some stories are better than others and can be defended as such. '[N]or does my argument claim there is no world for which people struggle to give an account, no referent in the system of signs and productions of meanings, no progress in building better accounts within traditions of practice' (Haraway, 1989a: 12).

The 1980s marked the elaboration of various social constructionist analyses across the human sciences. In science studies, sociologists Bruno Latour and Steve Woolgar (1979) were among the earliest to take up this line of argument in their *Laboratory Life: The Social Construction of Scientific Facts*,[7] of which Haraway (1980) wrote a favourable review. The chapters of *Primate Visions* contribute to this kind of analysis, but with caution, not wanting to reduce too much the messy and material complexity of telling and living the stories of science. She draws on but is wary of what she calls the 'temptations' of social constructionst argument in science studies, so named because the important partial insights offered are all too easily taken as in themselves 'the whole story'. She appreciates Latour and Woolgar's ethnographic study of scientists at the bench and Latour's (1987) later book, *Science in Action*, for rejecting the realist aesthestic common to science's own stories and for seeing science as a matter of collective action defined in terms of 'negotiation, strategic moves, inscription, translation' (Haraway, 1989a: 6). Successful scientists are those who are able to enrol sufficient allies behind their written claims such that challengers are overwhelmed.

Haraway sees one of Marxism's contributions to this kind of analysis to be the important effects of historically specific political and economic arrangements on knowledge. Marx argued that seeing and acting from a position of political economic privilege can produce only a distorted vision of one's own activities and their effects in that world. *More* of such investment in a particular hierarchical arrangement makes it *harder* to see one's self and the effects of one's actions fully. Being alive to this shaping effect on knowledge

provides an important resource when considering what science and scientists tell us about nature.

But Haraway also feels strongly that we should pay attention to scientists' stories about nature. She is sympathetic to their claims that these stories 'get at the world'; that what they are doing is not 'simply about power and control'; 'that their knowledge somehow translates the active voice of their subjects, the objects of knowledge' (Haraway, 1989a: 8). Haraway's appreciation and understanding of – indeed, love for – the work of biology and the knowledge it creates are part of her 'inheritance' that she does not want to ignore. To say that scientific knowledge is constructed is not to say that it is false or 'only a matter of language'. There is something there, so to speak, and science is quite good at telling stories that garner widespread belief in what that 'there' is and how it works. But just *how* this scientific storytelling is successfully done and its part in what she calls, drawing on parallel work by her former student Katie King (1991, 1994a, b, 2003), 'an apparatus of bodily production', are less apparent and in need of interrogation, she says. Telling more complicated stories about the scientists' stories – with more agents and less clear boundaries – is one of the aims of her work: 'I want to find a concept for telling a history of science that does itself not depend on the dualism between active and passive, culture and nature, human and animal, social and natural' (Haraway, 1989a: 8). This view of construction as a complex 'apparatus of production' is a powerful analytic tool that Haraway continues to use to understand how diverse active entities may be seen, collectively, to produce worlds.

I have foreshadowed in the introductory chapter the nature and significance of Haraway's emphasis on connections across the people/things boundary. In her writing about primates and cyborgs she gives much attention to such boundary crossings in ways that profoundly complicate and displace the notion of human agency so often central to social constructionist analysis. In arguing for her view of science as narrative fictions about facts, she writes:

> Biology is the fiction appropriate to objects called organisms; biology fashions the facts 'discovered' from organic beings.

> *Organisms perform for the biologist*, who transforms that performance into a truth attested by disciplined experience; i.e., into a fact, *the jointly accomplished deed or feat of the scientist and the organism.* Romanticism passes into realism, and realism into naturalism, genius into progress, insight into fact. *Both* the scientist and the organism are actors in a story-telling practice.
>
> (Haraway, 1989a: 5; emphasis added)

To oversimplify, only *some* of the construction work done might properly be called 'social' if that term is taken to imply the involvement of humans alone.[8]

At about the same time, Latour (1983, 1988) was writing similarly about the active relationship between Louis Pasteur and his microbes in late nineteenth-century France. Latour, the initiator of what has come to be called 'actor network theory' (ANT) in the study of technoscience (see Law and Hassard, 1999), and Haraway have become perhaps the most widely cited scholars calling for a more complex constructionist view of agency and action in the study *of* knowledge projects.

A *final* caveat in the temptation of social constructionist arguments for Haraway is that while science, like all cultural practices, should be examined through lenses that are feminist and antiracist, these very lenses are themselves crafted and operate as historically specific resources animated by their own practices of power. Haraway's announced commitment to self-reflexive criticism here signals how easily favourite positions can escape the very critical analysis one hurries to apply to those less favoured points of view. This is true for all stories that can be told and lived. If a so-called constructionist critique can remain both tempted by and wary of these insights, not letting any one silence the others, the contest for new stories that she hopes to encourage could become quite lively and promising.

For Haraway virtually never stops with critique and deconstruction. Rather, she strives to move to or at least gesture toward an 'elsewhere' that builds from the critique. Having argued that science conventionally is understood to uncover and secure, to produce facts or, for her, factual stories about nature, she then urges us to see the products of science also as fictions. Against the

common-sense opposition of fact and fiction, Haraway points out that each of these terms requires human action at the heart of its meaning. Fact and fiction both are 'things done' and reported on by humans. Rather than fiction being fact's other, she gives that place to 'opinion and prejudice'. The etymological distinction Haraway (1989a: 3) draws here is between fact as 'a neuter past participle in our Roman parent language' marking what *already has occurred*; that which can be 'known by direct experience, by testimony, and by interrogation – extraordinarily privileged routes to knowledge in North America'. Fiction, whose reputation appears popularly second to that of fact but that also can be and is regularly considered true, has an etymology of human action that is closer to a gerund than a past participle: it is ongoing, occurring now, still open; an action that is 'fashioning, forming, or inventing, as well as ... feigning' (Haraway, 1989a: 3–4). While both terms are based in human action, fact hides or 'masks the generative deed or performance', whereas fiction, so to speak, wears that performance on its sleeve. What frightens disciples of fact, of course, is the possibility marked by fiction's feigning: that the performance distorts or covers 'the true form of things' (ibid.: 4). Haraway invites us to see science practice as producing stories – that is, writings – that are simultaneously facts and fictions. In underlining the central place of human action, of doing, in this vision of science practice, she creates the possibility of rereading and rewriting the stories that science tells.

Reading science through science fiction is a practice Haraway uses often to open up our and her own imaginations. 'SF' offers stories set in high technology worlds of the present/future, and it is precisely the openness and possibility of such new worlds that draw her (see Gordon, 1994: 246–8). She cites her long-time colleague, Teresa de Lauretis, to suggest that the shared 'sign work' of both SF and science enables us to read the one through or with the other. 'I think,' writes de Lauretis (1980: 161):

> SF has a way of using signs that is potentially creative of new forms of social imagination; creative in the sense of mapping out areas where cultural change *could* take place, of envisioning a different order of relationships between people and between people and

> things, a different conceptualization of social existence, inclusive of physical and material existence.

And in *Primate Visions*, Haraway (1989a: 15) specifically invites readers also to be writers of such 'new forms of social imagination': 'I want the readers to find an "elsewhere" from which to envision a different and less hostile order of relationships among people, animals, technology, and land' toward new stories and worlds ordered around what she calls naturecultures.

Primatology as a genre of feminist theory: toward doing science differently

Haraway ends *Primate Visions* with a set of essays introduced as 'The Politics of Being Female: Primatology as a Genre of Feminist Theory'. These two titles typify much about her approach to science, feminism, and cultural criticism. That there is a 'politics' to being female, and, of course, to being male as well – that is, to ontology – and that such a politics might be found in scientific *practice* as a kind of feminism are arguments sufficiently 'out of the ordinary' to require careful attention. Having read that far in her book, of course, one might find such claims not exactly a surprise. From the beginning, Haraway has insisted not only that 'culture' and its related categories are constructed material and semiotic entities, but that 'nature' and its seemingly 'given' instantiations, including bodies, also are and have been written, inscribed, 'produced' by such apparatuses, as well. And since they so often have been seen as foundational to culture – and gender – contests over what 'sex' (often meaning female) can mean, primate science arguably is at the heart of histories of what it has meant to be woman and man.

But the claim that primatology be seen as a kind of feminist theory might be perplexing, given the stories Haraway has told in the previous almost three hundred pages. She has given ample evidence that much of primatology has mirrored, elaborated, and authorized visions of female and woman as at best the context for or, as the Judeo-Christian tradition has it, coming only *after*, indeed, 'out of', man both in nature and in culture. That primatology's texts and practices would have told this story is no surprise,

she says, but how, then, to entertain this claim that primatology is a feminism? In following her argument, we can begin to see in more detail not only how Haraway reads the effects of feminism and women scientists on primatology but something of her vision for how a 'better' science, feminism, and thus society might be written and lived (and see Haraway, 2000b).

'Suspicion and irony are basic to feminist inscriptions of nature's text,' Haraway (1989a: 279) writes, as she opens her discussion of 'the political and biological science of being female'. Having juxtaposed 'the tradition of hoax in American history' as 'less a form of deception' than an entertaining 'invitation to find the flaw in an apparent natural truth', on one hand, and the writing of popular natural history, on the other, she recommends attending to hoax as giving a better chance to see and resist prevalent hegemonies about nature – what it is, how to see and understand it and the relationships between its objects; and how to think it relative to culture – especially when the 'natural-technical objects' in question are females in the discourses of biology and physical anthropology.

Drawing on the image of an artefact most certainly familiar to P.T. Barnum (a master of the hoax), the mermaid, 'composed of the head and torso of a mummified monkey stitched to the tail of a large fish', Haraway (ibid.: 280) says her aim in what follows will be 'to find the evidence of stitchery without ripping out the patterns in the lives of females – fish, monkeys, or scientists'. To do this, she focuses attention on the work of four 'North American white women' primate scientists (qualities sadly representative of those few women who might at that time have been given the title [ibid.: 293–7]) who, arguably, took up just such an interrogative position toward various 'mermaids' that had gained spell-binding powers in their scientific fields. In their interrogations, evidence of 'stitchery' was indeed found, and the arguments that they then pursued enabled new ways of scientific 'sewing' – or writing – what could count as female, male, sex, gender, nature, and culture in late twentieth-century primatology and far beyond. While these stories are, certainly, stories of women feminists of their time, they are, just as much, hopeful (again, not to say optimistic) stories of science and some of the less-recognized possibilities it can allow and even nurture.

Jeanne Altmann

In 1974 Jeanne Altmann published her first solely authored paper entitled 'Observational Study of Behavior: Sampling Methods' in the journal *Behaviour*. Although she then had no advanced degree in a primate science and could not participate in scholarly conferences on her own credentials alone (which consisted of an MA in teaching mathematics), she had considerable experience as a primate field scientist through research done on baboons since 1963 in Africa with her famous primatologist husband and co-author, Stuart Altmann, then a Professor of Biology at the University of Chicago. Still, Haraway argues, the 1974 paper set the standard for what could count as sound description and explanation of the field behaviour of monkeys and apes. It turned out to be a tropic intervention in more ways than one.

So, what did Jeanne Altmann do that was so important? She said, in effect, that you must be quite sure that the data you draw from your observations actually are adequate to the questions – *especially* comparative ones – that your research asks, for it appears that in our discipline this has not always been the case (hence, her subtitle: sampling methods). Seeming hardly radical, the problem that Altmann described was not primarily one of poor analysis or lack of mathematical sophistication but rather one of conceptualization; of how to look and how to see (Haraway, 1989a: 308). And of course it was not that Altmann was the first to concern herself with how data were produced and used in primate field studies. Rather, Haraway insists, it was the *particular intersection* of the details of that science's practices at that time and the simultaneous growing attention to females, women, and feminism in the worlds where primatology existed (the so-called 'outside' of science) that both enabled Altmann to write what she did and that contributed to the enormous difference that her writing made. It was, she insists, an historical 'turning point' that, with Altmann's paper and her growing networks of sympathetic and appreciative women and men colleagues – many who were themselves students somewhat at odds with their mentors' flawed research advice – helped to destabilize a whole set of 'settled' scientific practices and objects.

And Altmann's own developing fieldwork on the lives of baboon mothers began to change 'what could count as female' in primate science as well as demystifying the almost 'sacred' state of 'primate motherhood' (ibid.: 304). Haraway offers a story of Altmann's work as an 'allegory for feminist queries about gender and science, i.e., about the relationships between positioning as a gendered social subject and the production of knowledge and philosophy of science' (ibid.: 305).

Published in 1980 as *Baboon Mothers and Infants*, Altmann's dissertation research used two metaphors that were powerful in their simplicity and in how they enacted intertextualities between the language, prose, and images of primate science, human science, and the lives and conditions of women and men in societies of mid-century industrial capitalism. First, in paying close attention to the baboon mothers at the Amboseli site in East Africa, Altmann was struck by how many different sorts of things these females routinely attended to, more or less at the same time. The words multiple and fragmented seemed more than apt to describe their tasks as well as their being, and Altmann used the notion of 'dual career mothering' to capture the constant 'juggling' that she saw. '*Multiple* career mothering' would have fit even better. While Haraway notes that this metaphor, when moved to human mothers' lives, erases differences of race and class since career is the privilege of only some women, it nonetheless brings to the foreground *what the baboon mothers actually did* and, by extension, what primate mothers so typically do. 'Where what mothers do has been counted as background noise, the matter to the form of social life, the resource for the act of generators of diversity [that is, males], such foregrounding is a feminist move' (ibid.: 314). Moreover, says Haraway (ibid.: 310), Altmann's focus makes it clear that she takes these primate female kin themselves to be:

> material-semiotic actors in the apparatus of bodily production. They are not 'pre-discursive bodies' just waiting to validate or invalidate some discursive practice, nor are they blank screens waiting for people's cultural projections. The animals are active participants in the constitution of what may count as scientific knowledge.

The other metaphor Altmann used to describe these mothers' lives was that of budgeting: how they dealt with diverse demands, only some of which were fully at their discretion (ibid.: 314). Not only were the mothers she observed simultaneously juggling multiple tasks, they also had to strategize this juggling in hierarchical terms, in real time, with limited 'degrees of freedom'. Haraway notes that this metaphor, like the first one, links Altmann's baboon mothers to other primates and to worlds far away from their African habitat. This is so, first, by contrast, in that the need to 'budget' is quite opposite to the transcendental fantasies of unlimited individual potential so common in western humanist and masculinist thought (including the fantasy of extra-terrestrial travel in space, as Haraway notes in an earlier chapter of the book); and, second, in that it linked her work to a long tradition of social science research on time and energy studies under industrial capitalism. That Altmann 'inherited' that metaphor and 'inhabited' it to her own ends (in ways quite at odds with much of that time-energy tradition) is just the kind of good scientific/political feminism *that* Haraway encourages.

Moreover, she notes the dominant, settled, and unreceptive context of truths about evolution into which Altmann's focus on these baboon mothers was placed. The 'given' in evolutionary theory and research was the Darwinian argument that the key to understanding what and who evolves is 'differential reproductive success' (ibid.: 312). This always had been framed in terms of those males who were more able to mate successfully with females and thus ensure the subsequent life and development of their genetic material ('paternity'). That made those males most aggressive and dominant in securing this mating 'gold' the focus of observation, linking ultimately to Washburn's man-the-hunter argument and the evolutionary step from non-human to human primates.

Altmann had a more than nagging sense that (male) primatologists had not looked with fully open eyes at what was before them in the field (as noted in her sampling paper) and had thus overstated rates of reproductive success in males and significantly understated them for females. They had thus likely missed seeing the ways that monkey and ape females were active strategists and players in effecting successful matings and lives, often using cooperation and

compromise – as did males – rather than dramatic conflict. She insisted that more attention be given, and over longer spans of time, to just what it was that females were doing in their routine lives beyond 'mating'. Part of the non-seeing that built the male-centred picture of reproductive success, Altmann believed, was the preference in primatological observation for the dramatic, what Haraway (ibid.: 312) marks as 'murder, sex, and mayhem'. Instead, she urged her colleagues to pay attention to the quotidian and to females in ways that they in general had not done. Altmann saw these baboon mothers not only as 'the most interesting individuals' (Haraway, 1989a: 312) but also as at least on a par with males as generators of genetic diversity.

But Altmann's research also illustrates a complex intervention into what it then meant to be a woman, a scientist, and a feminist. In a time, now, when 'speaking as a woman', or an African-American, or a subaltern is such an oft-heard preface to claims of truth, Haraway's analysis here is instructive. She describes Altmann's work in terms of the emerging tensions between modern and postmodern discourses in scholarly work. For a woman scientist wanting to make a feminist argument – still true today – Haraway (ibid.: 309) says there is a tension between '"identification" versus "problematization" or deconstruction as a strategy of naming . . . female/woman'.

For Altmann, it was clear that speaking explicitly from her identity as a woman in a feminist way would discredit her as a scientist. It would be putting 'politics' into science. Her 1974 article constituted no firey feminist tract accusing male colleagues of sexism. In fact, says Haraway (ibid.: 305), 'the word *female* hardly appears' in the paper, which is written in very 'straight' dispassionate prose full of 'the male generic (the observer, he)'. At the same time, the stories Altmann wanted to tell as 'good scientific work' were athwart then-dominant 'good science' knowledge in that they were about mobile, non-coherent, shifting, and lively objects/subjects who were female. Not only did she want to bring the background to the foreground, she wanted to shift the very ground of the dominant stories themselves. But, Haraway (ibid.: 309) says: '"Being" does not ground knowledge, at least not until "being" has been made into a strategic, *built* site generating interrogation,

not identification.' The successful strategy is not to substitute a dominant and closed feminist or female version for a masculinist or male one, even if that sometimes is satisfying and politically useful in the short term. 'The move of reversal is epistemically weak. . . . The powerful move is to displace and destabilize what may count in the relevant discursive community as knowledge' (ibid.: 310). While Altmann knew she could not effectively 'speak as a woman' in making her scientific claims about baboon mothers and females, the destabilization that she effected, insists Haraway, is a provocative example of primatology as an unmistakable feminism.

Linda Marie Fedigan

The work of Linda Marie Fedigan, a physical anthropologist who completed her PhD in 1974 based on a study of the social roles of and relationships between a troop of Japanese monkeys located at a research station in Texas appealed to Haraway in part because it *is fully* respectful of the central place of language and the productivity of metaphor and models in shaping how and what can be seen and imagined. Fedigan more boldly questions the masculinist givens of the dominant models of evolution by asking readers to be open to empirically arguable alternatives. Moreover, Fedigan problematizes the common *assumption* of sexual difference – that the male is more important – as central to differential reproductive success and to the founding of hominid life and thus culture.

Like Altmann, and important for Haraway, Fedigan writes from within many of the modernist traditions of physical science even as she transgresses others. But doing 'good science' was one of Fedigan's own requirements, meaning that she was anti-relativist and anti-reductionist: some stories could be marked as better in terms of being more consistent with what monkeys and apes were seen to be doing in the field; and the simplest explanations were not necessarily the best ones.

Fedigan's first major research monograph was published in 1982 from her Texas monkey data, *Primate Paradigms: Sex Roles and Social Bonds*. Haraway (1989a: 318) says it is written in critical, interpretative, and historically aware prose: 'The constitutive interpretive

processes of science were not allowed to fall into the background.' And contrary to the conventions of physical science, Fedigan does not rely on 'the objectivity effect' to distance herself from the objects/subjects of analysis or from the symbolic resources she uses to do good science. In her text, critical reflexivity is not a four-letter word, and she draws on conventions of interpretative and more open writing found in fiction and cultural analysis. This openness is also apparent in that Fedigan explicitly hoped for a more diverse audience: she sought to be accountable to 'specialists' not only in primatology but in women's studies as well. And again similar to Altmann, Fedigan paid sustained and detailed attention to female animals, while not ignoring males. From this a reader takes images of *both* male and female monkeys as 'active generators of lives and meanings', challenging the ubiquitous assumption of the primacy of hierarchical sexual difference.

Thematic here and in important subsequent review essays, Fedigan sought to question the way dominant sociobiology models inscribed monkeys as self-maximizing strategic reasoners focused on, if not obsessed with, constantly adapting to a harsh world of scarce resources full of zero-sum competition from a range of other beings and circumstances (a very familiar story indeed). Her own analysis focused primarily on 'kin selection, reciprocal altruism, and parental investment' relative to sociobiology's arguments about sex differences (Haraway, 1989a: 320). The monkey world that she saw and inscribed was one less rigidly structured around competition and scarcity, with more openness and diverse opportunities to shape a collective life in the face of shifting differences not fixed by sex. And she did not miss the chance to underline the absence of strong empirical support for popular but in her view questionable theories, including those supporting the almost sacred object of a 'home' base where monkey 'families' would wait for the return of provisioning male hunters.

She argued that it was less that sociobiology necessarily produced sexist arguments about animal behaviour than it was a problem of *beginning* with the *assumption* that females are inherently inferior to males in evolutionary resources. It was this foundation on which sociobiological models often were built that, predictably, produced scientific stories in which females always lost in

competition with males and always end up as 'resources for male action – symbolically, scientifically, and socially'. Haraway (ibid.: 322), continuing, says:

> That structural material-semiotic fragment is replicated at all the key origin points in western sexist discourse, from accounts of the beginning of sexual reproduction, to reconstructions of the origin of 'the family,' to theories of the structure of desire and action in narrative itself.

What Fedigan sought to do and what Haraway (ibid.: 322) sees as so important is to intervene not in the details of the story as usually told but, as she puts it, to destabilize the story field itself and to ask 'What makes some stories possible and others almost impossible to tell?'

Haraway underlines two of Fedigan's subsequent papers as especially important in their potential impact on students and on both the practice and content of primatology. Strategizing one's own *publishing* practices, which Fedigan did in writing review essays and a textbook, when seeking to intervene in dominant stories is an important move for feminist science. In one of these review essays, 'Dominance and Reproductive Success', Fedigan took up her title's topic to wonder just what the relationship between these two variables had been shown empirically to be. The 'odd scandal' that Fedigan announced was that 'the easiest aspect of differential reproductive success to measure ... [had] rarely been measured' (Haraway, 1989a: 323).

While paternity long had been given priority as the focus of research, it actually is quite difficult to determine with certainty, whereas maternity or reproductive success for females is comparatively easy to determine. In the face of much sustained research attention to the supposed importance of male access to estrus females (which in any case only pays attention to mating), always showing females as passive resources, Fedigan argued that the familiar and preferred account that females were most likely to be reproductively successful by selecting dominant males as partners had been built in the absence of any systematic evidence into just how females make such choices, even though female choice

for mating is central to Darwin's basic argument (Haraway, 1989a: 323). From this Fedigan went on to offer a view of dominance not as unimportant but rather as contextualized in male and female interactions involving many other variables, including competitive behaviour by females themselves. In this, says Haraway, she affects subsequent research in which 'questions about the biology of being female restructure basic evolutionary theory and basic field practice' (ibid.: 324).

The second review essay shifts attention from sex to the explicitly hominid-relevant topic of gender: 'The Changing Role of Women in Models of Human Evolution', published in 1986. This speaks directly to Haraway's argument about the important link between sex and gender not only in feminist discourse but in primatology's discussions of *Homo sapiens* and their species-defining accomplishment, 'culture'. The gist of Fedigan's concern here is to compare the ways that males/men and females/women appear in various evolutionary models at the critical boundary between animal and human societies. This kind of focus is precisely the sort that allows questions that Haraway sees as determinative of what gender – being a woman or a man – might mean. Given the ways that human, gender, and culture are narrated out of hominoid, sex, and nature, what stories get told frame possibilities for how the former appear as well as the nature of the connections between them and the latter entities. For Haraway (1989a: 325), these questions would include:

> Is there a sharp sexual difference [here]? Is it antagonistic? Complementary? Adaptive? Insignificant? Flexible? Fixed? Linked or unlinked to reproduction and production? Can the heterosexual reproductive imperative be relaxed in knowledge-power fields enough to permit escaping the binary restriction on sex and gender? What kinds of evolutionary narratives could have more than two genders?

Fedigan pursues her own list of possibilities, insisting that while speculative, such appropriations from primate research and theory for figuring human models in other fields do and will occur and that some models are more promising than others. She reviews

how women have appeared differently in such models and notes that the stories of nature and its connection to culture have varied by the gender of their authors.

Adrienne Zihlman

Early hominid evolution is the primary focus in the early research and writing of the physical anthropologist Adrienne Zihlman. A student of Sherwood Washburn's at Berkeley, Zihlman took her PhD in 1967 for a dissertation on bipedalism in early hominids that was firmly located within Washburn's larger man-the-hunter hypothesis. The important anatomical capacity of early Man, Zihlman argued from her data, was the ability 'to walk long distances on the African savannah as part of the hunting way of life' (Haraway, 1989a: 332). She completed her graduate work and began her career just before the full flowering of the women's movement on US university campuses.

Zihlman perhaps became best known for her model 'woman the *gatherer*', a label that unfortunately invites persistent misreadings as a feminine support to and elaboration of her mentor's hypothesis. In fact, woman-the-gatherer does not complete an(other) dualism nor, Zihlman argued, is it the mirror image of man-the-hunter – a 'feminist' account to 'balance' the 'masculinist' and dominant hypothesis. Nor does it propose to account for all human evolutionary development; nor does it exclude males (Haraway, 1989a: 345). Rather, she and Haraway argue, it offered a distinct *scientific* story based on stronger evidence than competing models, including the dominant one offered. 'The narrative logics of . . . [the two] hypotheses were not symmetrical. The stories were not opposites; they involved different doctrines of cause and origin, not simply different central actors or bits of evidence' (ibid.: 349). Unfortunately, says Haraway, but not surprisingly, it remains an origin and foundational story that presents a universalizing view of early hominid women as 'woman', thus erasing a collection of differences among those particular females/women that came to be called race, class, region, sexuality, and desire. Haraway uses Zihlman to elaborate her argument of how feminist primate science developed as both clearly scientific *and* feminist. In this,

she argues, Zihlman's work not only helped to write 'woman scientist' in more complex shades at century's end but made clear just how difficult it has been for some stories of what it means to be human to be taken seriously.

Zihlman's interest in woman the gatherer began when she heard Sally Linton's 1970 conference paper, 'Woman the Gatherer: Male Bias in Anthropology'. Linton criticized the hunting hypothesis and pointed out both what it elided – attention to the increased scope of female foraging to provision-dependent hominid infants – and restated an early criticism, namely, that the model could not account for its own origins. Underlining Darwin's emphasis on female sexual choice well before it became common among sociobiologists, Linton insisted that 'men's sexual control of women must be seen as a modern *institution*, not a natural fact rooted in our animal past' (Haraway, 1989a: 334). What seemed to Linton more to antedate hunting and its sexual elaborations among early hominids were '[v]ariable length consort-like associations' and '[m]atrifocal groups composed of both sexes and "cultural inventions" for food gathering and sharing and child care' (ibid.: 334). Haraway notes how Linton strategically avoided a focus on the masculinist and mythic objects 'tools' and 'weapons' by her focus on 'cultural inventions', namely, very early 'containers to hold the products of gathering and some sort of sling or net to carry babies' (Linton, quoted in Haraway, 1989a: 334). While not ignoring the much-noted male competition for females, Linton argued that it could have proceeded according to already-developed lines of status and 'need not be pictured as particularly violent or extreme' (Linton, quoted in Haraway, 1989a: 335). She also said that her argument was based simply on 'asking what females were doing', which today may seem like a more than obvious question. But, Haraway says, such a question seems so only *after* the world has been redefined to make females the kinds of subjects to whom one obviously should pay attention. Linton, Zihlman, and the other women whose work Haraway discusses here did not quite yet live in such a world either as citizens or scientists.

In commenting on the significance of Linton's paper and Zihlman's closely related work – and, by extension, the development of feminist and anti-racist science – Haraway insists that while

political consciousness and criticism by science insiders may create opportunities for doing science differently, it is a mistake to see the arguments of these women as themselves produced by 'politics'. This is the usual critical response (and sometimes, unfortunately, appropriately so), which denies them the status 'scientific' (instead, they are cast as one of its opposites, 'politics'). Here Haraway (1989a: 335) insists that feminist ideological opposition is not in itself sufficient to do the kind of science she encourages: often based on identification, it cannot 'substitute for the material, social, semiotic practice of the science'. Critics easily make claims that the truly scientific suffers at the hands of feminist politics and ideology and that, as a result, there is little point in taking the work seriously. This argument about the strategy of feminist technoscience criticism is one that Haraway continues to make; it has not always been easily or accurately heard.

Zihlman used many of Linton's arguments to develop her own analysis of chimpanzees as promising models for hominid evolution. Drawing on a range of complex arguments, emerging data *technologies*, and observations from others' previous research, Zihlman's narrative of early hominid emergence tells stories of 'flexibility, complexity, and individuality' in which 'both sexes would have become more adept generalist foragers' for various nutritious plants, with meat-eating less the rule than the result of occasional opportunity (Haraway, 1989a: 337). A sharp sexual division of labour was not part of her narrative nor was aggressive sexual behaviour by males toward females in ways that would be disruptive. What would more likely have been selected in female mate choice would have been 'socially skillful' behaviour by males able to contribute to these mobile projects and shifting arrangements. There is no brief here for a foundational image of 'the family'; and maternal kin, Zihlman argued, would likely be the more important companions for adult males, drawing them closer to the work of caring for and supervising the young. She saw sexual dimorphism and difference as an intriguing mosaic rather than a single, unitary quality: 'even considering "only" the flesh and bones, sexual dimorphism is not one trait; it is a mosaic of potentially independently varying features in many parts of the body' (Haraway, 1989a: 341).

Consistent with wider feminist conversations and discourse in western society in the 1970s, the notion of female sexual 'choice' among model non-human primates struck a particularly resonate chord as Zihlman watched video footage of chimpanzee mating encounters shot at the famous Gombe research site in East Africa made famous by the work of Jane Goodall.[9] Zihlman and other women feminist primate scientists read female monkey and ape behaviour in terms of 'personal choice' and 'self-determination'. Says Haraway (ibid.: 338): 'The underlying debate was about what counts as an individual and a citizen in the natural and social body politic', and it is not surprising that these notions were framed almost completely in terms of 'possessive individualism' and liberal humanist ideas. After all, she notes, such a being was the paradigmatic figure for how to be fully human in the West and in terms of which women had so long sought parity with men. That it effaced anything not white, middle-class, Western, First World, and heterosexual did later become apparent to Zihlman, and Haraway notes her 1980s efforts to deconstruct some of these exclusions.

In the closing pages of Haraway's discussion of Zihlman's work, she tellingly asks two kinds of questions that women scientists, even if not feminist, might know well: 'What happened to "woman the gatherer"?' and 'Who is listening?' While it is clear that among some audiences – notably women and men feminist primate and related scientists – Zihlman's models and arguments were very well received and credited, it is also the case that they were given short shrift if not dismissed, ignored, or even co-opted with little recognition by what might be called 'mainstream' paleoanthropology, including by Washburn himself. Both Haraway and Zihlman ask how to understand this kind of response, knowing that it is not a question of the quality of the science done. Zihlman wonders if 'the fate of "woman the gatherer" might be tied all too closely to that of "woman the scientist",' neither being seen as quite ready for full 'citizenship' in their respective communities (Haraway, 1989a: 345). Haraway (ibid.: 346), citing Evelyn Fox Keller (1985), elaborates this reading by reminding us of just how difficult it has been for women to be seen as acceptable candidates for scientific work, 'the exemplar of rational activity, i.e., of

being human, for modern westerners'. The approved stories of the emergence of human being are indeed deeply entwined with proper notions of citizen, reason, and gender. Perhaps, writes Haraway, Zihlman was seen as having 'gone too far'; as seeking, as a woman scientist, to tell a story about sex and gender that simply could not be accommodated under the conventional practices of reading and thought. Boundaries, after all, do important work.

Sarah Blaffer Hrdy

In her last example of primatology as a feminism, the work of Sarah Blaffer Hrdy, Haraway (1989a: 256) opens with an epigraph taken from Ruth Herschberger's (1948) *Adam's Rib*, which she calls 'the first feminist commentary on the history of primatology'. The text has Josie, a female chimpanzee, commenting on extant empirical observations by male scientists on non-human female primate sexual nature and behaviour:

> *Besides*, she continued, why call me sexually receptive anyway? That's one of those human words with an opinion written all over it. Call me sexually interested if you will, for I am . . . I'm about as receptive as a lion waiting to be fed!
>
> (Herschberger, quoted in Haraway 1989a: 349)

In this work, consistent with certain positions in 1970s feminist debate inside and outside primate science, female monkeys emerge as super-strategic reasoners who select sexual encounters to maximize their genetic investments in staying in the evolutionary game. Haraway's 'edged' subtitle for the discussion is 'Investment Strategies for the Evolving Portfolio of Primate Females' and says of Hrdy:

> [she] has built her scientific narratives and primatological feminist theory on foundations of popular high drama [her PhD work began as a study of male infanticide], originary sexual asymmetry and opposition, and the bedrock importance of competition, especially among females.
>
> (1989a: 350)

Female/woman here is a being whose autonomy and reason are located in achieving maximum sexual pleasure through orgasm. Mirroring the story of male orgasm in Aristotelian and patriarchal western liberalism, as well as much then-lively feminist debate about the difference and significance of the so-called clitoral or vaginal orgasms, Hrdy's research on female monkeys' orgasms links the flowering of the fully recognizable female individual to realizing one's own sexual pleasure in the contradictory fantasy of the body-transcending ecstasy, on one hand, and bodily containment, on the other, of this material-semiotic object, the orgasm. After a condensed but powerful history of female sexuality and women's place in society that serves as a context for discussing Hrdy's work, Haraway (1989a: 356) asks, with some incredulity, 'What kind of feminism could this be?'

Hrdy completed a physical anthropology PhD at Harvard in 1975 and subsequently published her dissertation as a sociobiological analysis of reproductive behaviours, *The Langurs of Abu: Female and Male Strategies of Reproduction*. While still a graduate student she had been impressed by results of a study reported at a 1971 conference by one of Washburn's students showing evidence of orgasms in female monkeys. There had been earlier research, linked specifically to Masters and Johnson's studies of human sexual response, of orgasms produced artificially in the laboratory in female rhesus monkeys. While Hrdy had written about female sexuality in her dissertation, 'the full implications of female sexual assertiveness' in the form of the orgasm moved to centre stage in her 1981 *The Woman That Never Evolved* (Haraway, 1989a: 361).

Anatomically, and given the dominant stories of sexuality and reproduction both inside and outside primate science, Hrdy identified the issue to be the clitoris, whose function seemed to be defined solely in terms of female sexual stimulation. In the absence of any functional justification for its existence in evolutionary theory and research, Hrdy asked, tongue in cheek, if that absence meant that this organ and its apparent capacity for serial intense stimulation were irrelevant – like the appendix (Haraway, 1989a: 361). Her response was to argue, strategically, that the clitoris and the multiple serial sexual couplings that it allowed were functional for 'reproductive advantage' in that they enabled

females to be, Haraway suggests, successful strategic liars. Hrdy (1981: 174) writes:

> If we recognize that a female's reproductive success can depend in critical ways on the tolerance of nearby males, on male willingness to assist an infant, or at least to leave it alone, the selective importance of an active, promiscuous sexuality becomes readily apparent. Female primates influence males by consorting with them, thereby manipulating the information available to males about possible paternity. To the extent that her subsequent offspring benefit, the female has benefited from her seeming nymphomania.

As Haraway notes, this is hardly an allegory of happy heterosexual domesticity or instinctual motherhood – about which she says, in effect, 'Hurrah!' – but rather one about fundamental cross-sex conflict of interest among females in which 'sexual pleasure and concealed ovulation' can allow some females – the successful ones – to turn males into resources for their own projects (a practice she knows all too well and about which she is less enthused). This *female* individual stars in what she calls a 'hyper-liberal' world where difference means hostility and competition and where females as the 'investing sex' become the 'limiting resource' of male desire and attention. And, she adds: 'The limiting resource always runs the risk of being nothing but the prize, not a player in . . . *her* own right' (Haraway, 1989a: 364). In this kind of investment story, 'mind, sex, and economy collapse into a single, highly problematic figure – the hyper-real [and postmodern, she says] unit of selection' (ibid.: 365).

Primatology as science fiction: possibilities for hope

Hrdy's work enables Haraway to comment on the complex, promising, contradictory, and implicated objects that both feminism and primatology had become at century's end. While there are elements of Hrdy's arguments that Haraway resists, she does not want to detract from descriptions of female monkeys as central players in

the stories of species evolution, arguments that their individual differences matter, and evidence that they engage in the full range of species-defining behaviours. But she also is committed to a feminism/science/worldly practice that is an anti-racism, an anti-colonialism, an anti-holism, and an anti-liberal humanism. She is sceptical of stories about universals of all sorts, especially when they erase (as universals do) so much difference that is part of the histories of colonialism and imperialism. For her, it often comes down to what narratives do with difference, and the narratives of evolutionary biology, in general, tend to see it – non-identity – as antagonistic, as a threat to peace and cooperation (Haraway, 1989a: 369). In Hrdy's sociobiological stories, says Haraway, this surely is the case. In these late twentieth-century models, the 'hyper-liberal' female – the very model of possessive individualism – emerges to lead a 'reproductive bio-politics [that] are finally about war', which is a politics and a kind of science/world that do not lead to the 'elsewheres' of which Haraway dreams (ibid.: 367). It is not the ending she wants to write to her stories of primatology.

What she does with this enacts just the kind of analysis that is her signature: she 'inhabits' these inheritances in order to trope them toward something she sees in primate science as more hopeful and promising (and see Haraway, 2000b). She 'backgrounds' the kind of vision Hrdy's and much other sociobiological primate science at century's end has foregrounded and brings forward aspects of narratives and practices that are equally available but on which the 'volume' has been 'turned' or kept 'down' (cf. Clarke and Montini, 1993). Using the resource of science fiction – first, Isaac Asimov's *Second Foundation* and then Octavia Butler's *Dawn* – Haraway reads the state of primate science at century's end and then imagines it as it might become in ways true to the feminism she claims it to be.

Comparing two year-long Primate Projects sponsored by the prestigious Center for Advanced Study in the Behavioral Sciences, held twenty years apart at Stanford University in 1962–63 and 1983–84 respectively, and their 'field-defining' volumes, Haraway cautiously suggests the emergence of something more hopeful than the competitive and strategic individualism in the sociobiology models – even feminist ones – she has just considered. The second project and volume, *Primate Societies* (Smuts *et al.*, 1987) inherits

much indeed from the first, published as *Primate Behavior* (DeVore, 1965), including both its intellectual patriline and the importance given to conflict, cooperation, and competition at the centre of Cold War anxieties about the 'social group' and the 'sharing way of life' supported by international scientific knowledge as assurances of peace and order in a hierarchical world (Haraway, 1989a: 370–1). But Haraway reads the second project as composed by a new generation of scientists/authors, almost half of whom are women (4 of 31 contributors to the first volume were women); and as more intellectually diverse – the Washburn model has been succeeded by varied and more modest and empirically rich work. Most central for her is the sense that in the later project and its writing, 'difference, variation, parts, fragments, and wholes' are handled in decidedly different ways, even if so as a result of sometimes quite unlikely yet always historically situated routes (ibid.: 372).

Despite much conformity to the 'letter' of the inexorable logic of evolutionary biology's antagonism to difference, Haraway reads much in the 'Second Primate Foundation' volume that insists on careful attention to specificity and variation, heterogeneity, and multiplicity of sources of movement and change. In such worlds, she says, surprises can and do happen. These are the threads of 1980s primate science, extended by Butler's fantastic visions of Xenogenesis, that Haraway (ibid.: 373) draws to weave possible stories of difference in 'non-antagonistic and non-organicist forms of individual and collective life'. It is here that Haraway ends her primate visions rather than with the stories highlighted in Hrdy's and other sociobiological research and writing, which seems to fit/extend all too well/much the 'hyper-real worlds of late capitalism, neo-imperialism, and the technocratic actualization of masculinist nuclear fantasies' (and see Haraway, 2000b).

Chapter 3

A Queer Family of Companion Species: From Cyborgs to Dogs and Beyond

The cyborg is surely the most famous of the several figures that Haraway has used to think and write feminist and technoscience criticism. The challenging, difficult, and exhilarating 1985 essay, 'Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s', in which she set forth her vision of the promising/terrible machine-organism figure, created name recognition for her beyond academic feminists and students of cultural studies (e.g., Kunzru, 1997) as well as becoming an object of controversy among them (see Bartsch *et al.*, 2001). Zoë Sofoulis (1988, 2002), who was a graduate student of Haraway's at the time this manifesto was emerging, recently has likened its impact to an earthquake in scholarly thought, although, appropriately, she calls it a 'cyberquake'.[1] But it has been now 20 years since that essay was first published, and times, to put it mildly, have changed on planet Earth.

Consistent with her commitment to historically detailed and critical examinations of the present, Haraway has begun a new project in which she resituates her friend the cyborg as more relevant to the recent past and as a somewhat less useful resource for provocative criticism in the multiple and ever-shifting worlds of global technosciences and cultures. This new project, which she calls, after Foucault, 'The Birth of the Kennel' (Haraway, 2004a: 300), reflects her own re-visioning of 'cyborgs as junior siblings in the much bigger, queer family of companion species'. She argues that the appropriation of the figure of the cyborg, first named in a 1960s time of Cold War militarism, cybernetics, and fantasies of human space exploration and, ultimately, control, enabled her to raise a

set of questions about feminism and technoscience that were especially relevant to those times and places. But the speed of global teletechnology has enabled change along an array of entwined economic, political, and technoscientific practices coupled with the ongoing implosions of a set of dualisms against which she wrote in the 1985 essay that, together, make her 'old doppelganger the cyborg' a somewhat dated and less effective resource for potent cultural criticism and political work in the new millennium (and see Bartsch *et al.*, 2001: 140–3). It is less a question, she says, of giving up on her famous earlier figure than one of drawing the insights from that work into the 'technopresent'; the cyborg is still among her cast of characters, still in her 'managerie of figurations', but now s/he is one among several metaphors with and through which Haraway writes, no one of which is offered as good for all times/places. Indeed, that universalism is a conceit of theory that she seeks to avoid.

Given Haraway's new project and her thoughts about resituating the cyborg as one of several members of her queer kin network, this chapter begins with the more famous figure and ends with a discussion of what her study of and stories about the 'actual occa*sions*' (Whitehead 1948, 1969) of embodied dogs-and-humans offers by way of new resources to think lives and 'technobiopolitics' more productively.

'Cyborgs for earthly survival!': Haraway's first feminist manifesto

Settled into her new job in the History of Consciousness Program at UC Santa Cruz, Haraway received an invitation in 1982 from the editor of *The Socialist Review*, one of the oldest left publications in the United States, to write a piece on recent thinking in socialist feminism (Haraway, 2000a: 39). Well into the first term of conservative Republican President, Ronald Reagan; media awash in a militarist 'Star Wars' discourse filled with references to new cybernetic information technologies of command-control-communication-intelligence/information ('C^3I') in service of what Haraway had taken to calling 'The New World Order, Inc.'; and

accompanied by more than a little critical self-reflection by white, middle-class US academic feminists about their own myopia for differences among women across cultural, national, racial, ethnic, and class lines, it was a time ripe for new critical thought about these and other hegemonies that seemed increasingly missed by more familiar modes of both liberal as well as radical criticism. Also usually missed in such writing was any sustained attention to the political relevance of science and technology for the examination of state domestic and foreign policy and their links to the operation of global capital.

Haraway had been writing and speaking on socialist feminism and technology and had begun to take up the figure of the cyborg to help her draw together an array of critical questions.[2] Cyborg, short for cybernetic organism, is a term coined by the research scientists Manfred Clynes and Nathan Kline in 1960 as they imagined the kind of augmented man that would be necessary for extra-terrestrial exploration or space flight. It refers most particularly to an imagined and actual mix of machine and organism so as to constitute an integrated information circuit. That is, the new entity so named blurs the boundaries of the organic and machinic and has some capacity for self-regulation via a process of information feedback. Working at Rockland State Hospital, Clynes and Kline had presented an earlier paper at a symposium on the Psychophysiological Aspects of Space Flight held in San Antonio, Texas, and sponsored by the US Air Force School of Aviation Medicine (Haraway, 2004a: 299). The first cyborg, from Clynes and Kline's lab and described in this work (Clynes and Kline, 1960), was a white lab rat with an osmotic pump implanted to allow the researchers to inject chemicals to control and observe aspects of the rat's physiology. This produced, says Haraway (2004a: 299),

> an ontologically new, historically specific entity: the cyborg, the enhanced command-control-communication-intelligence system (C^3I). Here, the machine is not other to the organism, nor is it a simple instrument for effecting the purposes of the organism. Rather the machine and the organism are each communication systems joined in a symbiosis that transforms both.

By the time Haraway wrote her essay, the cyborg had emerged as a figure in popular culture and especially in science fiction. It also had been reiterated in a variety of embodied technoscientific forms and venues.

The monstrous character of the cyborg – the very mix of that which was seen as so fundamentally other or different and even antithetical – that is, the living, organic, carbon-based, on one hand, and the inert, machine, silicon, on the other – made it an object of fear and repulsion for many, a harbinger of 'Man's decline'. And by post-World War II mid-century, 'technology' if not science had been written and read increasingly as anti-human and in particular anti-woman/nature by various political progressives. For scholars in the humanities and social/human sciences, the famous and anti-human picture of technology painted by Martin Heidegger (1977) contributed to this view. Seen as driven by and shaped to serve international monopoly capital and as a means of further enslavement of workers locally and globally, technology and cybernetics seemed to many as unlikely resources for new thinking toward more liveable worlds for women and for other beings.

But for Haraway, these very qualities made the cyborg figure proximate and full of possibility. It was from the beginning a 'polluted' and bastard entity, but it was, arguably, also very much present. Emergent from and located in 'the belly of the beast' of imperialism, capitalism, and miltarism, as Haraway often put it, there was no chance that it could be seen as offering an innocent or pure position from which to see and write criticism; no chance that those who might use it in argument and analysis could miss their own implication in the fraught, complex, contradictory worlds that they wanted to critique:

> It's an offspring of World War II nuclear culture, and there's no possibility of working out of that position to imagine yourself in the Garden of Eden or returning to pre-Oedipal bliss. Many of the [dominant and familiar] myths and narratives are not available to you from what I would call 'cyborg positions.' You have to take your implication in a fraught world as the starting point . . . I think cyborg writing is resolutely committed to foregrounding the

> apparatus of the production of its own authority, even while it's doing it.
>
> (Haraway, in Olson, 1995: 50)

These comments, from an interview a decade after the essay was first published, make it clear that for Haraway the figure of the cyborg is a prime resource to help imagine a different kind of material-semiotic world, a different conception of identity and related politics, and a different kind of feminist and cultural criticism from those then available. The cyborg is not only an image or figure, an entity in fact or imagination, but it is also a positioning, a way of thinking and seeing, that Haraway believed could – if taken up, lived – make the survival of living beings in late- or post-modern technoscientific worlds more likely.

Haraway's cyborg figure

One way to understand why Haraway might need new figures for cultural criticism at the end of what she refers to as the 'Second Christian Millennium', why she might see companion species as more useful than cyborgs, is to recall her commitment to the historical and material specificity of the stories that she tells. In short, no thing comes without its history, its world – in a time, from a place, with all of the concrete and messy details that always accompany and create specific times and places. The cyborg as she uses it has a particular history; it emerged from a particular set of 'implosions', a term she uses often to characterize the disintegration of boundaries that she believes characterizes the present but that often is denied in much inherited 'modern' discourse. The militarist, space-race, reductionist, and control-focused apocalyptic visions from which the cyborg emerged can't and shouldn't be separated from it, in Haraway's view. By cyborg, then, she does not mean 'all kinds of artifactual, machinic relationships with human beings. Both the human and the artifactual have specific histories,' she insists: 'The cyborg is intimately involved in specific histories of militarization, of specific research projects with ties to psychiatry and communications theory, behavioral research and psychopharmacological research, theories of information and information

processing' (Haraway, 2000a: 128). While this specificity lends Haraway's figures a compelling quality in the way they address the issues of time/place, it also means that they do not help us see and speak in a timeless or universal way; something she thinks is a dangerous fantasy in any case.

Endorsing blasphemy and irony for a new kind of socialist-feminist analysis – the former because 'it protects one from the moral majority within, while still insisting on the need for community', and the latter because it 'is about contradictions that do not resolve into larger wholes' and 'about the tension of holding incompatible things together because both or all are necessary or true' – Haraway (1985: 65) in the mid-1980s put her faith in the cyborg as a way to a better understanding of 'women's experience in the late twentieth century'. Beyond women alone, Haraway (ibid.: 66) boldly announced that 'we all are chimeras, theorized and fabricated hybrids of machine and organism; in short, we are cyborgs. The cyborg is our ontology; it gives us our politics.'

Calling the late twentieth-century understanding of the relationship between the organism and the machine a 'border war', she recommends instead a '*pleasure*' to be found in destabilizing these boundaries and an accompanying heightened '*responsibility* in their construction'. Specifically, Haraway's cyborg allows us to hope for a world without gender[3] and without the endless circulation of Oedipal family stories linked to it. It is not Christian, wasn't born of Woman, wouldn't recognize the Garden of Eden if in it, and does not depend on salvation through heterosexual reproductive coupling orchestrated by an all-knowing Father. Haraway (ibid.: 106, fn 27) notes that feminist science fiction already had begun to offer some promising cyborg narratives.

Although imagined to be the full realization of the hegemonic abstract individualism that has defined the West – and here she indexes the fantasy of the fully free 'man in space', which she was also to address in her *Primate Visions* essay, 'Apes in Eden, Apes in Space' – Haraway (ibid.: 67) likes the fact that the cyborg has no humanist origin story. It does not require the separation and individuation from an 'original unity, fullness, bliss and terror, represented by the phallic mother' for personal development or for an understanding of history. She notes that both Marxism and

psychoanalysis incorporate versions of this origin story, which requires the production of difference/woman/Other as an object to be overcome toward full (masculine) self-realization. But the cyborg shows us that one side of the nature/culture dualism can no longer be used to figure or create the other. Instead, the cyborg

> is resolutely committed to partiality, irony, intimacy, and perversity. It is oppositional, utopian, and completely without innocence ... Cyborgs are not reverent; they do not re-member the cosmos. They are wary of holism, but needy for connection ... The main trouble with cyborgs, of course, is that they are the illegitimate offspring of militarism and patriarchal capitalism, not to mention state socialism. But illegitimate offspring are often exceedingly unfaithful to their origins. Their fathers, after all, are inessential.
>
> (ibid.: 67–8)

This sort of fraught entity – full of both danger and promise; never internally consistent; always requiring careful and risky handling – is arguably a signature of Haraway's style of thought and work. While it is perhaps most famously recorded in this early essay on the cyborg, it emerges across her subsequent writing as part of a potent strategy of criticism that denies itself the quality of self-righteous purity that 'cleaner', more internally consistent and ideologically comforting categories can so easily allow.

Enabling implosions

The kind of 'political-fictional (political-scientific)' analysis that Haraway (1985: 68) proposes with her cyborg figure is, she argues, enabled by – only makes sense because of – the gradual breakdown of three very long-lived boundaries: that between human and animal in US scientific culture; that between organism and machine (the prime case here); and that between the physical and non-physical. The blurring of these distinctions is also part of what she means by the historical specificity of her cyborg myth and story. She aims to call attention to them – especially the second – as part not only of the actual occasion of cyborgs as concrete entities

but also as evidence of a heightened 'looseness' in semiotic resources for making/imagining new meanings. Without the implosion of these distinctions, it would be harder for Haraway and for her readers to imagine, to see, the cyborg in the way she recommends.

The porosity of the human–animal boundary may today be quite easy to appreciate, although its maintenance remains both a scientific and moral staple in a range of popular as well as scholarly work. This often can take the form of debates about how humans are unique relative to animals, with language (or tool use or mind/mentality) often used to mark human-ness, seen by some as the zenith of God's creation in service of 'His plan for Man'. But Haraway argues that such claims – at least those offered as scientific – have become vulnerable not only to growing research evidence from various disciplines showing animal capacities and performances previously thought to be 'only human', but also to a growing sense that the need to establish and police the separation is itself uninteresting. Cyborgs can be thought to be more plausible if the human–animal boundary also becomes harder and less important to see. 'Bestiality has a new status in this cycle of marriage exchange,' quips Haraway (1985: 68), as if to underline the extent *of the* lapse from her earlier Catholic self.

Ambiguity about what constitutes organism and what machine is central to the very definition of the cybernetic organism. Before cybernetics, says Haraway, machines seemed clearly under man's control; they could at best only follow human directions and/or reflect human qualities put in them by humans. But machines at millennium's change are another matter, making much less clear old distinctions between 'the natural and artificial, mind and body, self-developing and externally designed' (ibid.: 69). With nature destabilized as a source of authority – the details of which she sets forth in the primate project – so too is its true reading or interpretation, the project of epistemology. But this need not result in a loss of faith or a cynicism, with 'technological determinism' and the machine seen as annihilating humans and the very possibility of agency. Quite to the contrary, says Haraway, destabilization of these boundaries offers a possibility of the emergence and survival of more promising stories for more living beings. Finally, the blurring of the physical and non-physical – actually a

particular version of the organic/machine case – is apparent particularly in the enormous impact of microelectronics and the changes in scale, speed, and materiality – not to mention the human suffering – that they and their production bring: 'Modern machines are quintessentially microelectronic devices: they are everywhere and they are invisible. Our best machines are made of sunshine; they are all light and clean because they are nothing but signals ...' These new machines are small, Haraway notes, but also deadly, 'as in cruise missiles'. That which counts as 'physical' has to be rethought. 'People are nowhere near so fluid, being both material and opaque. Cyborgs are ether, quintessence' – hard to see, define, and hold onto, both materially and politically (ibid.: 70).

Haraway suspected that in the mid-1980s most US socialists and feminists tended to see 'high technology' and 'science' as strengthening the dualisms that entrench Western dominations along the lines of class, race, and sex/gender and thus calling for strong resistance. But she offers through the cyborg a more nuanced and complex angle of vision that sees the technoscientific as a terrain for the contestation of meaning and the possibility of remoulding and redirecting what looks repressive into something more subversive and even progressive. While fully aware that the figure of the cyborg can be read as about global control and domination, about pre-emptive strikes and imperialism masked as deterrence or defence, and as a furthered appropriation of women's bodies in service of masculine conquest, Haraway (ibid.: 72) offers an alternate possibility:

> [A] cyborg world might be about lived social and bodily realities in which people are not afraid of their joint kinship with animals and machines, not afraid of permanently partial identities and contradictory standpoints. The political struggle is to see from both perspectives at once because each reveals both dominations and possibilities unimaginable from the other vantage point.

Multiplicities. Heterodoxies. Monstrosities. Improbable but promising couplings made by choice and based on assumed short-term common ends as well as means. These are the marks of Haraway's cyborg as a figure to think and live with.

Anti-identity politics

One of the major shocks of the cyberquake that this first manifesto produced was in Haraway's criticism of First World, especially US white, academic, feminist identity politics. While she was not the first or only major feminist writer to name and elaborate the problems inherent in the notion that 'woman' is a homogeneous category in terms of which a unitary 'experience' of 'identity' could be described and spoken, her critique was especially pointed. Moreover, both the criticism and its target – arguments from perhaps the most visible radical feminist theorist of the day, Catherine MacKinnon – came from within the privileged community of US academic feminists (see Haraway, 1985: 77–9)

At the centre of Haraway's critique of identity is the 'exclusion through naming' that emerges with the construction of any unity, including the supposed unity of all women as 'woman', with its erasure of differences among women and the conditions of their lives across lines of race, class, sexuality, and ethnicity, at the least. The women's movement and feminism of the latter half of the twentieth century in the West – and especially in the United States – in seeking a politically powerful voice, had been written by some to rest on '*the* experience of women' as though there were in fact such *an experience* that defined something common and essential about all women. The implication or assertion was that all actual women were bound together, experientially and in outlook, by the fact of their sex/gender category alone. Haraway called this a hegemonic practice that bore little resemblance to the lives that women worldwide actually lived. 'There is nothing about being "female" that naturally binds women,' she wrote.

> There is not even such a state as 'being' female, itself a highly complex category constructed in contested sexual scientific discourses and other social practices. Gender, race, or class consciousness is an achievement forced on us by the terrible historical experience of the contradictory social realities of patriarchy, colonialism, and capitalism. And who counts as an 'us' in my own rhetoric? Which identities are available to ground such a

> potent political myth called 'us,' and what could motivate enlistment in this collectivity?
>
> (Haraway, 1985: 72–3)

In view of the endless differences and divisions among actual women, Haraway called the notion of *woman* 'elusive' and too often a tool 'for women's dominations of each other'. This was read as a stinging condemnation by many white academic feminists who, bringing less critical thought to the question than Haraway and/or who were wary of the political consequences of airing feminist differences publicly, had taken up this argument. But it was more than welcomed by many women and feminists of colour, and by Third World feminists who themselves had felt the exclusion and hegemony against which Haraway wrote.

Some 20 years later, one can see Haraway's critique as an early instance – at least from privileged, white academic feminists – of a postcolonial or poststructural feminist position on the concept of identity. She marked her argument using both of these terms, noting that actual 'identities seem contradictory, partial, and strategic' and that a preferred alternative to the coercive fantasy of a unitary identity as woman might be to search not for unities, identities, across women's (or others') lives, but rather to be alert to possibilities for limited and shared aims and hopes that might *emerge* 'through coalition – affinity, not identity' (ibid.: 73). Given the intellectual and political context of the day, the cyborg was a perfect figure through which to imagine and write a different story of such connections. While not changing the subject, so to speak, the ideas and figures 'used to think other ideas [with]' (cf. Strathern, 1992: 10) were troped so that thinking could move elsewhere.

Drawing on work of then-graduate students at UC Santa Cruz – and Haraway's generosity in crediting her students for their contributions to her work is storied widely – Zoë Sofoulis, Chela Sandoval, and Katie King, she offers descriptions of what such alternatives might be. Sandoval's writing about 'oppositional consciousness' using the category 'women of color' provided Haraway with a case in which who one is can be thought only as 'not that' or 'not them'; as only in opposition to an already named identity or identities. And rather than see this erasure in the more familiar

terms of victimhood, Sandoval and Haraway underline the political possibilities of such a 'postmodernist identity' built out of difference:

> For example, a Chicana or US black woman has not been able to speak as a woman or as a black person or as a Chicano. Thus, she was at the bottom of a cascade of negative identities, left out of even the privileged oppressed authorial categories called 'woman and blacks,' who claimed to make the important revolutions. The category 'woman' negated all non-white women; 'black' negated all non-black people, as well as all black women. But there was also no 'she,' no singularity, but a sea of differences among US women who have affirmed their historical identity as US women of color. This identity marks out a self-consciously constructed space that cannot affirm the capacity to act on the basis of natural identification, but only on the basis of conscious coalition, or affinity, of political kinship.
>
> (Haraway 1985: 73)

The possibility set out here, of making connections that can turn into collectivities – always mobile, transitory, and vulnerable but still unmistakable as a 'we' – both to make knowledge and engage in significant political action is a hope and a proposition recurrent throughout Haraway's subsequent work, up to and including the current figure of companion species. And it was not only such women of colour whose identities were mobile and contingent under such a formulation. So, too, increasingly, were those who had been much closer to the centre of colonialism and orientalism, including white academic feminists and feminist-friendly men as well.

In and through her cyborg and its fractured and mobile identities, Haraway was able to write against all totalizing systems of thought, including not only the more obvious cases of capitalism, patriarchy, colonialism, and heterosexism, but against the very form itself, even when taken up by those who had suffered unmistakably as a result of these easily-named dominations. No small part of the impact of this argument came from the way it left no ground of innocence or non-implication on which feminist critics themselves could 'safely' – which is to say innocently – stand. She wrote most particularly against those totalities thought to be

premised on some 'natural' or 'organic' experience or essence, discourses not uncommon in academic feminisms of the time. This kind of grounding in 'identification' was taken up in the *Primate Visions* discussion of the dilemmas of being a credible woman scientist in a time when that seemed oxymoronic.

Drawing again on the work of Katie King, who had critiqued the building and operation of taxonomies of feminism, Haraway (1985: 74) argued that such taxonomies, offered in Marxist/socialist-feminisms and radical feminisms alike, 'produce epistemologies to police deviation from official women's experience'. And: '[N]either Marxist nor radical feminist points of view have tended to embrace the status of a partial explanation; both were regularly constituted as totalities. Western explanation has demanded as much; how else could the "Western" author incorporate its others?' (ibid.: 78) If indeed the cyborg offers an alternative ontology or understanding of being, it also leads to a dramatically different epistemology or way of knowing to which her reference to 'partial explanation' points. Haraway's forceful statement of this alternative first came in her 'Situated Knowledges' essay, published three years later and then much elaborated in her 1997 book, *Modest Witness*, matters that I take up in the next chapter.

Hopeful life in cyborg, postmodern, flesh-and-blood worlds

Any careful reader of Haraway's cyborg manifesto could hardly conclude that it is a tract by a 'blissed-out, cyborg propagandist' under the sway of 'a techno-philic love affair with techno-hype', as she has characterized some, probably wilful, misreadings (Haraway, in Olson, 1995: 76). Indeed, most of the essay's words are given over to a variety of detailed examples of how 'the social relations of [new] science and technology', those that are part of what she calls 'the informatics of domination' and, paraphrasing Richard Gordon, 'the "homework economy" outside "the home" '; and after Rachel Grossman, 'women in the integrated circuit', were deeply implicated in increased levels of everyday human suffering and despair across a range of life experience, especially for women worldwide. She discusses at length the ways that the new

technologies in communication science, cybernetics, and various biologies have aimed to understand their central questions as ones about '*the translation of the world into a problem of coding*, a search for a common language in which all resistance to instrumental control disappears and all heterogeneity can be submitted to disassembly, reassembly, investment, and exchange' (Haraway, 1985: 83); pure abstraction.

She offers a page-long chart that details a set of dichotomies defining the nature of the changes from a modern, industrial society and economy to a 'polymorphous, information system'; 'from the comfortable old hierarchical dominations to the scary new networks' that define the material, semiotic, and social relational worlds of the global and local present and future (ibid.: 80). She is insistent and explicit about how these changes cannot be understood except in terms of simultaneous historical changes in the familiar structures of class, race, gender, and sexuality through and in which they are embodied. She insists that such changes should not be assumed to be consistent or always easily predictable on the basis of old logics from Marxism, feminism, psychoanalysis, and even dialectics. For instance, 'white male' or even 'male' is no *longer* a protected category, if it ever was simply so. The consideration of objects and relationships in terms of essential properties or qualities gives way to calculation of rates of flows across increasingly permeable boundaries; to matters of design parameters, system constraints, and the relative costs of altering any of these (cf. Clough, 2000).

> Human beings, like any other component or subsystem, must be localized in a system architecture whose basic modes of operation are probabilistic, statistical. No objects, spaces, or bodies are sacred in themselves; any component can be interfaced with any other if the proper standard, the proper code, can be constructed for processing signals in a common language.
>
> (Haraway, 1985: 82)

In a cyborg world, says Haraway, the most threatening pathology is stress to the system of communication itself, the threat of system breakdown, a theme she would foreground in post-WWII primate science models.

Worldwide patterns of selective unemployment by gender and race in 'developing countries', increased control of labour across highly dispersed sites; the 'feminization' of both labour and poverty; differential gender pressure for and patterns of labour migration linked to food production, increased militarization; the disappearance of 'public life' and an increase in fantastic, gendered imaginations of C^3I typical of video gaming; the appeal of new sociobiological origin stories underwriting male domination; high-tech medicine, with its capacities to inscribe, see, and intervene in bodies of all sorts; and the continued decline of the welfare state are among the details that Haraway uses to describe this New World Order, Inc. She offers a list of possible images of these changes as they might appear in the networks of home, market, paid work place, state, school, clinic-hospital, and church, concluding that 'the only way to characterize the informatics of domination is as a massive intensification of insecurity and cultural impoverishment, with common failure of subsistence networks for the most vulnerable' (ibid.: 90). And, she adds, there is the widespread illiteracy in the politics of science and technology among all people, but especially among those whose lives and futures are most dramatically impacted. This is hardly a myopically positive view of 'technology'.

The challenge for some readers of Haraway is to see the accumulating list of these and similar costs of the new cyborg technoscience, along with our implication in it, without giving up hope for the possibility of effective resistance and change. 'We all are . . . cyborgs,' she has told us. Even more difficult for some is her conviction that it is only in and through an embrace of 'this history' and similar difficult stories that a possibly more effective socialist-feminist and progressive politics might be shaped. But this is exactly what she suggests is possible. Haraway's writing is never without hope but it is always firmly connected to the real (certainly, another 'polluted category'). She intends her stories to be deadly serious, always hopeful, often humorous, and very 'concrete', whether they are about cyborgs or dogs-people.

While the usual frames for critical and radical analysis – Marxism, psychoanalysis, feminism – have provided invaluable angles of vision with which to see how capital, the heterosexual family and patriarchy – especially entwined with capital – have worked,

Haraway's contribution here is to insist that these all require commitment to ways of thinking and seeing that she calls totalities – total systems of thought and analysis that do not deal productively with contradiction and partiality within the worlds they allow one to see; with systems of thought that indeed themselves become imperialisms and hegemonies. While she draws on elements from all of these, and with appreciation, she hopes for a feminist way of knowing, indeed, 'a feminist science', that embraces partiality and located, contingent, always vulnerable but 'strongly objective' and 'true' ways of seeing and living: 'Perhaps, ironically, we can learn from our fusions with animals and machines how not to be Man, the embodiment of Western logos' (Haraway, 1985: 92). Rather than seeing the breakdown of the conventional distinctions on which the self in the West has been built as portending disaster – including those between nature and culture, self and other, body and mind, male and female, reality and appearance, maker and made, active and passive, right and wrong, truth and illusion, and God and Man (ibid.: 96) – Haraway sees them, especially in their simultaneity, as providing opportunities to see cyborg realities posi tively and anew.

She ends her famous essay by pointing to ways of writing as a crucially important locus of such politically hopeful possibilities and fragmented identities (see Olson and Hirsch, 1995). She calls for a cyborg writing, evidenced in texts written by 'women of color', by Audre Lorde and Cherie Morága, and in certain feminist science fiction, including that of Samuel Delany, Vonda McIntyre, Octavia Butler, and Joanna Russ. Her focus on writing and literacy illustrates well her argument about the political potential of the polluted category carefully used, a position that remains controversial among some feminists. Always implicated in structures of power and domination, writing has been at the centre of the West's capacity to name and thus to mean:

> Contests for the meaning of writing are a major form of contemporary political struggle. Releasing the play of writing is deadly serious. The poetry and stories of US women of color are repeatedly about writing, about access to the power to signify; but this time that power must be neither phallic or innocent. Cyborg

> writing must not be about the Fall, the imagination of a once-upon-a-time wholeness before language, before writing, before Man. Cyborg writing is about the power to survive, not on the basis of original innocence, but on the basis of seizing the tools to mark the world that marked them as other.
>
> (ibid.: 93–4)[4]

The kind of cyborg feminist writing Haraway urges here is a re-writing, a re-moulding of 'the central myths of origin of Western culture'. Such writing is not about the dream of a pure, natural and universal language that captures 'the world as it really is'; not about a perfect translation of difference through and in which a 'we' could be 'whole' again. It is not a tool to write a self as victim, with all of the 'ideological resources' that such an identity offers (ibid.: 96). And this writing is not simply literary deconstruction, limited to privileged academic and elite women and men of the centre. Haraway means 'writing' broadly, inclusively; as inscription, as making meaning in the flesh as well as 'on the page'; as an embodiment.[5]

Such cyborg writing and living sees and seizes possibilities in the ambiguities that abound in and that are technoscience. Haraway says, in effect, this is where the action is, for better and for worse. If feminists and cultural critics want to try to affect it, even as 'The New World Order, Inc.' – for better – it must be engaged at least in part on its own terms. Rather than rely on the metaphors of rebirth and reproduction that define familiar salvation stories of public politics, Haraway here opts for a cyborg suspicion of reproduction and rebirth and a preference for the metaphor of regeneration, citing salamander response to the loss of a limb, which can result in monstrous, twinned, but potent new forms. 'We have all been injured profoundly. We require regeneration,' she says, 'not rebirth. And the possibilities for our reconstitution include the utopian dream of the hope for a monstrous world without gender' (ibid.: 100).[6] Eschewing totalizing theory as missing 'most of reality' and insisting that feminist critics be responsible for engaging and shaping the 'social relations of science and technology' rather than demonizing or dismissing them, Haraway (ibid.: 101) looks to new and effective skills for making our daily lives and selves

'in partial connection with others, in communication with all of our parts':

> This is a dream not of a common language, but of a powerful infidel heteroglossia. It is an imagination of a feminist speaking in tongues to strike fear into the circuits of the supersavers of the new right. It means both building and destroying machines, identities, categories, relationships, spaces, stories. Though both are bound in the spiral dance, I would rather be a cyborg than a goddess.

Seriously engaging significant otherness: companion species

From Haraway's cyborg essay to the early writing on companion species is, as noted, roughly 20 years' time. Reading these essays through each other, now, allows one to see a striking continuity in the questions that have focused Haraway's thinking. Indeed, reading the recent work through the earlier allows one to see in it questions that at a first pass through might be missed. And reading the cyborg through her current work on companion species is to see that earlier and famous figure and the concerns she sought to raise there in a way that might make misreading her there – which she has noted is not uncommon – less likely. Both figures raise similar questions and problematize many of the same dualisms, while their differences press us to think, with Haraway, about diverse changes in life on planet Earth and challenging puzzles of knowledge projects and life of the present and future.

From its appearance in the cyborg essay, through the 1997 *Modest Witness*, to the recent writing on dogs-and-people as companion species, the theme and hope that human beings might encounter difference in ways that do not seek to incorporate, tame, resource, or annihilate it are central and recurrent. These themes are also central to much feminist theory and practice, to postcolonial studies, and to anti-racist and queer studies. In the cyborg essay, Haraway raised the question of who 'our kin' might be in knowledge projects and lives, urging us to think answers to this question more carefully than we had done. In *Modest Witness* she repeats this question and argues forcefully that her/our – that

is, human – kin include not only machines and organism-machine systems but both real and fantastic figures from myth and science fiction as well. Her prime candidates in that book are the transgenic patented organism from Du Pont named OncoMouse™ (Haraway, 1997: 78–85, 119–21, especially), who/which Haraway (2000c: 2) has called 'a techno-science post-Enlightenment figure'; the FemaleMan that titles Joanna Russ's hopeful SF stories of gender confusion (ibid.: 69–71, 119–21, especially; and it is Haraway who has removed the space between the two words); and vampires, figures from anti-Semitic tales out of late eighteenth-century central Europe that allow one to think against both the history of scientific racism and the importance of 'blood' transferred and shared by heterosexual reproduction (ibid.: 213–17, especially).

By the late 1990s, cyborg had been joined in her writing by these and other figures and had itself been expanded under the more inclusive phrase, material-semiotic entities, which she invited readers to think in mobile ways, across various changes in scale. Offering a mantra-like list of such entities or nets to mark the particularities of end-of-millennium time/space, Haraway (ibid.: 12) identified what she calls 'stemcells of the technoscientific body': 'the seed, chip, gene, database, bomb, fetus, brain, and ecosystem', all the 'offspring of implosions of subjects and objects and of the natural and artificial'. The issues that focused her attention on the cyborg as a useful figure for critical thought about difference and how it is embodied in knowing and experience had, by century's end, become matters of global complexity. Multinational capital had become worldwide, flexible, accumulated capital; the speed and range of implosions envisioned and marked 20 years before were well under way and greatly expanded; and matters of hatred and suffering, war and domination, had shown no signs of lessening as the planet almost quite literally became an integrated circuit – a 'world wide web' still widely powered by a possessive individualism that dies very hard, if ever, in the wakes of global capital and its associated polities. Foucault's biopower could be rewritten as technobiopower, and the developmental time that framed his figural visions was now more accurately thought in terms of 'condensation, fusion, and implosion'

(ibid.: 12). There were other histories to be inhabited and re-written toward more productive criticism and work, but the question of who/what possibly could constitute a viable 'us' or 'we' remained constant and very proximate for Haraway and, it would seem, remains so for 'us' all.

Perhaps from her own close and attentive experience with various animals, including the dogs and cats she has lived with all her life (see, e.g., Haraway, 1992a: 72–6); perhaps linked to her work on primatology and the ways she heard those who led safaris to capture wild animals with camera and gun and those who studied them both in the laboratory and the field speak and write about them; and perhaps fuelled by a conviction that the terms of the discussion of difference contained in her cyborg work needed a different trope or swerve to jolt thinking towards more 'glocal' terms – a diffraction, as she came to call it – Haraway began to live in and write more intensely about the relationships between people and dogs.

Again reading back from the present work, a 1992 essay, 'Otherworldly Conversations; Terran Topics; Local Terms', anticipates questions that frame her current project, some ten years later. In that essay, Haraway both appreciates and critiques the 1970s essays collected by anthropologist Robert Young (1985). She credits his work with providing much insight for her own writing on technoscience, 'man's place in nature', and the interweave of science and society but resists his (and Marx's) guiding figure of 'man' and 'human praxis' as 'the measure[s] of all things' as part of a reading of Darwin's heritage (Haraway,1992a: 83). For Haraway, this ignores all together too many 'others' *of all sorts* with whom human beings live, a theme central to her previous work. Reading against this very centred Euro-North American or Western logic, Haraway then takes up Barbara Noske's 1989 *Humans and Other Animals: Beyond the Boundaries of Anthropology*. While distancing herself from what she sees as Noske's too facile criticism of science, Haraway contrasts the worlds from which Young and Noske wrote, particularly in terms of how they might or did not/did address relationships between humans, nature, and other organisms. Noske, says Haraway (1992a: 84–5), 'is consumed by the scandal of the particular kind of object status of animals enforced in the Western histories and cultures she discusses';

Young does not see nature or animal as more than context for human action. After noting Noske's discussion of the status of 'the worker' in Marxism; of women as object in feminist criticism; and of racial objectification in scientific and other writing, Haraway (ibid.: 86) says that what animals do not need is to be defined as objects within human discourse: 'The best animals could get out of that approach is the "right" to be permanently represented, as lesser humans, in human discourse, such as the law – animals would get the right to be permanently orientalized.' Haraway (ibid.: 87) is looking for something more 'if we are to strike up a coherent form of life, a conversation, with other animals'. And Noske gestures in several directions Haraway later elaborates: '[A]nimals are not lesser humans; they are other worlds, whose otherworldliness must not be disenchanted and cut to our size, but must be respected for what it is' (Noske, in Haraway, 1992a: 87).

Haraway likes several things about Noske's argument: It sees animals *and* humans as historically linked in dynamic relationships rather than making it all/only about what humans did to 'domesticate animals'. Noske proposes the productive concept of 'animal-industrial complex' in which animals have 'become a fully designed instance of human technology' (ibid.: 88; and see Haraway, 2004f, 2005). This opens up questions of genetic engineering, which Noske does not take up, but it also allows one to ask about exploitative practices by humans and thus the question of 'inter-subject-ivity'. Haraway (ibid.: 89) asks: 'How do we designate radical otherness at the heart of ethical relating? That problem is more than a human one . . . it is intrinsic to the story of life on earth' (and see Haraway, 1992c). Noske's work takes non-human animal *sociality* seriously rather than writing it immediately as the result of or as mechanism. She is even willing to ask what humans can take from 'animal communication'. Finally, Noske specifically raises 'the animal question' as a *feminist* matter while avoiding the usual essentialist arguments about animals: 'It is the paradox of continuity *and* alien relationality that sustains the tension in Noske's book and in her approach to feminism' (Haraway, 1992a: 90). A practice that Noske emphasizes and that Haraway sees as particularly hopeful is conversation.

Haraway's interest in companion species relationality is at least in part an attempt for new insights on and understandings of

dealing with, living with, difference in ways more likely to produce survival and even flourishing as 'kin', if not family. Much as the 1997 *Modest Witness* interrogation of feminism and technoscience had been, perhaps this new project is an 'exercise regime and self-help manual for how not to be literal minded while engaging promiscuously in serious moral and political inquiry about feminism, antiracism, democracy, knowledge, and justice in certain important domains of science and technology' (Haraway, 1997: 15). And these new stories, as were the old, are ones Haraway herself cares about passionately.

We can story Haraway's project on dogs and people as an ethnography. But it is an ethnography that has been troped to confound that category in its more familiar and recognizable disciplinary forms. Insisting that to study technoscience one must immerse oneself in, be 'situated' in, 'worldly material-semiotic practices, where the analysts, as well as the humans and nonhumans studied, are all at risk — morally, politically, technically, and espistemologically', Haraway (ibid.: 190) not only has learned a great deal about the complex relationships between dogs and people and the diverse communities that take these relationships seriously, but she herself 'has a dog' – or two – and has become co-constituted as an athlete with Ms Cayenne Pepper, an Australian Shepherd, and Roland, an Aussie-Chow mix, in the dog-world sport of agility training and performance. She has, as she writes, 'quite happily gone to the dogs, utterly, literally' (Rothschild Lecture, Harvard University, April 23, 2002; and see Haraway, 2003a: 4-5).

Haraway's ethnography of the relationships between dogs and people is not a matter of developing an 'objective vision' of 'natives' in another social world, nor is it a matter of 'the researcher's' identification with those studied or of 'giving them voice'. Nor is this work another argument for animal rights or a reflexive exercise aimed at deconstructing the possibility of knowing anything at all for sure. Rather, it is a matter of putting one's self and one's knowledge at risk in the face of what one studies. 'One is at risk in the face of serious nonidentity that challenges previous stabilities, convictions, or ways of being of many kinds ... [A]n ethnographic attitude is a mode of practical and theoretical attention, a way of remaining mindful and accountable' (Haraway, 1997: 191).

In this emerging work, Haraway experiments with writing form, fitting together a variety of shorter pieces of writing that began as personal email communications with others in the dog circuits she both is part of and studies. She mixes these with various 'notes' and more conventional historical reportage and scholarly writing. A part of this writing she calls 'Notes of a Sports Writer's Daughter', in which she draws on her memories of how her father, a journalist who covered sports for a Denver newspaper, wrote factual, true stories in vivid prose. She links that to her own current 'filing' of stories about the dog-human sport of agility (see Haraway, 2004c). Another line of this work focuses more on dog genetics (see Haraway, 2003b), and another is organized more specifically in terms of ethical matters (see Haraway, 2003c).

The Companion Species Manifesto, like her first manifesto, can be storied as about how both to imagine and to embody promising relationships of irreducible difference in the early years of the Third Christian Millennium – about thinking and doing kin less in terms of blood and the Oedipal *familia* and more in terms of perceived and partial affinity across what she calls 'significant otherness'. Both manifestos also address how knowledge/living projects and histories can be re-thought and re-written in the very context of these relationships of difference – including of course ways to think and do science differently, toward more partial, shared, democratic, and contingent truths, none of which is based on the separation of nature and culture, the natural and the artificial. Race, class, sex/gender, sexuality, machine, organism, technical, species, companion and other and more are, for Haraway, all forged in and through the real-time projects of how to know and get on together, quite often under challenging if not impossible circumstances. She says her favourite sense of the kind of swerving such projects require is sounded in her dog writing by the biologically flavoured word, 'metaplasm', meaning 'a change in a word, for example by adding, omitting, inverting, or transposing its letters, syllables, or sounds' (Haraway, 2003a: 20). Added to her trope of diffraction, set forth in *Modest Witness*, metaplasm in this new project means 'the remodeling of dog and human flesh, remodeling the codes of life, in the history of companion-species relating'.

Both of Haraway's manifestos insist that the ways to be together and to know together cannot be separated if the survival and – especially in the recent statement – 'flourishing' of all who are kin are the goal.[7] She hopes that from taking dogs-and-people seriously we can begin to shape a new 'ethics and politics' for living in and through significant otherness. In the rest of this chapter, I want to discuss the first of these questions, how companion species is a project about a heterogeneous but hopeful way of ethical relating across unbridgeable difference, while I will take up Haraway's insights on the question of knowing/living in what she calls nature-cultures in the following chapter.

Dogs-and-people

Although her category 'companion species' includes both cyborgs and dogs, Haraway characteristically builds her thought 'from the ground up'. That is, she insists that her story of the birth of the kennel and companion species focuses on dogs as important in their ow n right:

> Dogs, in their historical complexity, matter here. Dogs are not just an alibi for other themes; dogs are fleshly material-semiotic presences in the body of technoscience. Dogs are not surrogates for theory here; they are not here just to think with. They are here to live with. Partners in the crime of human evolution, they are in the garden from the get-go, wily as Coyote.
>
> (Haraway, 2004a: 298)

And while an array of species other than *Canis familiaris* might be proposed as the 'concrete' through which to think the issues Haraway wants to bring forward, dogs offer particularly appealing features for her sense of what companion species should signify. And again, she 'has' and lives with dogs, and they with her, which brings forward all manner of mundane, practical, 'fleshly', moral-ethical questions that she must answer again and again, both in that mundaneity and in her scholarship.

One of these entwined but less mundane opportunities that dogs offer is that any history of dogs needs to be told as inextricably

entwined with the history of *Homo sapiens*. Co-evolution is what this story is about in a way that her cyborg manifesto could not be. And this is co-evolution in a strong sense: namely, co-evolution as co-constitution, at least in part. Dogs and people, so to speak, 'came and came-up together', based on some hard evidence from evolutionary biology. Moreover, and especially so for dogs, this relationship has been an obligatory one. People could have managed without dogs but dogs could not have done so without their human kin (for better and for worse).

This insistence on the co-constitution of subjects and objects in and through difference has been central to Haraway's arguments about sex/gender and race but it resonates throughout her work and is at the heart of the companion species project as well. It lies directly athwart notions dominant in Western humanities and sciences that locate entities as prior to their material intersection. It challenges the liberal, possessive individualism that has survived quite well, if not in emboldened forms, from the diverse 'post-' criticisms in the academy and from the culture wars. This is not simply a recycling of the familiar notion of inter-action that can be found in certain of the social sciences, but rather draws on what physicist and feminist science studies scholar Karen Barad (1995a, b, 1999) has termed 'intra-action', directing attention to that which emerges in the linking or togetherness of the material-semiotic entities at hand. 'There cannot be just one companion species; there have to be at least two to make one. It is in the syntax; it is in the flesh' (Haraway, 2004a: 300):

> There are no preconstituted subjects and objects, and no single sources, unitary actors, or final ends. In Judith Butler's [1992] terms, there are only 'contingent foundations'; bodies that matter are the result. A bestiary of agencies, kinds of relatings, and scores of time trump the imaginings of even the most baroque cosmologists.
> (Haraway, 2003a: 6)

And dogs, *vis-à-vis* people, are clearly a different category of beings, a different species or biological kind framed by the language of scientific expertise: 'populations, rates of gene flow, variation, selection, and biological species' (Haraway, 2004a: 302). They are, in Noske's terms, 'different worlds'. This difference in

kind from humans makes new versions of past homogenizing discourses such as 'the Family of Man' and 'a common humanity' all but impossible to sustain. Haraway speaks powerfully to this point in her discussion of dog–human relationships as they occur in discipline and training practices and the debates dog-world people have created around them. Drawing on writing by agility trainer and participant Susan Garrett (2002) in her *Ruff Love* and by the late Vicki Hearne (1986, 1994, www.dogtrainingarts.com), Haraway (2003a: 49) speaks both from and yet beyond these dog–people relationships to make clear that while her claim that 'dogs matter here' holds, what one might learn from dog–people contacts can travel: ' "Communication" across irreducible difference is what matters.'

And for humans, this often comes down to what might be called 'paying attention' and being alert to what and who is emerging in relationship. Although she criticizes anthropomorphism in human–animal relationships (dogs are not 'furry children'; and see Haraway, 1997: 284, fn 23), Haraway (2003a: 50) appreciates Hearne's observation that such projection, as she puts it, can 'keep the humans alert to the fact that somebody is at home in the animals they work with'. Haraway continues:

> Just *who* is at home must permanently be in question. The recognition that one cannot *know* the other or the self, but must ask in respect for all time who and what are emerging in relationship, is the key. That is so for all true lovers, of whatever species.

This commitment to paying attention to and living with what we cannot know but that which we love helps us see, says Haraway, the essence of ethics in relating: 'We are not one, and being depends on getting on together' (cf. Verran, 2001). The kind of serious, joint accomplishments that can emerge here in training and agility between dogs and humans is about commitment, work, yearning, respect, and love, she insists. If one can learn how to live in and with *these* relationships, one might be better able to forge similar kinds of connections to other worlds not fully yet imagined. Moreover, for her, there is fulsome pleasure and joy – what she marks as flourishing – here to be had.

Contrary to popular and some dog-world discourse, the notion of a 'pure breed' in the case of dogs (but no doubt countless other species as well) is, as Haraway says, 'an institutional fiction'. Genetic variation within different dog breeds easily exceeds variation between different breeds and even between dogs and wolves. Dogs allow Haraway to emphasize that companion species is a category about 'fleshly beings' who/that cannot be separated from the meanings through and in which they are recognizable but also who cannot be reduced to an identity.[8] The category and the story about dogs-and-people push beyond the neat, cool, and dry proprieties of most ways of thinking in the academic and technoscience worlds to which they might be linked. And, Haraway (2004a: 302) says, looking at dogs-and-people as companion species allows us to see 'the join of Marx and Freud in shit and gold, in specie': commodities, desire, love, and the making of 'purebred' subjects and objects all come into view in these stories. 'In sum,' she argues, '"companion species" as seen from dog worlds is about a four-part composition, in which co-constitution, finitude, impurity, and complexity are what is' (Haraway, 2004a: 302).

From data and debates in molecular biology on the history of wolves and dogs, Haraway argues that the heritage of all dogs lies in wolf ancestors and that dog history began about 100,000 years ago. This locates humans and dogs on roughly overlapping calendars, and the evidence seems to make clear that their material and semiotic relationship has been close and complex from the beginning. It also has been mutually opportunistic, although discourses of 'equal' and 'rights' and 'unconditional love' are not ones that Haraway believes can be used productively in describing these dog-and-people relationships (see Haraway, 2003a: 33, 53). What she does propose, however, is that the contributions of dogs to this story have been mostly missed while those of *Homo sapiens* have been over-stated, giving agency only to the latter and not the former; putting humans at the centre and dogs only as objects or resources in service of Man's projects – this familiar story, once again. Haraway (2004a: 308) wants to tell a different story of co-evolution and co-constitution to suggest not, as she puts it, 'that the dogs did it' – invented themselves – or 'that the people did it' via the usual tales of 'domestication', but rather that dogs-and-people, in

a complicated, messy, long, and often violent history, shaped each other; that they are, in short, companion species.

Elaborating the work of archeozoologist Susan Crockford, Haraway says that in the history of dogs-and-people, migratory collections of human beings provided easy sources of nourishment in the form of garbage dumps and human waste for those wolves who, over generations of evolution, became increasingly able to tolerate the closeness of humans. Haraway calls these wolves 'would-be-dogs'. This capacity of wolves to tolerate humans came via changes in genes that control the molecule thyroxine, which in turn affects the fright/flight response. Over generations this growing tolerance could produce an animal quite like 'Man's best friend'. And the most calm of these beings – their pups even more so – might create dens ever nearer these human settlements. As Haraway (2004a: 305) says, people surely could have figured out how to use these wolf-would-be-dogs in all sorts of 'useful tasks, like herding, hunting, watching kids, and comforting people'. Drawing an analogy from Crockford's study of data on Russian foxes, she says 'wolves on their way to becoming dogs might have selected themselves for tameness. People got in the act when they saw a good thing' (ibid.: 305).

While Haraway is aware of the openness in her argument, based on the currently available evidence, she believes these data allow a reading of the history of the relationship between 'the canids and the hominids' that forefronts the diverse contributions made by *both* species. Agency here is distributed, mobile, and complex. She suggests that Paleolithic agriculture could have been the occasion for dramatic mutual developments in these encounters around matters of 'tameness, mutual trust, trainability ... [a]nd, above all, ... reproduction' (ibid.: 306). The latter may be the real heart of the matter in that, as she notes, dogs need humans to facilitate successful reproduction; wolves do not. While the keys to the emergence of this may never be seeable through molecular genetics, 'the subtle genetic and developmental biobehavioral changes through which dogs got people to provision their pups might be at the heart of the drama of co-habitation. Human baby sitters, not Man-the-Hunter, are the heroes from dogish points of view,' Haraway (ibid.: 306) suggests.

Her story of dogs-and-people is about how these companions came and came up together:

> They more than change each other; they co-constitute each other, at least partly. That's the nature of this cat's cradle game. And the ontology of companion species makes room for odd bedfellows – machines; molecules; scientists; hunter-gatherers; garbage dumps; puppies; fox farmers; and randy bitches of all breeds, genders, and species.
>
> (ibid.: 307)

Here again is a signature of Haraway's analytic strategy: showing and following/writing the histories, connections, subtleties, and messy unpredictabilities of related detail through and in which these nets of diverse material-semiotic entities can be seen to have emerged in the stories she tells. In this recent work she underlines and examples the need for a 'multi-species and a multi-expertise way of doing/thinking worlds and ways of life'. Getting closer to that, she says, requires less attention to the C^3I frame that figured cyborg worlds. And 'Companion species offers a kind of bypass surgery for liberal idioms of both individuals and diversity . . . right in the belly of the monster – inside biotechnology and the new World Order, Inc.' (ibid.: 308).

Anticipating and, no doubt, reiterating questions that some might/have ask/ed her, given her prior work: Why dogs? Why now?, Haraway asks 'Indeed, in a world full of so many urgent ecological and political crises, *how* can I care . . .' about dogs? She responds, of course, without apology:

> Love, commitment, and yearning for skill with another are not zero sum games. Acts of love like training in Vicki Hearne's sense breed acts of love like caring about and for other concatenated, emergent worlds. That is the core of my companion species manifesto. I experience agility as a particular good in itself and also as a way to become more worldly, i.e., more alert to the demands of significant otherness at all the scales that making more livable worlds demands.
>
> (Haraway, 2003a: 61)

Chapter 4

Bodies, Knowledges, Politics, Ethics, and Truth: Figuring a Feminist Technoscience

In the collected interviews that make up *How Like a Leaf,* Donna Haraway and Thyrza Nichols Goodeve (Haraway, 2000a) discuss Haraway's ideas about what would constitute a better way of doing science and a better way of studying how science is done. Haraway there speaks to science studies scholars, students, and cultural critics as well as to scientists themselves, although she has no illusions about how many scientists are familiar with her work (e.g., see Chapter 5, pp. 123–5). For the former she recommends the string-on-fingers game of cat's cradle (Haraway, 1994) as an alternative metaphor for seeing the practices of science that the more influential, agonistic-struggle-conflict liberal-individual stories of scientists and engineers at work (as well as older, macrostructural and other reified sociocultural accounts) miss. Cat's cradle is, she says, 'about patterns and knots' and can result in 'some serious surprises'. While one person and one pair of hands can build many different patterns, these can be passed on to others, other pairs of hands, and several players can make collections of patterns that a single player cannot. 'One does not "win" at cat's cradle' – a quality that Haraway finds highly appealing – 'the goal is more interesting and open-ended than that'. Noting that just *how* certain patterns were produced becomes an important question in doing the game itself and 'an embodied analytical skill', she adds that the game is played 'around the world' and that it 'is both local and global, distributed and knotted together' (Haraway, 1994: 70). While she recommends this game to students of technoscience, she would not object if scientists themselves would appreciate its possibilities as one way to do the work that they do.

Haraway encourages students of technoscience to take more seriously relevant feminist, anti-racist, and multicultural studies perspectives in their work and writing about knowledge, power, and subjectivity than they have done. And she notes that she is proposing the cat's cradle metaphor as a way of seeing and studying science specifically in response and opposition to the agonistic, struggle, and war metaphors that shape the vision of science practice found especially in Bruno Latour's (1987) influential *Science in Action*, someone whose work and insights she otherwise recommends.[1] In offering the cat's cradle metaphor as an alternative, she does not mean to say that agonistic metaphors are *never* appropriate in studying or doing science, or that science-in-the-making is *always* a matter of harmonious collaborative work toward shared or common ends. The attentive relationality that cat's cradle as a collaborative practice requires is not 'the whole story' she insists. Toward some practices in technoscience one 'would want to take an oppositional and antagonistic stance ... [and] at times competition and fighting and even military metaphors might be what we need' (Haraway, 2000a: 156). Her point here is that agonism – like Oedipus in stories about 'the family' – has been over-emphasized as *the* (only) model through which to see how science and knowledge projects are/might be both put together and studied.

In the conversation, Goodeve asks Haraway what her 'model of feminist technoscience' might look like. Sidestepping the rigidity that 'model' can imply, and/or the idea that she is prescribing something closed, she responds by reiterating some candidate qualities that Goodeve herself has just named:

> So it involves technoscientific liberty, technoscientific democracy, understanding that democracy is about the empowering of people who are involved in putting worlds together and taking them apart, that technoscientific processes are dealing with some worlds rather than others, that democracy requires people to be substantively involved and know themselves to be involved and are empowered to be accountable and collectively responsible to each other. And feminist technoscience keeps looping through the permanent and painful contradictions of gender.
>
> (ibid.: 157)

Obviously, this is not a description of how, for the most part, the worlds of technoscience, as well as many other worlds, now operate. But this is part of Haraway's hopefulness and passion, and it is also an inheritance of the self-claimed Western Enlightenment tradition that is ever-present in her 'post-' thought: 'I'm not repudiating the inheritance of democracy and freedom and all of those polluted enlightenment inheritances. I see them in a kind of warped way. I'm trying to rework them' (ibid.: 157–8). Metaplasm. Utopian is not a four-letter word in Haraway's lexicon, and she makes no apologies for her own versions of the yearning that bell hooks (1990) has so powerfully described and recommended in thinking/living what gets marked as 'race.' In fact, in Haraway's (1997: 191–2) dream of feminist technoscience, such yearning for possible worlds is a requirement.

Her hope here and elsewhere is contagious in part because she is a critic who has a detailed understanding of what so many of the worlds of technoscience are in fact like; and that 'they rely on vast disparities of wealth, power, agency, sovereignty, chances of life and death'. It is in the face of these realities and from both her mundane and expert understandings of how science is done and what its relationships to nature, culture, facts, truth, control, and mastery are that Haraway has offered her critique but also her vision of something better. Well trained in science and familiar not only with its 'warts' but its 'beauties' as well (something she feels was completely ignored by the critics [e.g., Gross and Levitt, 1994] in the 'science wars' [Haraway, 1997: 301–2, fn 12]), she is deeply passionate about and committed to helping to make technoscience and those who work in and with it more closely approximate the description offered above in her conversation with Goodeve. It is important to keep this in mind when reading Haraway's recommendations for how both to see and to do science. She knows that realizing these possibilities 'really means going beyond the kinds of institutions we have now' (Haraway, 2000a: 157). For Haraway, however, the complexity and scope of this challenge never are grounds for cynicism, hopelessness, or flagging engagement with the worlds we inherit and live in now. To students and scholars of technoscience as well as to other cultural critics, Haraway recommends a practice of critical scholarship that always involves

our own as well as other bodies, entities, along with knowledges, politics, ethics, and truths. The possibilities in this unlikely mix, and Haraway's cautious hopefulness about them, can allow us not only to hope, with her, but perhaps also to act toward and in that hope.

In this chapter I foreground the details of Haraway's hope for a feminist technoscience that can be a resource not only for those in the 'hard' sciences but for those working in science studies and the social or human sciences as well. I begin with a discussion of her call for refiguring science's 'modest witness' as the foundation of objectivity and then continue with a review of her insistence that only through situated knowledges coming from partial perspectives can strong and objective truths emerge. The chapter ends with a discussion of the particular contribution she has made to how we think about the subjects and objects of technoscience.

Refiguring science's masculine modest witness

When she says that she prefers to 'inherit' certain histories and practices and then rework them, Haraway means that there is still much in those inheritances that she values – that they contain too much that is important to her ways of thinking and living to give them up simply because they are, as she says, 'polluted'. That suggests she sees these histories and practices as always much more lively, internally diverse and contradictory than convention, discipline, and language (nouns, especially) suggest. As noted, this is something of a signature strategy that saves her from various orthodoxies and from the dangers of purities of all sorts – even in her own reworked figures and categories. For her, purity is probably a four-letter word and has a personal genealogy that brings forward in memory certain aspects of her life as the 'good Catholic girl' back in Denver.

The cyborg certainly is one of those pollutions, as noted, that she has embraced. Her commitment to democracy and freedom, mentioned above, is another example, although those who have not been reading various academic critiques of modernism might be puzzled by that. She says the same thing about various metaphors having to do with vision and presence, which have been much

maligned – and with good reason – in various feminist and 'post-' discourses. Just as it was difficult for some readers to appreciate this strategy in the case of the cyborg, in her critique of technoscience Haraway insists on retaining a range of notions that some have seen as too polluted to be touched at all for fear of contamination effects.[2] Objectivity and its relationship to the embodied presence of the scientist as witness, not to mention truth, for instance, are too important to give up when trying to imagine a better science (cf. Harding, 1992). One place to see this argument most clearly in Haraway's work is in her discussion of this modest witness and the prescriptions she offers for how to refigure this position/practice in a feminist technoscience.

Early in *Modest Witness*, Haraway (1997: 23-45) offers a critique of modern experimental science as it emerged from the laboratory of Robert Boyle and in the discussions and documents of the Royal Society of mid-seventeenth-century London. In the spirit of Foucault's (1977) genealogical analysis, she in this takes up a history of the present practices that define technoscience and that she wants to revise. The kind of question asked is, in effect, 'How did we get *here* – to these practices understood and storied in these ways?'

Drawing on recent work by various science studies scholars, Haraway shows how the experimental way of life was built on a kind of modest witnessing originally open only to certain, select kinds of people – chaste, white English gentlemen of a particular class and quality of mind – who could attest to and thus establish matters of objective fact. She points out that these practices *produced* new versions of men and women – new gendered subjectivities – characteristic of modernity, and that this paradoxical kind of powerful masculine modesty and its version of objectivity are among the most protected barriers to the kind of change she imagines. Haraway writes toward a '*mutated* modest witness' who could help bring better technoscience and better worlds into being.

In making this case, Haraway draws on Steven Shapin and Simon Schaffer's (1985) *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life*. Part of the tradition of work in science studies that takes the very doing of science as topic for critical scrutiny (see, e.g., Cussins, 2000; Pickering, 1995: 1–34), Shapin

and Schaffer, and Shapin (1994) in a later book, revisit the pathbreaking experiments of Robert Boyle in the 1650s that helped to found what has come to be known as the experimental method. A strength of their work is that it locates the emergence of the Scientific Revolution in and intimately linked to the details of the social and cultural, which is to say historical, practices of the day. We are thus able to see not only what was going on inside Boyle's laboratory and in the emerging work of the 'experimental philosophers', as these proto-modern scientists were called, but also some of the connections between the people involved there and the realities of early modern Anglo-European society as well. Among the most important problems for those who shaped this work was to establish a boundary or standards that would help define and control what could count as objective scientific knowledge and what could not.

Central to that scene is the presence of the scientist – in that story, Robert Boyle – and his peers who could, as embodied and present beings, see, hear, and record the events that took place in this special locale of the laboratory and through its set-ups. Those events were seen to be nothing less than the materializations of the *objects*, and as such, the representatives, of the natural world. Through and in the testimony of these qualified witnesses to what they could see and hear, matters of objective fact could be discovered and secured. Someone or something – some *body* – 'being there' to witness the presence of nature – the one presence, nature, requiring another of fitting stature, man or his machinic surrogates – was and remains central to the way that technoscience produces its truth.

Shapin and Schaffer argue that the experimental way of life that emerged in mid-seventeenth-century London consisted in three technologies to which Boyle contributed critically: (1) a 'material technology' that was the 'machine' of the air-pump itself; (2) a 'literary technology' of speaking and writing that could convey, in a particularly clear and unadorned style, what happened in the laboratory for those who were not present; and (3) a 'social technology' made up of interactional practices that these experimental philosophers should use in their relationships with each other and from and by which their own and 'others'' subjectivities emerged

and were secured (see Shapin and Schaffer, 1985: 25). Haraway (1997: 24) underscores the point that these technologies were not ideas alone but rather together constituted 'the apparatus of production of what could count as knowledge'. She would say that each technology was, simultaneously, both material and semiotic.

One critical and quite intentional accomplishment of these technologies was that an inside and an outside of science were created, a distinction already noted several times in previous chapters. Inside was careful empirical observation, meticulous record keeping, high seriousness, and reasoned argument that allowed nature to show its verities to those able to appreciate them. Outside was culture, society, politics, ethics, religion, ideology, imprecision, difference, personal desire, and common sense, all forces that were (and are still widely) thought to degrade/pollute true knowledge. In the special environment of the laboratory, overseen by Boyle, his peers, and a crucial but largely invisible support staff of workers, nature uncontaminated by culture could become known and thus provide a firm foundation not only for knowledge but for a new way of life, a new kind of being – the scientist himself – and a new social order. This is a story about the birth of, at least, objectivity and its separation from the 'subjective' as an accomplishment of experimental science. Haraway (1997: 24) comments critically:

> Such contingent matters of fact, such 'situated knowledges,' were constructed to have the earth-shaking capacity to ground social order *objectively*, literally. This separation of expert knowledge from mere opinion as the legitimating knowledge for ways of life, without appeal to transcendent authority or to abstract certainty of any kind, is a founding gesture of what we call modernity. It is the founding gesture of the separation of the technical and the political.

That is, what was local – situated – and certainly 'man-made' could be seen in and through these three technologies, could be transformed into the universal, as beyond the contaminating desires and values of human being and agency. Quoting Shapin and Schaffer, Haraway (1997: 25) writes:

> The experimental philosopher could say, 'It is not I who say this; it is the machine.' . . . 'It was to be nature, not man, that forced assent.'

> The world of subjects and objects was in place, and scientists were on the side of the objects.

Enter, thus, a peculiar kind of modesty required of the emerging being, the scientist, that Haraway argues remains at the heart of scientific practice, although a modesty that her work hopes to help shape quite differently.

In this long-familiar practice of modesty, scientists learn to stand back from what is happening in the laboratory, to efface themselves and become, in effect, transparent as participants in the experimental process, letting the objects of nature, as it were, 'speak' through them; ostensibly uncontaminated by culture, by the human. These voices and related inscriptions, so ordered by this fantasy, produce what Haraway calls, after Sharon Traweek (1988: 162) in her study of today's high-energy physics, a 'culture of no culture' at all; 'a world', as it were, 'outside human space and time' yet still accessible to a select few able to hear, read, and 'translate' it.

Of course, if those of proper mind, temperament, and training can create particular and special worlds in which this kind of knowledge can emerge, where pure nature can speak and make itself known, who in modernity could refuse to listen and believe? Thus graced by God and His Nature, these experimental philosophers enacted a quite unusual kind of modesty indeed. Itself a notion that has come typically to be linked to propriety in bodily display and presence and thus more to women than to men, Boyle's version of modesty has come to carry enormous powers of persuasion in modernity. The laboratory became, as Haraway (1997: 25) puts it, a 'theater of persuasion' animated by a politics of representation: 'Acting as objects' transparent spokesmen, the scientists had the most powerful allies' (cf. Latour, 1983, 1987, 1999).[3] '[T]he scientist,' Haraway (1992b: 312) writes, is here shown as 'the perfect representative of nature, that is, of the permanently and constitutively speechless objective world.' *Knowledge* is the result of such a representational practice that presents the scientist as distant and detached, against which mere opinion, tied to the fickle qualities of person and mind/body/intimacy that these men eschewed, surely could not stand. Through this masculine modesty, early

would-be scientists helped to shape a particular kind of Northern, Anglo-European 'modern' world in which people different from them did not participate as equals. Those others, instead, become part of science's 'outside' and thus candidates for its scrutiny and the objects of its knowledge. Haraway underlines how the exclusionary move is virtually always constitutive; the 'inside' depends on it.

The exclusivity of Boyle's image of a proper modest witness was precisely what Thomas Hobbes wrote against and that Haraway would like to change. While one argument for the credibility of this new kind of objective knowledge was its public accountability – that, contrary to political intrigue, blood, religious mysticism, and personal preference, it could be observed and defended in the public, civic light of day for all to see – there were in fact conditions for securing such credibility. What was to count as 'public' and what 'private' (another highly suspect dualism for feminist analysis) in matters of scientific proof was, and remains, complicated. As noted, not everyone was considered eligible to observe Boyle's experiments and even fewer were eligible to serve as witnesses to matters of fact, to the very (full) presence of Nature. The laboratory was and largely remains a rarefied 'public' place, and this was the point of Hobbes's criticism: the credibility it produced was one accomplished by a 'special community, like that of clerics and lawyers' (Haraway, 1997: 27) rather than by a more truly public collection of people.[4] It was, Shapin and Schaffer (1985: 336) write, 'a public space with restricted access'.

Whereas Shapin and Schaffer do not make much of the differential distribution of men and women, rich and poor, people of colour and white, English and not, in this peculiar public space,[5] Haraway's feminist, anti-racist eyes read this history of modern science with a particular sensitivity to just such exclusions. And her biologist/organicist perspective that sees linkage and connection in all things helps her offer and recommend analyses of these and other differences that go well beyond seeing them as, in her words, preformed or given – as matters of fact to be treated only as 'input' to an understanding of how worlds operate. This logic of using the preformed category says, in effect, 'Well, whether one likes it or not, women were/are dependent in that/this society and thus

would not be/are not considered eligible as free and autonomous beings who could/can serve as modest witnesses to objective fact. It's not science's fault. It's just the way things are.' But Haraway's commitment to what she calls 'process philosophies', and to Whitehead's and Charles Peirce's perhaps most centrally, helps her see gender, race, class, nationality, and, as discussed in the primate work, even human, all as relational and thus mobile and emergent in and through the complex details of the local scenes and settings under consideration.

While appreciating much of Shapin and Schaffer's analysis, Haraway says that they see gender, race, and nationality as just such preformed entities, which leads them, in effect, not to see them as, in her words, 'at stake' in the historical circumstances they describe. That is, they see them as things not being shaped or changed in Boyle's laboratory and in the discourses of the Royal Society. But for Haraway, sex/gender and these other considerations of difference, including race, class, and 'Englishness', were mobile objects in mid-seventeenth-century English life and discourse and not something merely to be 'added in' or 'taken to account' as context. They were, in short, not 'things' 'outside' science. Rather, they were central to its very emergence and practice and remain to mark the way technoscience is done and even studied more than three hundred years later. Her question is whether and to what extent gender and race, along with other critical categories of difference, were 'generically constituted in the practices [and realities] choreographed in the new theaters of persuasion' (Haraway, 1997: 29; and see Cussins, 1996).

Did the founding technologies of modern science help *create* modern notions and embodiments of gender – and of masculinity in particular – that became part of what science is understood to be that are operative still today? Drawing on work then in progress by Elizabeth Potter that addresses just this question about the legacy of Boyle and the experimental method, Haraway (1997: 26–32; 2004a: 226–32) argues that the Scientific Revolution in fact helped to usher in a new kind of modest masculinity in which earlier, medieval versions of heroism and strength of the masculine body were gradually replaced by a rational heroism of the

masculine mind, of which Robert Boyle himself – chaste, even celibate, urbane, ethical, and civil – was a model. Potter's analysis, relying on Woodbridge (1984), locates Boyle and this masculine modesty in the context of early seventeenth-century anxieties around what one today might call the 'gender-bending' extant in early modern England.

Proper women then were excluded from appearing in a variety of public venues (female modesty), perhaps most famously on the English stage; and men would take up women's roles in the theatre of literary drama. As Potter notes, this had become a matter of some concern in speculations about the emergence of a third or fourth category of 'mixed' genders that easily could confuse the other 'natural' two. Potter argues that the kind of masculinity that Boyle and his fellow modest witnesses effected helped to shape what became an essential quality of a new way for men to be credible and powerful – but, goddess knows, not feminine – in modern society. And, as usual in the history of gender, in order for these men to be so seen, women had to be kept 'off stage' or outside science and thus 'other' to these performances of a new masculinity and a new kind of true knowledge. For if women were allowed to be credible witnesses to the presence of Nature and its truths, how then could that testimony help to secure a new and modern English man? As Haraway (1997: 29) puts it: 'Women lost their security clearances very early in the stories of leading-edge science.' Citing early-modern literary scholar Margo Hendricks (1992, 1994, 1996), she makes a similar point about how race, always entwined with gender, was similarly at stake in the public marking and recognition of what was properly English (and see Potter, 2001, Chapter 1).

The English gentleman of science, Boyle's modest witness, could be counted on to 'report on the world, not on himself. Unadorned "masculine style" became English national style, a mark of the growing hegemony of the rising English nation' (Haraway, 1997: 30). Haraway points to the work of historian of science David Noble (1992: 132) who argues that the all-male Royal Society of that day encouraged what amounted to a clerical-like culture based on a 'scientific asceticism' that won the approval of

both the church and the monarchy. 'The kind of gendered self-renunciation practiced in this masculine domain,' she writes, 'was precisely the kind that enhanced epistemological-spiritual potency' (Haraway, 1997: 31). To Robert Boyle and his most modest colleagues, then, 'the laboratory has become the place of worship; the scientist, the priest; the experiment, a religious rite' (Potter, quoted in Haraway, 1997: 31). As Noble (1992: xiv) sees this history, '[T]he male identity of science is no mere artifact of sexist history; throughout most of its evolution, the culture of science has not simply excluded women, it has been defined in defiance of women and [in terms of] their absence.'

Noble's characterization anticipates Haraway's sense that gender was indeed at stake in the emergence of modern science and that the influence of those technologies that brought science and a new kind of masculine modesty into existence remain strong today. And as gender was being made in Boyle's experiments and in the Royal Society, so, too, were race and class. She insists, this three-century inheritance is still at work:

> Colored, sexed, and laboring persons still have to do a lot of work to become similarly transparent to count as objective, modest witnesses to the world rather than to their 'bias' or 'special interest.' To be the object of vision, rather than the 'modest,' self-invisible source of vision, is to be evacuated of agency.
>
> (Haraway, 1997: 32)

This self-invisibility and transparency of the powerful that allow them autonomy even as they depend, in their bodies and practices, on a collection of categories of 'covered' persons who are in fact invisible in the official displays and textualizations of this work, says Haraway, are precisely the targets of feminist, postcolonial, multicultural, and queer criticism today. This inheritance undisturbed allows what are in fact highly limited versions of objectivity to pass, through the technologies that Haraway foregrounds, as universal and given in nature. Her work has been both to deconstruct this story and to imagine 'a more adequate, self-critical technoscience committed to situated knowledges'. For her, 'The important practice of credible witnessing is still at stake' (ibid.: 33).

Situated knowledges, partial perspectives, and strong objectivities

The argument that situated knowledges enable partial perspectives that produce strong objectivities, which is at the heart of this 'more adequate, self-critical' version of technoscience, emerged forcefully in Haraway's writing in the mid-1980s. Its earliest statement is found in the essay, first published in 1988 in *Feminist Studies* and then as a chapter of *Simians, Cyborgs, and Women* (1991a), 'Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective'. Although less widely cited than the cyborg manifesto, this essay is arguably a more direct statement of Haraway's critique of technoscience and of her recommendations for how to build a successor, feminist version thereof. Reiterated and productively elaborated six years later in *Modest Witness* and most recently in the work on companion species, the argument in the early essay is a good introduction to the kind of contribution she has made to feminist science studies. As with the more famous cyborg essay, Haraway calls for a shift in feminist criticism of the study of science by marking what she considers less and more productive lines of argument. And, also like that other essay, she charts a careful yet still critical course through the work of various feminist colleagues at a time when the meaning of public difference within US academic feminism was still being negotiated.[6]

The case Haraway makes for partial perspectives and situated knowledges turns here and throughout her work on a critique of conventional scientific versions of objectivity, a term that still can elicit an almost automatic derision from a wide range of cultural critics of science, both feminist and not (and perhaps an opposing 'here we must stand!' response from 'scientists'). Beyond feminism, the concept of objectivity has become widely problematized both in popular and scholarly understandings of truth. As reviewed in the dominant story of science's modest witness, above, one of the most important accomplishments of the experimental method was that it enabled and secured *objective* knowledge, free from a long list of human, social, and cultural distortions. Knowledge thus deemed 'objective' was simultaneously marked as that beyond 'special interests', 'bias', and 'error' – beyond the influence of the

person – except for those errors of measurement and instrumentation that at least in principle could be carefully discovered, controlled, and in time, more or less eliminated by rigorous training, oversight, and 'progress'. This is scientific epistemology's fantasy and desire: true and certain knowledge of nature that man could control and of course use but that he had not contaminated in the process of 'discovery'.

Writing out of the political and social context of the late 1980s, Haraway saw feminist criticism of objectivity as trapped between two seductions that she appreciated and had herself even given into but now wanted to avoid: a kind of radical social constructionist deconstruction of knowledge – 'too much' postmodernism, as it were – on the one hand; and a project to build a feminist objectivity or empiricism inherited through humanistic Marxism that seemed to lust after the very totalizing view – in reverse – that some feminists and poststructuralists were beginning to critique, on the other. While each of these lines of argument was powerful, each also ended up leaving critics in places she saw as, in effect, 'dead ends'.

Versions of social constructionist argument that stress the radical social and historical contingency of *all* knowledge claims can offer a quite cosmic intellectual 'high' in the face of epistemology's teetering edifice, as noted in Chapter 2. But, Haraway insists, this initial thrill that comes from the deconstruction of scientific authority is dispersed by the relativism and endless self-reflexivity that typically results. While she recognized the destabilizing implications of the 'play of signifiers' for unities and dominations of all sorts, such criticism easily could lose track of its earthly connections and relevance; it was 'semiotic', certainly, but often not 'material' enough for her. Since the embrace of such radical contingency as an end in itself renders all knowledge claims as equally relative – the same – critics following this path easily can conclude that science is just another social world whose truths are no more or less important than those of other worlds of truths and thus they need not be paid particular attention (see Schneider, 2002). Given the exclusionary practices that had marked women and other outsiders as unworthy of modest witnessing (at the least), it is perhaps not surprising to see some feminist and other critics conclude that science is after all

'not that important'. But, as Haraway notes, a hope of making a better world through doing better science has little appeal to those who have concluded that it is 'just one more kind of "small t" truth.' Moreover, such a position seemed to suffer a serious case of denial about the politics of truth as they have operated and continue to operate both locally and globally (e.g., see Grint and Woolgar, 1995).

The other path feminist criticism of scientific objectivity had taken, toward the notion of a feminist objectivity and empiricism grounded in Marxist-inspired versions of standpoint theories,[7] also offered understandable temptations. But, Haraway argued, *uncritically* following this path also can end up leaving critics in a temporarily comfortable but ultimately all too-familiar, vulnerable, and non-productive place: that of the totalizing vision of the One ('Woman's') Truth, as noted earlier. Seeking to save the notions of objectivity *and* the practices of empirical inquiry from 'postmodernist deconstruction', the hopes of basing a feminist science on the truths from 'women's experience' – again, as though there were such *an* experience – can be seen as both an appealing and a reasonable project. Anticipated by Marx's argument that workers, because of their particular material and sociocultural locations in the machine of capitalism and through the mundane wage labour that they, collectively, performed there, could come to see the Truth of such a society's operation and how to change it, some feminist critics jettisoned Marxism's myopia about women's unpaid labour and went on to build new versions of its argument into feminist standpoint theories. These arguments rest epistemology on the ontology of women's subjugated position relative to men in the sex/gender order. Instead of the story of wage labour coming to consciousness to see the 'big T' Truth of capitalist society and its exploitative practices, women's location at the submerged foundations of patriarchal social and cultural arrangements could allow a vision of the Truths thereof in ways that men, whose lives were supported and enabled by such arrangements, could (and would) not.

The problem, of course, as Haraway points out in more detail in later writing, is that this is a mirror image of the *kind* of argument against which these feminist critics wrote: it retains both

epistemology and ontology in the familiar relationship but shifts the particular form of domination from capitalism to sexism. In the end, the problem of whose privileged views will warrant empirical Fact and objective Truth and on what basis remains, although the cast of characters has changed. The universal perspective offered becomes totalizing.

True to what now seems to be form in her affection for and use of productive metaphors, Haraway (1991a: 188) wanted to avoid both of these seductive strategies of criticism and to 'switch metaphors', drawing the most useful and powerful parts from *both* paths into something different. Endorsing Sandra Harding's (1992) project of building a successor science that seriously and proudly could retain that name while never forgetting the 'doneness' of nature and culture that constructionist argument foregrounds, Haraway (1991a: 187) imagined something other:

> So, I think my problem and 'our' problem is how to have *simultaneously* an account of radical historical contingency for all knowledge claims and knowing subjects, a critical practice for recognizing our own 'semiotic technologies' for making meanings, *and* a no-nonsense commitment to faithful accounts of a 'real' world, one that can be partially shared and friendly to earth-wide projects of finite freedom, adequate material abundance, modest meaning in suffering, and limited happiness.

That is, she imagined situated knowledges built collectively from partially shared perspectives that could, as a matter of ongoing negotiation and review, be called – and accounted as – truths (without quotes) by those who, with diverse others not all of whom were human or animate, had built and were building them.

Reworking each of the polluted categories so familiar to dominant science practice – knowledge, perspective, objectivity, and truth – Haraway's way of working manages to *contest* ownership for the very definition of science, for its practice; for knowledge, and its relevance in the real worlds from which it emerges and to which it always is connected. All objects and aims too important to give up, the critic here also must stay connected to that which s/he critiques and sometimes even hates. Dismissing a radical relativism that self-reflexivity alone can produce and forefronting

various of her Enlightenment inheritances, she comments in *Modest Witness* about the aim of this successor science: 'The point is to make a difference in the world, to cast our lot for some ways of life and not others. To do that, one must be in the action, be finite and dirty, not transcendent and clean' (Haraway, 1997: 36; and see Haraway, 1994: 63). But how, you might ask, do these elements come together to form this better way of knowing and living that can still be called science?

First, she says, this feminist technoscience must retain a commitment to 'the much maligned sensory system' of vision. It is simply too fundamental to knowledge projects to give it up. All of the well-known implications of vision in practices of domination and reduction given and underlined, Haraway makes a deceptively simple but profound point that 'queers' the omnipotence of 'the gaze': vision, seeing, looking always must come from somewhere and from someone or something. It is, in short, always embodied, material; always local. Contrary to some age-old stories as well as quite new versions based in virtuality, vision must come from a materiality, a body that has the capacity to see (see also Hayles, 1999). It cannot come from everywhere, all at once; it cannot be total, complete. This familiar alternative is what she calls the 'god trick' of the all-seeing and universal, transcendent vision from a place outside the field, the scene displayed:

> This is the gaze that mythically inscribes all the marked bodies, that makes the unmarked category claim the power to see and not be seen, to represent while escaping representation. This gaze signifies the unmarked positions of Man and White, one of the many nasty tones of the word objectivity to feminist ears in scientific and technological, late industrial, militarized, racist and male dominant societies, that is, here in the belly of the monster, in the United States in the late 1980s.
>
> (Haraway, 1991a: 188)

This 'modest witness' and the attendant 'objective' knowledge that it produces in the form of one dominant discourse or equation are what Haraway wants to supplant with a feminist objectivity that requires the inclusion of the 'source of light', of vision, itself into the scene or network being studied. '[F]eminist objectivity means

quite simply *situated knowledges*' – knowing, seeing, witnessing, attesting, speaking that always come from a particular body located in a particular time and place, both literally and, more importantly, *relationally* (ibid.: 188; emphasis added). Never innocent and never treated as unproblematic, this reworked, 'remodelled' concept of objectivity is necessarily also partial precisely because it always is situated, located, and thus accountable. *What/who* is seen cannot be separated from *who/what* sees, from where, and how; object and subject can only exist and operate as inextricably connected. The one 'depends on' the other, where each 'one' is also multiple (and see Haraway, 1992b: 324).

Crediting the experience of walking her dogs with helping her imagine vision differently, Haraway says that the technologies available through and with which to see – including organic eyes unaided by other technologies – make any notions of passive or merely receptive vision inadequate.

> [A]ll eyes ... are active perceptual systems, building in translations and specific *ways* of seeing, that is, ways of life. There is no unmediated photograph or passive camera obscura in scientific accounts of bodies and machines; there are only highly specific visual possibilities, each with a wonderfully detailed, active, partial way of organizing worlds.
>
> (Haraway, 1991a: 190)[8]

Paradoxical only from antique understandings of objectivity, it becomes clear in this argument that if vision always is located, active and specific, then it is only through such a conception of seeing that *more* truthful knowledge of worlds can emerge. Denial of the implications of such mediation and specificity admittedly simplifies the story told but only by seeing less rather than more of that which one studies. Reduction and unification in the face of this complexity move away from rather than toward accuracy in knowledge. And this is because the worlds themselves are similarly multiple, partial, located, contradictory, overlapping, messy, and ever in process; more visible as 'a world' when they are stitched together in stories that can be partially shared and collectively lived in as '"our" truths for now'. Not only is this knowledge

arguably more truth-full relative to the objects it creates and sustains; because it is located, situated, and partial it also is more responsible and strongly modest or must become so.

Those who witness thus must be accountable for what they see and attest to and in rather direct and accessible ways. As she notes elsewhere, one is said to 'bear witness', conveying a weighty promise 'to tell the truth', to 'tell what I saw'. These witnesses cannot disappear into a method or practice that is given the authority to warrant what is discovered as universal and transcendent; as Nature speaking to man. Haraway (ibid.: 190) sees partiality, grounded in specific bodies and publicly accountable, as one source of the hope that a reworked feminist technoscience offers: not as 'allegories of infinite mobility and interchangeability', but rather as stories 'of elaborate specificity and difference and' – and the emphasis here is mine – 'the *loving care* people might take to learn how to see faithfully from another's point of view, even when the other is our own machine [or dog]'. Such careful, loving attention to how others – including other 'systems' as well – see, hear, and know has been an abiding theme of Haraway's vision of a better way of doing science and knowledge projects. It is apparent in her cat's cradle metaphor and is at the heart of her work on companion species.

The prescription to develop such acute attention to others' ways of seeing/knowing could sound all too familiar to those whose voices and vision long have been marginalized by hegemonies of various sorts, not the least of which are patriarchy, sexism, and racism. Hasn't it been precisely the requirement that women 'pay attention' first and foremost to others' needs and ways of seeing that has, at the least, erased they themselves from view in all manner of histories? But close attention to otherness, even when it has been enforced and even when the other is one's 'Master', is also a resource that supports the argument that feminist standpoint epistemologies make (even if, at times, overstated). Seeing from below can produce an arguably (more) accurate view of how hierarchical worlds – worlds of a particular kind of difference – are put together and operate and in whose interests (see Star, 1991); of how *that* particular other as superordinate person and/or location makes sense of the worlds in which he/they and the subaltern/s,

the marginalized, are co-present. Vision from the top or from above is typically too invested in the very system that sustains it to see itself critically, for instance, with much fine-grained clarity (and see Haraway 1997: 280, fn. 1).

In one of her quite masterful tropes, Haraway salvages this feminist wisdom inherited from Marx and makes it one of the pillars of her sense of what a better technoscience might be. This is seen in her figure of the 'mutated modest witness', foreshadowed in her criticism of the experimental way of life (Haraway, 1997: 23–45). Having made clear through others' studies of Robert Boyle's science and the Royal Society of seventeenth-century London that the so-called modest witness of objective knowledge performed a modesty that gave him an arrogant and dominating power over others' ways of seeing, she argues that both witness and modesty are practices too important to leave out of science and knowledge projects. The point is, she says, to figure out what each could mean in a successor science that would take democracy, freedom, multiplicity, partiality, location, and accountability more seriously than the heritage of Boyle's tradition of work has done.

When interlocutor Goodeve asks Haraway why she would retain modesty in her reworked technoscience, she says: 'I retain the figuration of "modesty" because what will count as modesty *now* is precisely what is at issue.' She calls for a modesty that does not make one, quite literally, disappear – which is the sort women have known so well – but rather one 'that enhances your credibility', Haraway calls this a feminist modesty '(not feminine)' in technoscience that requires asking 'a hard intersection of questions about race, class, gender, sex with the goal of making a difference in the real, "material-semiotic" world.' This modesty, she says, can come from a 'remarkable kind of confidence' and 'is not allergic to power!' (Haraway, 2000a: 159). To be modest in this way is not to imply an incompetence or to effect the posture of a victim:

> True modesty is about being able to say that you do have certain skills. In other words, being able to make strong knowledge claims. Not giving in to stupid relativism, but to witness, to attest. The kind of modest witness I am calling for is one that insists on situatedness, where location is itself a complex construction as well as inheritance.

> It is a figure that casts its lot with projects of those who would not or could not inhabit the subject position of the 'laboratories,' of the credible, civil man of science.
>
> (ibid.: 160)

The strong objectivity that situated, partial perspective allows is built from this mutated sense of modesty in witnessing in technoscience projects that would open Boyle's laboratory – and the subsequent versions thereof – to a much more diverse collection of 'interested' people and entities, many of whom/which would never have been, and are not now seen as, relevant to 'doing science'. And this mutated, never innocent, always vulnerable, ever engaged kind of witnessing would include those now called 'scientists' as well as the newcomers who now are not there. These latter would include an ever-expanding and mobile collection of so-called 'layperson' experts, something that feminist and queer histories in the United States also allow us to glimpse and something that is a prime topic in Haraway's current companion species work. Among other things, such a change would make the enforced divide between science, ethics, and politics that keeps conventional practices of science so 'clean' and narrow impossible to sustain. As Haraway notes, this kind of strong objectivity 'is always an interpretive, engaged, contingent, fallible' account. It 'is always a local achievement. It's always about holding things together well enough so that people can share in that account powerfully. Local does not mean small or unable to travel' (Haraway, 2000a: 160–1). Cat's cradle.

Multiple subjects and active objects make a new kind of knowledge

Thematic to Haraway's writing on a successor, feminist technoscience have been conceptions of the subject and object of knowledge, or subjectobject, that swerve dramatically from conventional understandings of what science is, how it is done, and toward what ends. In the first two of these, her views are congenial to those offered by other leading scholars in science studies, most particularly those of Bruno Latour but also those of Andrew Pickering (1995; and see Selinger, 2003). While Haraway's and these

authors' writings on the nature of the subjects and objects of science and knowledge projects can be read together profitably, Haraway's feminism and socialism and, no doubt, even her Catholic sacramentalism contribute critical and ethical/political edges to the stories she tells about the world/s she addresses, about how it/they are put together, and how to change and live in it/them in better ways. These are matters more difficult to find in the scholarship of either Latour or Pickering. They are 'edges' essential to the hope and passion, not to mention the humour, that pervade her work, which is saved from an over-optimism by the anger, if not rage, from which the desire for something better in her life – and in lives seen much more broadly – comes. And Haraway's aversion to 'easy', even 'stupid' relativisms is accompanied by a similar disdain for also-too-simple ideological orthodoxies that, just like those relativisms, reduce the complexity of the worlds of naturecultures into reified caricatures. Her biologist's commitment to the complexity and material-semiotic quality of naturecultures – and her appreciation of this in Whitehead's and others' work – is no doubt a key resource in her ways of seeing subjects and objects such that, once so seen, they never can be the same as they were.

Haraway used her essay on situated knowledges and feminist objectivity to set forth a critique of identity and identity politics that has reverberated strongly within late twentieth-century US academic feminism and science studies. While ostensibly discussing the place of the subject of knowledge – the scientist, the one who knows – she was also joining a broader debate fuelled by the feminist poststructuralist critique of the centered and rational – a.k.a. white, male, First World – subject inherited from Western Enlightenment and colonial thought. Having argued that worlds, knowledges, and perspectives all are partial, specific, located, often contradictory, and mobile, the practice of trading one totalizing view for another – *any* other – was not, finally, the kind of 'progress' she was hoping for. Instead, she proceeded to take apart the very concepts of 'self-identity' and 'the subject' of knowledge in a way parallel to that proposed in a line of argument Latour (1987, 1999) also has set forth. Not only is the subject of knowledge multiple, mobile, and always located, Haraway argued that conventional understandings of the *objects* of knowledge create entities

that are storied as all together too passive and inert to be true to the realities of the worlds that come with them. From conventional understandings of subjects using/resourcing culture to study the objects of nature, Haraway wants to tell true stories of subjectobjects dynamically entwined with naturecultures constituting real worlds. Again, we see her seeking to keep or put together ideas and ways of seeing and working that, typically, have been kept apart and are seen by many as contradictory (which also can bring readers who anticipate/require the familiar arrangements up short).

Writing against the poststructural 'death of the subject' argument offered by 'the boys in the human sciences', as she derisively calls them, but also complicating the facile notion popular among liberal critics of 'giving voice' to those rarely heard, Haraway cautions that seeing from the position of the subjugated is not something easily learned or accounted by academic critics, no matter how good their intentions:

> One cannot 'be' either a cell or a molecule – or a woman, colonized person, labourer, and so on – if one intends to see and see from these positions critically. 'Being' is much more problematic and contingent. Also, one cannot locate in any possible vantage point without being accountable for that movement. Vision is *always* a question of the power to see – and perhaps of the violence implicit in our visualizing practices. With whose blood were my eyes crafted?
> (Haraway, 1991a: 192)

Moreover, she argues, the vaunted 'voice from experience' and 'self-report' – including one's own – is equally problematic. Freud and poststructuralism – traditions from which Haraway appreciatively draws – certainly have taught us by now that the fantasy of a full self-presence – being able to see/know clearly who we are, what we mean, and what we desire as though these are non-contradictory unities internal to us and directly accessible to our rational thought – is at the centre of the hegemony that critical scholarship has sought to expose (cf. Clough 1997).

Rather than the death of subjectivity, Haraway (1991a: 193) sees its splitting and multiplicity as the hopeful possibility of better lines of sight and better worlds:

> The topography of subjectivity is multidimensional; so, therefore, is vision. The knowing self is partial in all its guises, never finished, whole, simply there and original; it is always constructed and stitched together imperfectly, and *therefore* able to join with another, to see together without claiming to be another. Here is the promise of objectivity: a scientific knower seeks the subject position not of identity, but of objectivity; that is, partial connection . . . Vision requires instruments of vision; an optics is a politics of positioning.

But, significantly, positioning here is not only about a single body, actual or reified. When Haraway writes that subjectivity is multiple, she means to make possible a view of the subject as a located network of linked, connected bodies, entities, as well. '[P]rimate vision,' she tells us, is not an especially useful 'metaphor or technology for feminist political-epistemological clarification.'

That vision – 'our' *Homo sapiens*-embodied vision – is easily understood only as a matter of preformed objects presenting themselves to consciousness. Haraway's term 'optics', above, is here helpful in that it allows us to think of vision less as a matter of what primate eyes can see and more in terms of what she calls 'apparatuses of visual production, including the prosthetic technologies interfaced with our biological eyes and brains' (ibid.: 195). Echoes of her insights on cyborg worlds here combine with a now-strong emphasis on the importance of seeing knowledge projects and worlds as networks of material-semiotic entities, no one of which could be called 'independent' or self-sufficient (see also Haraway, 1992b); no one of which is, as she puts it, 'the whole show'.

Haraway writes to her feminist and women readers, who more than men are likely to hear 'object' as a demeaning and dehumanizing term. While recognizing the grounds for such a response, Haraway (1991a: 197) sees such readings/reactions as products of

> the analytical tradition, deeply indebted to Aristotle and to the transformative history of 'White Capitalist Patriarchy' (how may we name this scandalous Thing?) that turns everything into a resource for appropriation, in which an object of knowledge is finally itself only matter for the seminal power, the act, of the knower.

Under the regime of this view, the idea that objects of knowledge can also be agents, can 'do things' that are not fully orchestrated by the human scientist/knower, seems more like science fiction than scientific fact. The objects of scientific knowledge, framed as 'nature', are seeable only as the 'raw material' for the work of, for opening up and understanding, for explanation by 'culture'.

In this regard, she gives as an example her dis-ease about the then popular distinction between gender and sex in feminist theory: 'Sex is "resourced" for its representation as gender, which "we" can control' (ibid.: 198). The situated knowledge essay is an early statement of the importance of embodiment and a resistance to its erasure in feminism as well as in social and cultural analysis and criticism more broadly (and see Hayles, 1999). Haraway argues for a much more complex, active, and independent view of what Whitehead called 'the concrete'. She notes that such an appreciation long has been available for review in the social and human sciences, where people not only 'talk back' to the researcher-scientist subject of knowledge but are subjects and agents of knowledge themselves. The expert knower in those endeavours ignores this agency at her or his own peril (which of course is not to say that such ignorance has been uncommon). But this same appreciative stance should be adopted in all projects of knowledge, Haraway (1991a: 198) insists:

> Actors come in many and wonderful forms. Accounts of a 'real' world do not, then, depend on a logic of 'discovery,' but on a power-charged social relation of 'conversation.' The world neither speaks itself nor disappears in favour of a master coder. The codes of the world are not still, waiting only to be read. The world is not raw material for humanization; . . . the world encountered in knowledge projects is an active entity.

Such activity, if seen, can easily surprise and unsettle the usual subjects of knowledge who expect to see and look for only what they have defined as likely to be there.

In one of her familiar turns of sharp humour, she mentions appreciatively that ecofeminist as well as Native American narratives have been able to see the world in these ways, as 'witty agent' and

'wily actor' in the figures of the Coyote or Trickster. This appreciation may come, she says, when we as knowers are prepared to give up 'mastery' as the only worthy aim of our efforts to know yet still seek 'fidelity' in our accounts. Haraway (ibid.: 199) recommends this kind of feminist objectivity as making 'room for surprises at the heart of all knowledge production; we are not in charge of the world. We just live here and try to strike up non-innocent conversation by means of our prosthetic devices, including our visualization technologies' (and see Haraway, 2004a: 327–8).

In her measured but important appreciation of insights from poststructuralism, Haraway ends her discussion of scientific subjects and objects in this early writing by reference to the work of former graduate student Katie King. King writes about feminism and writing technologies (see King, 1991, 1994a, 1994b, 2003), and in her dissertation work she focused on the poem as an object that emerged at the intersection of 'art, business, and technology'. King identified, says Haraway, what she called 'The apparatus of literary production [as] ... a matrix from which "literature" [most specifically, the poem] is born.' For Haraway (1991a: 200, emphasis added), it is a matter of the 'apparatus of *bodily* [or object] production', where body refers to the various 'bodies and other objects of value in scientific knowledge projects'. Although, as she notes, poems and objects of scientific knowledge may seem at first glance to have little in common, Haraway underlines the insights from poststructuralism that give language the status of 'an actor independent of intentions and authors' in the study of the openness and porosity of meaning: the 'post-' insights of poststructuralism, so to speak. Like meaning, like 'literature', like the poem, 'bodies as objects of knowledge are material-semiotic generative nodes' that emerge and move at the intersections of those complex apparatuses that define all knowledge projects.

Like King's poem, biological objects are shaped in and through the commerce of 'biological research and writing, medical and other business practices, and ... visualization technologies' (ibid.: 201). Seen thus, rather than as 'discovered' inert, and, somehow, 'just there', what these objects are and what they do are matters that are crafted in and through real-time-and-place 'social interaction' or what she later calls relationality: 'Boundaries are drawn by mapping

practices; "objects" do not pre-exist as such. Objects [bodies] are boundary projects' (ibid.: 201) and such mapping is always an intervention (cf. Haraway, 1997: 131–7).

This takes us back to Haraway's argument about the risk and vulnerability, about the ethics and politics, always involved in knowledge work. She regularly underlines the importance of asking Leigh Star's (1991) question, '*Cui bono?*' Who benefits? Who gets to 'count' as inside and who outside of the charmed circles that various categories and boundaries materially mark and with what consequences? And when 'we' do such 'boundary work' or boundary projects, we cannot entertain the fantasy of complete closure, certainty, and self-identity – of objectivity in the familiar sense. 'We have, finally,' she insists, 'no clear and distinct ideas.' To participate in such worlds is like literary work, like writing, where 'the coyote and protean embodiments of a world as witty actor and agent', are, like language, always able to and typically do 'have agency'. Knowledge becomes a practice not of finding object-ivity hidden from human view by an inchoate nature, but rather a process of 'situated conversation at every level of its articulation'. The challenge for 'us', she says, is whether we can now, after the twentieth century, figure out how to participate in these exchanges in ways that are properly modest and objective, respectful of difference, and that enable complex flourishing for all involved.

Chapter 5

Conversations with Donna Haraway

As part of this book project, I visited Donna Haraway on 27 and 28 December 2003, at her home in Healdsburg, California, for two sittings of conversation about her work and life. She and her partner, Rusten Hogness, welcomed my wife and me for an overnight stay, and Haraway and I had about five hours of focused talk.

The questions I asked reflect my framing of this book. Since there are several published interviews with Haraway about her work, one – *How Like a Leaf* – that is especially detailed and lengthy, I tried to avoid reiterating those conversations. As a result, her current work on dogs and companion species is given more attention here than some of her previous projects, about which she has spoken at length elsewhere (e.g., the cyborg manifesto, especially). In September 2003 I attended her Avenali Lecture and associated panels at the University of California, Berkeley, and we sometimes refer to those events in the conversations. The jointly edited transcript of the two lengthy recorded conversations we had is set forth here without sectioning, and proceeds as did our talk during those two days in December.

Donna and I sat on a large comfortable sofa in a living/dining/TV room heated by a woodburning stove, sipping tea, and periodically joined by Ms Cayenne Pepper and Roland Dog – the two dogs about whom she has written in the current project – who were seeking friendly scratches, interactions, and perhaps a bite of something good. As you will see from what follows, our talk was punctuated regularly by shared laughter, the heartiness of which is unfortunately lost here.

Joseph: You have worked on the relationship between primates and humans and on the relationship between machines and humans. You suggested that those were productive spaces, borderlands, where struggles about what could count as knowledge were taking place. What are some of the most potentially productive borderlands for such critical thought now?

Donna: There is a double way to think about that for me. One is by saying almost anything a person cares about passionately opens up into those kinds of borderlands where you don't know in advance what's important. So that you might begin by being interested in the physiology of redwood trees, fire resistance, say, and in order to think well about that, you are going to have to think about the kinds of practices that are conducive to sustaining forests. Why it is that that wood was especially interesting to loggers, historically; how it is that the labour markets in woodwork are relevant; how changing insect populations are a function of the overall changing relationships; how forests' edges work; and on and on. There is nothing that a question like that isn't going to open up into.

A part of my consciousness is microcosmic: every microcosm explodes into a universe as a function of what you're asking, not because it is out there waiting to show you the interesting intersections or borderlands or whatever. It is your own relationship with what it is you care about that opens up the borderlands that are interesting. I don't think there are borderlands waiting to be discovered. So there is that kind of trying to understand what matters to you personally, as a historical person, as a political person, as an emotional person. All the ways that oneself is not just oneself. What matters? What do I care about? And what does that tell me?

Joseph: In a recent interview you talked about how all the figures you've chosen in your writing are intensely personal to you in that time and place and circumstance. Presumably, then, anyone's figures could be very personal for them.

Donna: Yes. Why would one work on something that didn't have a serious connection? The connection could be anger. It could be hope. It could be any number of things. But without a connection you are not going to care, and these connections make you more open, in my experience. Everything I care about makes me more worldly, not less. Worldly in the sense of connected to ripples

... Think of the image of a pebble in the lake; an indefinite ripple effect, or if you look for a ramifying metaphor, a large and indefinite set of connections. Not infinite but indefinite. So that anything you care about – with a particular kind of caring that I think I have learned partly as a scholar, but learned in other ways too – any kind of caring *ought* to make us more worldly at the same time it makes the questions more intensely personal.

Joseph: And one meaning of 'worldly' that you address in *How Like a Leaf* [2000a: 109–12] is the way connections multiply and ...

Donna: ... and ramify *in the process* of making the connection. So that connections make more connections, and with other partners that you didn't necessarily expect to be in the picture. Sometimes people, sometimes not. So there is that relentless processural quality of connections. And that said, I think there are some things in the world that are more important than others, if you will. The urgency of questions of sustaining radically different kinds of living beings, of sustainable ecologies that are also economically viable for the kinds of populations of human beings that we've got on this planet; the *urgency* of questions of that sort – the consequences of 'the established disorder', that old expression in radical, critical theory.

Joseph: I don't know how you encounter students in your programme, but this notion that there are some questions that are more urgent ... sometimes my students look at me with hesitancy as if to say, 'Well, what are they?' They do have their own ideas, certainly, but it's almost as though one needs permission to say what is urgent.

Donna: Yes, and my first impulse at that point is to ask them to tell me what they care about. And how that connects them to the world as opposed to isolating them more. If it isolates them, how do they deal with that? Is the isolation a good thing for them? To push, but, as a teacher, not to push in a withholding way, getting them to produce all the answers and not giving any of my own. So I can say I think these *issues* are urgent; I think the *moments* are urgent, and I find them to be urgent because ... and I don't think this is merely me speaking. I think that *we* have these dilemmas, and that this 'we' is an invitation. It is also partly an empirical statement, but every empirical statement is also a question. 'Is this a "we"? I am affirming that this is not just mine. Do you find that so?' And it's not

a sceptical question, in the sense that I think people *can* answer these questions . . . in all their finitude.

Joseph: I think somewhere in your work you say the use of that plural pronoun can be something of a possibility . . . a hope. Could it be that?

Donna: It is a rhetorical form that is a gesture of . . . 'we' as a kind of future tense of a pronoun. (*Laughing*) If pronouns have futures.

Joseph: I wanted to ask about the terrain in or conditions under which one might take up the kinds of questions that you take up in science studies. In *Primate Visions*, you say 'many kinds of people can claim to know primates to the chagrin and dismay of many other contestants for official expertise'. I was wondering if that kind of messiness in a terrain of knowledge projects makes your kind of questioning, your kind of work practice, particularly possible? And I was thinking of the current dog and companion species project in particular.

Donna: No question. I am drawn like a moth to the flame to those kinds of knowledge-making endeavours where that messiness is inescapable. Some kinds of knowledge-making endeavours are tremendously insulated from the kind of messiness that I am drawn to. Particle physics, for example. There is plenty of messiness there and Sharon Traweek is a genius at showing it, but it's a different kind. It really is. It is different in all its materialities.

First of all, overwhelmingly, I'm interested in animals. I'm interested in human beings as animals. I am interested in animals that aren't human beings. I am interested in relations between them. I am interested in the animals independently of us. I really am [see Haraway, 2004e, 2004f, 2005]. But not everybody is. Nor need everybody be. But that is a way that I approach the world.

Joseph: You say in *How Like a Leaf* that if you had it to do over again you would have spent more time in the field in conjunction with the primate project. I take it that you are doing just that with the dogs and companion species project?

Donna: Absolutely. In fact, if anything, it's the absolute opposite from what I did then. But now my questions are overwhelmingly about the process of working with another organism, not human, in a sustained way and being with other people who are trying to do the same thing: trying to get at the histories of this; the

moral, emotional fluctuations of it. My questions are in that sense much more ethnographic than they were before. I don't know if 'ethno' is the best word. 'Organo-graphic'? (*Laughing*) I don't know. Something.

Joseph: You write about how two different organisms might get along together in certain kinds of ways that allow flourishing for both . . .

Donna: . . . in a particular historical setting. Not like *Homo sapiens* in the abstract or *Canis familiaris* in the abstract, but *these* histories and *these* times and places.

Joseph: Yes. And when someone looks at your writing from the mid-1980s, from the cyborg manifesto, say, and then one looks at the writing in the companion species project, they are clearly both political, but they feel political in quite different ways. I wonder if you could say something about these different kinds of political.

Donna: Well, the cyborg project is sort of obviously political. Although, it must be said, it was dismissed in a range of ways as blissed-out techno-bunny babbling and not political in a correct way, but in retrospect that of course looks silly. And I kind of think that there is going to be some similarity in that regard, not just because I am doing it but because animals, of course, and viruses and prions and other biological beings are foregrounded now as perhaps some of the most urgent political engagements that we are in as human beings these days. When we are talking about the meat industry, or the endangered species issues, or the fisheries issues, and on and on. The questions of animals are becoming recognized as inescapably central to human flourishing, involving political well-being in every way from how regulatory apparatuses are going to work, how economies are going to work, how labour processes are going to work, how health and dietary practices are going to work. Really up on the top of the agenda of politics in the ordinary everyday sense is coming to be broadly seen to be, among other things, caring deeply about animals.

So, in a way, I feel like the little project I'm working on is a piece of a giant movement in some of the same ways that the cyborg piece turned out to be a piece of what a lot of people were coming to recognize as, whether they called it the information society or, you know, flexibile accumulation mediated by digital technology, or

whatever it got called, about that same time all sorts of people were coming to recognize it as where we needed to be thinking and acting. Well, I think animals are in that boat these days. In that, while I started this project for very personal reasons, it turns out I'm not alone and it turns out I'm not alone in some very interesting ways.

So, just thinking in the narrowest way about dogs, which is a tiny little piece of a giant world. There is no way to think well about dogs without being in the middle of town politics, how parks are established, how different kinds of people who make use of public space are going to figure out how to use it together. So there is that kind of level of civic politics, an ongoing fundamental political issue that everybody understands to be political. How city councils work, how health departments work, how neighbourhoods deal with different issues around children and dogs inhabiting the same space. Narratives that people tell about freedom end up being a giant part of city politics, and so on.

The technology of all of that ends up being really interesting too. Everything from a little tiny tin clicker, the evolution of the cricket into the standardized dog clicker; the evolution of leashes and collars and harnesses. There is an extremely interesting consumer culture that's also about a certain kind of technology associated with stories that are part of city politics, part of the way people train. You can't look at a child these days without noticing all the equipment that it takes to do a child; and then you look at all the equipment it takes to do a dog for middle-class people in the way that sets standards [see Haraway, 2004f]. Then, that's just a little tiny piece of the puzzle. There is the set of issues around animal rights. Dogs are only a piece of that, but they are a big piece. And whether our relationship with non-human organisms is that of owner, guardian, companion, none of the above, all of the above, and what follows from that. And there are the history issues; I do a little bit of that in *The Companion Species Manifesto*. It's the bare minimum, short list of histories. You have to think about molecular history, evolutionary history, the history of labour processes and when working dogs become pets become working dogs again. You have the histories of ethnic groups, national groups, gender groups. You have intensely personal histories. You have

the co-evolution of the pedagogies directed toward children in the schools and pedagogies directed toward companion animals and pet relations. Also the ageing discourses, that is, ageing animals and ageing humans. Incredible.

Foucault, of course, would have understood this in an eye blink. Because I read Foucault I think I get it too – the way these discourses are produced all over the place, within certain formations – call them epistemic formations or whatever you want to call them – all of this is political in the perfectly ordinary sense of the term of power relationships, involving distribution of resources, economies, the commodification of everything.

And then you have all sorts of issues about disease transmission. Or different national or regional politics. Let's say you're interested in the way the purebred breed clubs work, and you start noticing that in the EU, the purebred breed clubs subject to EU conventions start having all sorts of practices that don't allow ear cutting, tail docking, breeding for the short snout on the bulldog face. What the Europeans, out of their social democratic histories and whatever else, take as allowable political action, United States-ers think are the black helicopters. (*Laughing*) Government taking over everything, right? Or the rabies politics scene, or the importation of sperm, or the cloning issue, on and on. You name it. And you can ask, why do Vietnamese eat dogs? And all of a sudden, you are in the middle of the question of what counts as food, what counts as racism, and the question as to whether the Chinese are importing some of the big breeds to have puppies to use as food in China, and whether we can do the Olympics in Beijing. And on and on. When you think dog, there is no way you are not inside all of these political worlds.

Joseph: I think of students and others who come to hear you, when you begin to describe that complex terrain and the sets of connections, and this regular question of what do you care about, what are you interested in? – because when you begin to see all of these questions emerge you think 'Oh my! Which of these many bits am I interested in?' So it's a continual asking and re-asking, 'What do you care about?'

Donna: Yes, at each step. And as you care, you are changed, so that your questions change and your partners are different. The

alliances you are part of are different and what you are interpellated into, willy-nilly, whether you chose it or not, is different.

Joseph: Sometimes my young colleagues say, 'Well that postmodern stuff is perfectly fine for you; you've got tenure, but I have to, you know.' One of the things I think is quite heartening in reading your stories about your work is that you have consistently raised a set of questions over the last 25 years. It can be read to say that if one continues to work on something and you continue to ask your questions, there is a way to go forward, even when there is little professional and institutional support.

Donna: I think there are a couple of things to say here. One of them is to remind folks that I got fired for it too, which is a fact, and maybe rightly and maybe wrongly. I understand why the people did what they did. They weren't idiots.[1]

So one of the things I think that one says to graduate students is, I acknowledge that what you are talking about is not foolish. This can be dangerous scholarship, and the academy is not a safe institution. Folks do get hurt, and choices can be punished. So one of the responses is to say, yes, I understand what you are talking about and it's not foolish, but there is no way you are going to survive unless you do what you care about. You aren't going to survive professionally and you aren't going to survive emotionally. And so it's worth the risk. In any case, trying to avoid the risk won't work. More people get fired, in my opinion, who try to avoid the risk than folks who just go for it and do the best they can, and you do certain smart things when you do that. Like, you actually try to do an honourably intellectual job. You do your homework. You improve your writing. You do the work. You do the research. You go to the archives. You do the work, and truly, if you are doing that, and really following what you care about, you are taking the safest possible course.

Joseph: That sounds like good advice indeed. Now I want to ask about the inextricably connected and embedded nature of science. I think in *Primate Visions*, even, you say that one of the consequences of beginning with this connectedness is that you can raise questions of value and ethics for the way science is done, not just about the consequences of the knowledge produced. What's your sense of how this is handled in terms of science pedagogy? I ask, because in

my back yard the response still seems to be, well, yes, of course, those are important questions, but they're not really central to *science*. Your argument is that they are central.

Donna: And that they are at the heart of what and how we come to know about the world.[2] They shape the way we will know, which is what we know. Well, I think I see, like you, more things to be worried about than not, and also probably like you, I see practices that have emerged over the last few decades that are remarkably positive in these regards; so, both; and I think the remarkably positive stuff is a bit of a minority . . . but not tiny.

For example, I have a graduate student now, a person named Eva Shawn Hayward, doing really interesting stuff that pulls together marine invertebrate zoology with visualizing practices of various kinds – film, photography, laboratory microscopic work of different kinds of museum display, using the jellyfish display from the Monterey Bay Aquarium – things like that and all kinds of interesting stuff. Eva invited on to her committee a marine invertebrate zoologist named Vicki Pierce, who happens to be a friend of a friend. I knew Vicki and could call on her, but I didn't really know anything to speak of about Vicki's zoological practice. In the course of the exam and in her editing of Eva's essays and our talking about her research designs to get to know some of the organisms she was getting to know, and so on, I learned that her practice is so attentive to the well-being of the organisms that it is unbelievable. She is really alert to the ways that she can't answer the questions she is interested in if she screws them up. But it's more than that. Vicki is deeply knowledgeable about questions of marine sustainability and thinks it matters to the heart of her work; what's going on with the issues of the survivability of marine organisms is at the top of the list in the way she thinks as a scientist, and I think that is very widespread, frankly.

I've got zoology friends and marine biology friends in Hawaii; and Scott Gilbert, who is a developmental biologist cum molecular biologist. These people are very knowledgeable about these issues, and they really matter in the way they do their work, and they matter to their friends, at their big symposia, their professional meetings that are made up of people involved in this. My work in the humanities, or wherever I am, and informed as it is by biology,

is a piece of a very much bigger development. Also just as an awful lot of what is going on in the humanities is part of the commercialization of academic life, the commercialization of biological life is thick. And not all bad, but equally dangerous.

Another piece of Vicki's attentiveness, which was really interesting, is that she edited Eva's qualifying essay – you would have thought it was me, but it wasn't – to insist, every chance Eva got, it had to be 'humans and other animals' and not just 'humans and animals'. And it was Vicki who insisted on not 'jelly fish,' but 'jelly fishes' because the word fish didn't distinguish what you bought at the fish counter at Safeway from the organisms in the ocean. It was Vicki who insisted on noticing the difference between the organism in the shape of a commodity and the organism in the shape of an ecological partner.

Joseph: That kind of really close attention to the words . . .

Donna: Yes. Now, she happens to be the general editor of the most powerful journal in her field. So, with these sensibilities she is editing the papers that she gets submitted to her routinely.

Joseph: You do regularly note and allude to such work that allows one to be hopeful about what's going on, even though it may be done by a minority of scientists.

Donna: You know, I wonder if they're actually so much in the minority as they are not in control. I don't know if it's the minority, exactly. I'm not sure about that. I don't know. I don't know how to talk intelligently about the power arrangements in the many biologies. I can name the outrages, of which there are many, but these are very complex fields of practice.

Joseph: If someone asked you, what do people in the natural sciences think of what Donna Haraway writes, what would you say?

Donna: Most of them don't know about it. Including folks that I think might like it, might like to know about it. And many of the primatologists hated *Primate Visions*, which was deeply disappointing to me, and there was something of a gender division in that, but not absolutely. I think I told Thyrza this story, but there is a primatologist I like a whole lot, she has become a good friend, and her daughter has a PhD in English. They were reviewing *Primate Visions* together, and the daughter was given all the cultural stuff and all the positive stuff, and the mother took the critical stuff [see Jolly

and Jolly, 1990]. I met her at a conference some years later and told her that I was very angry about that. And she got it. She also had done some re-reading and some re-thinking. There was another primatologist who works with Brazilian New World monkeys who had thought that *Primate Visions* was this terrible book. She read it for a conference we both were invited to, read several chapters for the conference, and found she liked them and that they weren't what she thought they were. She had been warned off the book and when she actually read it, she liked it.

My experience has been when I meet people face to face and when they read stuff and talk to me, the responses are critical in the full sense of the word. They include criticisms and they include appreciations and they include surprises. They are engagements. They think I got some things right in an interesting way and they think I goofed up some stuff, and they found themselves engaged.

The science wars lumped people into the enemy camp and then the good camp, and that had some impact. So the first answer is that most scientists neither know nor care. The second answer is that I have had the experience of being produced as an enemy, which folks have found to be inaccurate when they actually engage it; not everybody, but a lot. Steve Glickman at Berkeley, for example, does really interesting work with hyenas. He actually asked both Bruno and me at a conference in Brazil that put together primate people and other animal behaviour people with folks like me and Bruno, and Evelyn Keller, and Gregg Mitman, and on and on; he actually asked both of us privately, so that he wouldn't embarrass us, whether we believed in reality! That was what it came down to and, you know, I couldn't believe it. And Steve is a really good guy. We formed a very strong bond in that conference, and Steve has been a real promoter. He had to be reassured that folks who write like me actually believe in the real world. Now part of that has got to be our problem, in the way we write, and part of that is just the profound split in our culture. So that even those of us who are educated in biology come across that way.

I write differently now, you will have noticed. I make a lot more invitations. And it is because of these experiences. I know that the conference in Brazil that was organized by Shirley Strum and Linda Fedigan[3] was in part in response to *Primate Visions*, having

raised questions they were still thinking about. They both had cooperated with me on the book and both had been kind of wary; liked some parts and really worried about other parts. It's not like that now. There are much thicker connections. A primatologist who helped me with *Primate Visions*, Barb Smuts, is working on dogs these days. That connection is proving very nice. With time I think I have gotten better at being more accessible and less off-putting, and I also think that biologists have been changing too.

Joseph: You say in your preface to *The Haraway Reader* something like, 'I got started doing something I was calling feminist science studies or feminist technoscience studies before I read Latour . . .'

Donna: I didn't call it technoscience then. I got that word from him.

Joseph: But you talk there a bit about the way you sometimes get located in canonical versions of science studies and the way in which feminist science studies people sometimes get or not get located at all, not even get mentioned.

Donna: Right. Completely forgotten.

Joseph: So, I would like you to talk a little bit about your own sense of, how should we call it, origins; the way that you began to get into this work before you found out about Latour, because he's the one with whom you are often juxtaposed.

Donna: I know . . . it's both legitimate and comical. Bruno and I are good friends. We are really appreciative and critical of each other. There are things we hate about each other and love about each other.[4]

Joseph: Right. So, given that . . .

Donna: Well, my feminist science studies comes from places like the women's health movement and the debates about race and IQ, and the questions of left environmentalism of the '70s, and people like Sandra Harding organizing conferences at the National Women's Studies Association, and taking up the primate studies issues around sex and gender debates and what's natural, and labour process issues from the left around the ways technology builds in certain kinds of hierarchies of control on the shop floor. The David Noble study on the development of machine tools, and so on. So my entry into what I later called science studies,

and at that time called feminist approaches to science and technology – science studies is a late term for me, or STS is even a late word – was all about the way the sciences and their technologies are part of the political debates of the period. Racism, environmentalism, sexism, and so on and so forth. So I didn't really primarily identify as a science studies person. I identified primarily as a feminist and was doing all kinds of stuff that, subsequently, appears in the bibliographies of science studies, and rightly so, but it comes from a whole itinerary, a whole lineage that is, you know, from Science for the People, The Boston Women's Health Collective, the re-reading of Marx around nature, on and on. A whole lot of stuff, New Social Movement stuff, whatever.

In 1979, when I was still working at Hopkins, I was given *Laboratory Life* to review for *Isis*. That's the first time I found out about Latour and Steve Woolgar. I thought it was a really fabulous book. I loved it. The most exciting thing I had read since Kuhn in terms of making me re-think how to think about science. It was wonderful. And I reviewed it very positively [see Haraway, 1980]; it wasn't a *thing* then, I didn't know much. I didn't know much of what was going on in the sociology of scientific knowledge or things like SSK. Then it could have been XYZ as far as I was concerned. (*Laughing*) I just wasn't part of that scene. Everything I did came from another scene.

In retrospect, actually, there was another connection, though I didn't know it at the time. When I wrote my dissertation, which has been re-issued now [Haraway, 2004b], I interviewed C.H. Waddington, and I went up to Edinburgh to do it. I talked to Gary Wirsky in Edinburgh. At that time, the sociology of scientific knowledge was beginning to get going there, and I was talking with one of the people who was part of it. But that wasn't what I was asking them about, and I had no connection with it whatsoever. So, someone who saw me there then might have thought that was part of what 'influenced me', but it ain't so.

The whole thing came out of other places, and it came out of having been a biology graduate student at Yale, having been overwhelmingly against what I perceived as genetic reductionism; and being much more interested in the way in which the organism was a poem – my commitments to the notions of organic form, and my

Catholic sensibilities. So science studies as a field of scholarly endeavour was very late in the game. And it was a wonderful addition, and then I ended up giving to it and it to me, and so on and so forth, but I didn't come from that nor was I much influenced by it until very late, and then it was pretty reciprocal.

I get very angry at the lineages that foreground science studies as the boys and their places.[5] I got interested in that because I thought they were doing neat stuff. And of course they taught me huge amounts at that point. They were reading me pretty much at that point too, at least Bruno was, very quickly. Part of the difference between Bruno and me on this stuff is citation practice. Part is national difference, the American customs around citation practice – much more exhaustive – and part of it is personal. I make it a point to try to foreground all sorts of networks that a conversation came out of, and Bruno is more spare.

Joseph: Several places in your writing you talk about bodies and objects of study as 'frozen stories' and you talk about physical objects as 'literal metaphors'. I'm guessing that some who will read this little book might say, 'Literal metaphors? Frozen stories?' Could you say a bit more about that?

Donna: Yes, because it comes up in a lot of places. Let me do it by telling a story about teaching. I have taught a course called Science and Politics for a number of years and one year in particular, it was very early in the morning, a big lecture class at 8:00 a.m. To get to the lecture hall we all passed this little shop that sold good coffee and chocolate croissants. It was a spring course, so people were mainly wearing T-shirts and so forth. And just as a way of waking up in the morning, I would ask people to unpack objects, to take a chocolate croissant and lead me through flour and chocolate and butter and sugar and coffee and connect us to world histories that way. I would ask people to pick an object, the T-shirt that the person sitting next to them was wearing, what was printed on it, the label, the very fact of labelling, the fibre composition. If it's got polyester, then take me through the history of Purity Hall[6] and research labs at Du Pont; you know, back me up into nitrogen chemistry. If it's cotton, then back me into pesticides and the California water projects and where cotton is grown and the length of the fibre and what about what are you wearing on your chest?

I would ask people, as a way of talking about science and politics, to take a pencil, a piece of paper, the architecture of the lecture hall that you walked past; pick something, and get the class started by giving me an account of it.

It's a story-telling practice. It's a sociological practice, if you will, in the sense of describing historical materials. Every single one of those objects becomes a metaphor very fast. So you have these little condensations that you sense are tiny intense knots of something much bigger. Metaphor is not exactly the right word, but these are knots that don't stand for the whole. It's not like they are examples of a universal, but they are intense, threatening to explode into universes of meanings. *And* into simply empirical descriptions in the most ordinary sense. And that density of story telling, of intensely held together meanings, and not just stories but they become configurations very fast. The way I try to describe OncoMouse™ is an example of that; OncoMouse™ is both a very particular organism, and we grew it in a couple of labs in a particular way; it has a patent history, but it also is a figure. Lynn Randolph's paintings make that clear. The Du Pont advertising makes that clear. It's both/and, always.

Pedagogically, I'm trying to give students that way of thinking, among others, that they tend to already have, that kind of narrative, intensely tropic and empirical, sociological, technological, historical, economic – that these are *all at once* that. And you can foreground a particular way of talking. You can foreground sociological analysis, you know, in the more orthodox sense of that term. The particular kinds of configurations of human groups and the power among them and the source of resource flow, and blah, blah, blah. You can foreground that way of describing anything. And you can foreground the way any piece of that can become almost like Foucault's prose of the world, murmuring meanings. You can foreground an analytical practice that is rigorously and severely toning down the metaphors, trying to hold them still, make people forget them, make the language do another kind of work. You can foreground one rhetorical practice; and you can background another. It's not something invalidating; you can background it and you know, turn down the volume a little, using Adele Clarke's and Teresa Montini's [1993] metaphor, you

can turn the volume down; and you can turn the volume up on certain other sorts of discursive practices. All of this is in the chocolate croissants.

Joseph: Your way of coming to an object and, in effect, exploding it and following what you find would seem to mean that one has to be prepared to sacrifice some of one's preconceived political notions about who's bad and who's good, who's right and wrong. And the more sticky the threads, the more complicated these kinds of characterizations become, right?

Donna: One hopes that that is one of the consequences . . .

Joseph: It complicates politics.

Donna: It complicates it. On the other hand, I think it makes us more honest. And I also think it makes us not less politically able but more. It doesn't stop you from opposing different policies or the distribution of goodies, be it from a tax bill or . . . It doesn't stop you at all. I think it makes you more savvy about how to build alliances, how to construct policies that might enlist, get a larger base of support, and so on.

I also think it allows you to say I am going to do some propaganda, and deliberately attempting to produce the political emotion of anger and outrage. I am going to be writing propaganda that I recognize to be propaganda, and it's a legitimate strategy. It's not the be-all-and-end-all of the world, and it's not the only way I'm going to write. I talk a lot in my work about not aiming for purity. That the things you do are not innocent doesn't mean we shouldn't do them, in a bond with others, but it does mean that there is a kind of lowering the volume on self-certainty, even collective self-certainty that kills us dead.

I was in a store a few days ago getting stuff for Christmas, and saw a dog friend of mine who happens to be organizing the Howard Dean campaign camp – very political woman; very nice person; Dean buttons from head to foot and I was laughing, and so on. But she was going on about, you know, I'm not paranoid and I don't think I believe this but, you know, there are a lot of people who believe that Bush engineered 9/11 in order to promote himself politically. She said, I know I'm getting around the bend on all this; and she was deliberately toying with being around the bend. Enjoying it, relying on some of that language. And I got angry

and said we can't afford to have people like you around the bend on this stuff. This is not the time for us to be indulging those paranoid fantasies because they give us a free zone of outrage. It's not credible. It's a very bad political strategy. We can't afford the folks in your position in California right now playing with being around the bend.

Joseph: Do you think the kind of complexity you've just indexed would have been something you would have been able to draw on when you were involved in politics as a graduate student at Yale?

Donna: No, I think I was much more the young true believer. I think I was pretty dogmatic.

Joseph: Which is helpful to hear you say, actually.

Donna: I think I was pretty dogmatic and, you know, I didn't really get it. It's something I think I have learned partly from understanding how people hear me and partly just because of not having been right a whole lot. (*Laughing*)

Joseph: Well, yes. That ought to have some effect.

Donna: And our people being defeated a whole lot. And asking why we can't enlist folks, why are large numbers of United Statesers, by my lights, acting against their own interests? Why can't folks like us, the way we are, produce a political discourse that brings us to a different place in political movements, in political parties, in policy? What's going on? We constantly lose where it doesn't make sense to me. I think the left, however broadly you define it, has got terrible problems of true belief ... and self-certainty. Including the feminist scene. And it killed us. You know, we split inside ourselves a zillion times. So now, when I'm almost 60, I feel this much more profoundly than I did in my 20s.

Joseph: Yes. That makes sense to me. I want now to ask how you tell the story of your own intellectual development and career in terms of important influences. Obviously, you note Whitehead and Evelyn Hutchinson, and it seems pretty clear that Foucault has had a big impact on you.

Donna: Absolutely. I read Foucault over Christmas vacation my first year of teaching at Hopkins. It was the Christmas of '74, I read Foucault and it was life-changing. I spent the whole Christmas vacation reading *Les Mots et les choses* and it just was an eye-opener. And so books, individual books by named writers, have

just had an immense impact on me, and movement books; people; friendships. As an undergraduate ... well, you know I went to Catholic elementary school and then went to a Catholic girls' high school. Among the impacts of that were women who took themselves and the girls very seriously. I was taught by women who really liked girls. Things like that.

There were individuals in there that mattered too. As a teenager, those were the people who gave me access to ways to deal with middle-class, white, Catholic stuff and go somewhere else with it. There were individual teachers in a context of continuing, in the life of a girl who was raised in the '50s, to take an intellectual life really seriously. And the Civil Rights Movement emerges in that period. We played such a small role, but it changed us. The silly little things that, you know, folks in my protected world did – a black student and a white student renting a motel room together. The little pieces. We weren't at the centre of action, but we were part of that movement in the sense that it was everywhere. All those things ...

Joseph: In the early pages of your new manifesto, you write, 'dog writing is a branch of feminist theory or the other way around'. A few pages later you add, 'feminist inquiry is about understanding how things work; who is in the action; what might be possible and how worldly actors might somehow be accountable to and love each other less violently'. This strikes me as a very accessible feminism. Would you speak a bit about what work such visions of feminist inquiry might do in the complex space of academic feminism today? How does that fall, do you think, and what might it do?

Donna: Part of it is simply another instance of what a lot of academic feminists are doing in that feminist theory has developed around questions of racial and national differences of various kinds, the work that categories do on people, and that the category of gender, the category work of gender, is never alone. Gender is always complexly part of many other categories that pull against it, with it, constantly. All of those issues have led feminist theorists to be writing about all sorts of things that at first blush don't look like topics in feminist theory, but are. The sensibilities of feminist theory are brought to those other topics, and those other topics

turn out to be at the heart of things to do with positioning, insistence of gender, sexuality, species being.

What I am doing is similar to what a lot of feminists are doing in terms of taking account of parts of the world and the sensibilities around categories that we have learned in being feminists. Also, there are ways in which the dog worlds are about women, in particular, in all sorts of ways, and are about the positioning of women and men. I'm really interested in the health and genetics activists in dog land, who are almost all women. Why is that? How is that? What difference does it make? The changes in the demography of the vet schools, so that all of a sudden now more than half are female students. When you and I were in college, vet schools were 95 per cent male. What difference does all this make in the whole set of issues around animals and animal–human relationships, and how come so much is still so overwhelming white, and how do people interact differently with dogs around class and race dimensions, because it's very different, and so on?

So all of those ordinary feminist questions are also part of the dog study. And the dog stuff is also still another way to get it that the beings that you are in partnership with aren't you. And feminism was one of the ways that people like me learned that.

Joseph: That actually leads to this next question. It's about communication across the irreducible difference in the dog work. In the new manifesto you refer to Susan Garrett and the importance of humans paying close attention to what dogs are telling them and thus demanding of their human companions. That of course opens up issues of communicating across irreducible difference to any number of possibilities, right?

Donna: Exactly, and that's, of course, totally deliberate. That this particular irreducible difference is itself and can't be an example of some universal, but if you do it well, if you try to live with it, then it should tell you something about irreducible difference elsewhere. And it should open you to noticing how projection works, how difference gets suppressed in hierarchical relations, and you should be learning something about the way difference operates in the world, elsewhere. I think what you learn from any project you love is a way of paying attention. Call it methodology if you want. A *way* of paying attention. A quality of attention you didn't know

how to do before. So there are certain things that I think I am learning that I haven't learned in any other way.

I think that at the Avenali Lecture I talked a little about the question of honesty, and ways that I think that the training relationship forces a kind of honesty that I would never face in any other relationship. I have to face the consequences of being incoherent with a partner. If you are actually trying to *do* something, you can't lie to yourself about how well you're doing it. These are really simple issues, really everyday things. On the other hand, they become parables. They become irritants, to notice the degree to which these issues pervade different scales within and across contexts. And they're all very simple, even simple-minded.

Joseph: Sometimes we academics miss simplicity and what it can give us.

Donna: '*That* can't be important.' And, of course, on some level, it's not. In fact, I think one of the reasons that I'm learning certain things that I would consider part of a moral discourse with dogs is because the activity that I am doing with my dogs isn't important. The dogs are important. Not ultimately important, but then, neither am I. (*Laughing*)

Think about the sport of dog agility, which I am playing and writing about. I think this is actually true of all sports, and why they are so interesting to people. In and of themselves they are utterly arbitrary and completely unimportant. Therefore, in the context of agreed-upon arbitrary rules – and at some level dogs agree with you to work within them, or you leave the game – the agreement isn't equal, you know, in the same way that it might be in a chess game. Nonetheless, there is collaboration in this game. The actual activity is not important. And it's easier to remember that when you are playing agility than if you are playing NFL football. But, it's true of both of them: the actual activity is not important, like say, planting and harvesting a crop because people starve if it doesn't get harvested. That's intrinsically important in a way that getting those rhythms in agility isn't. It really can't matter if you win or not, except it's got to make you laugh. The degree to which it little matters if you win or not. And you recognize that you care, and that's fine and in fact maybe it helps you do well, and what not, but it's not important. And *therefore* the *process* itself

becomes way more important because the goal isn't important and the degree to which you come to know that becomes crucial to being able to calm down, and notice, and do well, the process itself.

Joseph: What you say seems so right yet at the same time there seems to be so much emphasis on the goals. We ourselves . . . I really appreciate your re-iteration of non-innocence in the way in which we find ourselves giving great importance to the ends and missing, very often, missing the process.

Donna: Well, it's another way of raising the means–end question without the dignified examples that we usually use to discuss it. And so that means, for example with Cayenne, in learning how to do a particular obstacle that we keep making a mistake on, I have to figure out whether we understand it, and I have to learn to notice whether she understands it the same way I do or not. And she has to learn what I'm asking for, and it's all at such a level of tiny, tiny detail, and it's all at such a level of getting it, in this kind of Zen, I think, in this moment, in this tiny, in this presence.

Joseph: And getting it as evidenced by its so-called happening.

Donna: Yes. Then you know, precisely. You know if you got it, if it happens. And if it happens reliably, and if it happens with a certain kind of spontaneity and happiness and vitality. I have watched folks shut their dogs down by being so intent on solving the problem that they completely lose it that the whole thing is about a kind of intensifying vitality. So if you are getting it right, in this moral discourse way I am trying to learn to say, it actually improves – maybe in an Aristotelian sense – the happiness of all the partners.

Joseph: This leads to another question I have. At one of the panels at the Avenali event, you said something like this: 'Dogs are not naturally good; they do have the capacity for moral failing, even with no language.' Could you talk about what such moral failing would look like, and what notion of morality one would use to see it?

Donna: Yes, well, I wonder if I would say that the same way. The first part of that is that dogs are not naturally good. There are a lot of people who talk about dogs, or anybody who doesn't have language – including mentally retarded human beings who don't have good language, or whatever – as if the absence of language produces this kind of natural goodness. Because it precludes intentional evil. That language is necessary for intentionality, and

that intentionality is necessary for moral judgement. Right? That's the chain of reasoning, and I understand that. I get why that's a worthwhile thing to say, but it gets something wrong.

First of all, our language is not necessary to intentionality. There are other modalities for ends-directed behaviour that are under the control of the agent, and anybody who has done any biology knows that. Aristotle knew that. Not all meaning-making apparatuses are linguistic. We end up describing them overwhelmingly through linguistic means or gauging them through linguistic means, but also visual means and tactile means. We engage in a lot of ways, and we tend to tie language to most of them, but not all the time. So even at the level of intentionality, it is not all linguistic.

If you are working with another partner who is a complicated opportunistic social mammal like a dog or a cat, unlike an amoeba (*laughing*), you are working with nervous systems that are more like yours than not, and with social worlds that bear no small resemblance to ours; beings who really care about social position and authority, and who is getting affection, and beings who know all of that stuff, thank you. And they do it without language. You are in a universe of consequences of working with other social partners in order to shape the consequences your way rather than theirs, or collaboratively. Turns out a lot of biological actions, social actions, turn out to be pretty collaborative, but some of it is very competitive. It turns out to be quite a picture out there. And I am not working with animals in general, I am working with particular kinds of animals and particular individuals within those kinds who are doing a lot of their own stuff in this relationship, including manipulating me.

Whether you call any of this good and evil in the human sense . . . it probably gets in the way to call it, to worry about good and evil. So maybe it gets in the way to say it is about morality, exactly. But if it's morality with a small 'm', for us and them, being kind of a staying with the job, a kind of bravery, a kind of undergoing certain kinds of difficulty in order to get something together and taking pleasure in it. The dog is doing all that.

Joseph: Can you think of an instance in which Cayenne – even with this small 'm' moral – did something that might be called a moral failing ? Can you think of an example of that?

Donna: Well, it's a fine line. So ... Cayenne and I are working together and she will lose focus. She will start paying attention to her stuff, independent of what we are doing together. She will disappear mentally. Okay? Now, I can explain that in a zillion ways in every case. She didn't really understand what I wanted and I stressed her out. The self-rewarding quality of going after those smells is so much greater than what I was offering her. The rewards were greater over there. She just did a pleasure calculus. You can see how these same things work with people too, all of which are perfectly legitimate inquiries. I hadn't trained that. I didn't know how to train that. No wonder she wouldn't cooperate with me in doing that. You know. We go through a course and I'd miscue her and she will usually spin and bark at me out of frustration. I failed her. She tells me about it. She is frustrated because she knows I miscued her. Now as we work she will calm down much faster and get back to the job. We've learned to trust each other. Even when we make a mistake we trust each other again much faster. Now, I don't know if this is about moral behaviour or not, but it is awfully close. And we *both* have to learn to pay attention.

Joseph: In your dog writing you talk about the notion of rights. When you and Cayenne work and train together, what are her 'rights'?

Donna: Cayenne has a right to my working hard to become a better handler because she is so potentially good. But the right is inherent in the relationship. It is not a right that pre-exists in the dog. It's critical. Usually people think of rights as something people or other beings *have*. And I think that misstates the case in ways that ... say, Judy Butler is particularly good at talking about. When she talks about contingent foundations [Butler, 1992].

In the animal or in the dog world, Vicki Hearne was particularly good at talking about rights as emergent from relationships. Banish the relationship and the right disappears. The rights of meat-producing animals, I believe, are an emergent from the relationship of meat eating. (*Laughing*) Seriously. And if the consequence at the end of the day is societies deciding not to eat them any more, that would have emerged out of meat eating and not from a pre-existing right in the animal. And the jury is still out on all of this stuff. A lot

of people have made up their minds and a lot of people haven't, and people are changing their minds every day.

It's similar with dogs as pets. Pet relationship is perfectly honourable in and of itself. It doesn't have to be anything other than that. But pet relationship brings with it certain rights that the members of the pet relationship have in each other. And they include, I think, the human end of the relationship trying to learn something about who they are. A lot of people enter into pet relationships out of nothing but need and projection. And that is a perfectly reasonable way to start any relationship, you know, whatever (*laughing*), nothing wrong with that. On the other hand, if it stays there, rights have been violated because I think that the rights are emergent out of a relationship, and a pet person needs to know something about who the other partner is in relationship.

Joseph: The notion that rights inhere in the human being, or the being, or in the abstract is pervasive. But we don't live in the abstract.

Donna: And that's not how rights emerged to start with either. That's why rights can be new and still be real. (*Laughing*) Just because they're new doesn't mean they don't oblige. And rights might not be the right word for talking about any of this, because of the way that rights are generally understood to be something quite other than this, something that somebody *has*, and that you uncover them and discover them.

Joseph: Yes, and then I come back to thinking, is 'rights' the right word, is 'morality' the right word to talk about these things?

Donna: It is so overwhelmingly humanist. And I think any of the important words you find, you can't rule out, so you are going to have to use them, but they're always pulling us over to a humanistic discourse. We have got a lot of things wrong with that language. So, you know, people have a pet. At one point when I gave some of the livestock guardian dog and herder stories in a lecture at Irvine, this great question came up. A person raised his hand at the end and said, 'Well, this is all well and good for these kinds or dogs, but all I have is a mutt and there is no history there, so you know, I don't see how any of this applies.' (*Laughing*)

But there you obviously are in the middle of the shelter movement, the whole apparatus of rescue and shelter, and you're in the

midst of the whole distinction between purebred and mongrel, so you're in the middle of eugenic discourse but you're positioned differently in it. Then there are people who feel that they have the old dogs. They have the Dingos, or the New Guinea singing dogs, or the original village dog, the Basenji, the whatever; there are discourses around the 'these aren't the dogs that have been messed up by being either mutts or invented.' These aren't invented by the ruling class, or, you know, these aren't the spit-turning dogs of the working class, or whatever; these are the *essence* of dog. Which of course then depends on your theory of evolution. Is that a wolf? Is that a Dingo-like dog? Is that a what?

So no matter where you enter this world, you are in the middle of commitments to certain kinds of historical stories, certain kinds of evolutionary stories, including the now moral obligation – it's also an epistemological obligation – to find out, really, that some stories are better than others. So maybe not everybody regards this as a moral obligation, but it is for me. It matters whether the evolutionary story of domestic dogs would lead one more toward a wolf model of contemporary dog behaviour or an opportunistic scavenger ancestor. It's going to have a lot of consequences. And those questions are approachable through ordinary apparatuses of evolutionary inquiry. So there are epistemological obligations here.

Joseph: Epistemological obligations reminds me, I think back to the partial perspectives essay – it continues to be an incredible essay – because you take up all that weighty stuff, that whole weighty mechanism of epistemology and then you say, well, some stories are better than others, but not in the narrow way that usually is meant.

Donna And of course there are questions of the goodness of evidence, and the account of evidence. A lot of science studies people have clarified thinking about that, people like Adele Clarke, Leigh Star, and many others, you know, clarifying the idea that you can't care about evidence, about the goodness of facts, is nuts. Any relationship that you take seriously brings with it at least in some measure an obligation to know more than you did at the start, if you are going to do that relationship well and if you are going to do less violence.

Joseph: Your example of *Mixotricha paradoxa* (see pp. 16–17) is such a great example of taking relationality seriously and materially, but I imagine for some social scientists it might be, 'What's all this biology?!'

Donna: And that's relationality at the level of the molecules! And so, far from feeling threatened by feeling the organism in all this, it just feels so obvious. Why would any one be upset about it? It is extremely interesting, and it enriches the story. It doesn't exclude any story. It doesn't exclude any other mode of knowing, mode of attention. Nor is it necessary that they are isomorphic, either. They don't finally all reduce to each other; they are out of phase to each other. *They do different things*. So that a story of relationality told about chemical bonding or the plurality that is a *Mixotricha paradoxa* kind of undecidability of number that is this organism, all those things ... they don't *determine* anything. They don't give you a biologically determinist angle nor are they reductionist. They are, and again this is my commitment to essentially process philosophies of various kinds, they give us ways to think about emergence.

Joseph: There is this whole tradition in sociology that gives so much importance to emergence and relationality in human society and relationships, yet you're speaking about it with authority in these words from this other place.

Donna: From elsewhere.

Joseph: And sociologists might say, well, we already know that. She's just saying what we know.

Donna: And I think that's true. (*Laughing*)

Joseph: In the Avenali Lecture when you were talking about the companion species project, I think you said you were 'looking for an alternative to the notion of post-humanism as a way to talk about the most recent, in a long list, of wounds to the ontological status of humans'. Is that sort of right?

Donna: Yes. That was in response to that little piece of Derrida's, translated in Cary Wolfe's [2003] *Zoontologies*. He rehearses the three wounds to narcissism, to human self-centredness: the Copernican, the Darwinian, and then the Freudian – decentred sense of consciousness, and to which I added a fourth, that would be associated with the issues of digital, the synthetic. I then talked about

the multiple ways that Derrida and others are right about the decentring of the premises of humanism, of every imaginable premise for humanism, whether it's language or consciousness or a particular relationship to the deity, or a particular relationship to humans as *Homo faber*, and everything else. All of which, nonetheless, continues to locate the issue in a category of humanity that somehow doesn't come in, even as it is being questioned, and turned into posts- and erasures and so on and so forth.

It's as if the question is still about 'the human', as if that is what is under question, and categories like 'the animal' are used in juxtaposition in these inquiries. But 'the animal' is every bit as much a humanist abstraction, a universal, an empty, a misplaced concreteness issue, but it's worse than that. It's stripped of all particularity and reality and most of all, from my point of view, stripped of relationality, so that the companion species framework or figure or family of figures – which include figurations like cyborg and its kin, but those aren't the ones I'm particularly interested in here – the companion species framework foregrounds the commitment to relationality as the smallest possible unit of a being, but also of attention.

It comes up in knowledge-making practices such that the inquiry is always about how the participants in relationship are constituted by the relating and don't pre-exist it. Co-constitution goes all the way down. It's through relating, but relating never starts from a *tabula rasa*; it's turtles all the way down. So to say that the actors are constituted by the relating and don't pre-exist it is not to say nobody enters into the relating, because there are turtles all the way down: structures supporting any relating that is happening now, or that you are attending to now, and so I think of companion species as a promising figuration, family of figurations, for not doing yet another humanist move or anti-humanist move or post-humanist move, but insisting in the very word itself that the question is about the relationality through which actors are produced in that way rather than some other.

One of the things that comes out of that is that humanity, not just human beings as zoological subjects or as empirical subjects, but *humanity* as a philosophical, sociological, ethical category, or human rights or whatever, all are indeed relational emergents and

not irrealities, but they get mistaken for what pre-existed the relating; as prior and foundational. And it's that *a priorism* and foundationalism that I think companion species is good for resisting, without, for one minute, letting go of the consequential materialism [see Haraway, 1991b].

Joseph: One of the things I think about when I think of relativism is not necessarily that whole philosophical debate but rather of relating.

Donna: Yes, and I think relationalism and relativism are very different [see Bartsch *et al.*, 2001]. And, obviously, relativism is one of those words that can mean six million things. Any philosopher would insist on much more care than I ever take with which relativism we are talking about here, and that is all perfectly correct, but that kind of relativism that gives up on either individual people or collectives making demands of each other rooted in . . .

Joseph: Time and place, as it were?

Donna: Well, there are several aspects of some kind of a relational realism that I am really committed to. Among them are being not just able to but *required* to make moral and political judgements, ones that really matter. To actually make claims on the world and on each other. Rooted in the world, best we know it, best we live it. That refuses moral relativism even while insisting on relationalism, contingency, a lot of things that relativism insists on, but without the bottom line of relativism, which is finally, I think a kind of agnosticism and/or scepticism, neither of which, I think, is compatible with being in the world. It's anti-worldly.

It's because of my constantly trying to do these things without various kinds of transcendence, either *a priori* or *a posteriori* transcendent moves, either foundationalism or, you know, some kind of natural law theory, that finds its fulfilment. At the same time I am obviously pirating from these traditions, right, left and centre. And trying to do it in a way that is brought back to these contingent verbal – in the sense of verb – these knots of relating that are always fleshly in some way and won't let go of materialism, in many forms. I think that what I do or what I'm trying to do, is really a kind of mass piracy, so that the different kinds of cultural and philosophical and analytical and experiential traditions that I

have had, that I know about, had access to in one way or another; every single one of them seems to be true in some important way, even the ones I hate the most.

The mass piracy is making an effort somehow to hold on to what I have found true, or whatever one thinks that true means, what has seemed to me right in some deep way, some way that commands my assent or my respect. I want to hold on to them all, and I can't do that and remain rigorously consistent. So then rigorous consistency comes to be something I'm not all that finally interested in. I want, somehow, to find a way, and the only ways I know are through figuration and narrative and performance and joking and various kinds of ways of showing, doing, performing, laughing at impossible connections. Because the connections seem to be necessary and true and I can't get to them through systematic and consistent methods.

Joseph: And I take it that would be something that you would say is at the heart of the kind of feminism you encourage.

Donna: I think it is, yes. It feels like something I have learned in a large measure from feminism, but not only. I think we also learn it in tremendous measure from the particular historical configuration of globalism. In some sense we know too little and in another sense we know too much. We know too much about how incredibly various the world is to believe in our systems any more.

Joseph: I want to ask about something you allude to in *The Haraway Reader* interviews when you talk about the way that feminist science studies people, you and others, sometimes get located at the margins of science studies. But you also say it is not quite right to say that you're at the margins either. The way in which your work, for instance, sometimes gets ignored or is responded to as not canonical. I think of how you use figuration, narrative, performance, joking so as not to be . . .

Donna: So as to hold on to contradiction, basically, and heterogeneity.

Joseph: So is that part of the way you understand the kind of treatments, the reaction and characterization, or lack of being taken seriously, that you have occasionally seen?

Donna: Yes, I think that some folks look at what I write and say, 'incoherent. There is no argument here. There is no bottom line.'

And often I think that's actually not true in the sense that if I were teaching a class and teaching someone else's writing and the person made that remark I would say go home and read again. The thing's full of arguments and arguments that are brought through in fairly conventional ways, and what you are actually responding to is that the structure of the thing *as a whole* is insisting that none of these arguments finally dominates the whole.[7]

Joseph: Which is one of the requirements.

Donna: That's right. My writing and also lectures finally don't come to a whole. It's ironically a kind of anti-holism, for someone who wants everything. (*Laughing*) It is a connectionism. I am constantly working for ways of connecting that don't resolve into wholes.

Joseph: It may be that one reason some have said little about what you write is because of that very thing. You don't set out to make wholes, which of course are the targets of all deconstruction. You say well, it's here, and it's there, and I don't mean that you do that in order not to 'be got' – either deconstructed or understood – as it were.

Donna: No, but it's my mode of consciousness, if you will. And it is hard to engage, but I also think that folks are on the lazy side in terms of engaging it and that some of it is pretty straightforward. But the end–means relations are confusing to folks, and I also think the multiple literacy issues are confusing.

Joseph: There is that jokey exchange in *How Like a Leaf* about you being vaudevillian in performance, when you talk about people getting you in performance and *then* being able to look more productively at the published text. Of course, in performance the humour is so available and easy. And there's that conjunction of the humour and a deadly seriousness.

Donna: Yes. I think that of Nietzsche as a stylist whom I love; very different from me, but also someone very instructive, as a quality of wit. Very different from mine. Mine is much more comedic than Nietzsche's ever was. But that particular kind of irony in Nietzsche, that particular kind of wit, is absolutely at the heart of what he is doing. It is not a vehicle, and I think that the same thing is pretty much true for me: the humour is not a vehicle.[8] It is actually a way of being in the world that is very much part of the whole point, and it is not exactly funny, though sometimes it is; it is almost

always about unexpected juxtaposition, as a kind of shock or something I didn't know before.

Joseph: Traditional science writing discourages the presence of the scientist in the text, but you are relentlessly present in yours. I could imagine scientists thinking as they read you, well, *that* couldn't be relevant.

Donna: 'It's merely subjective. It is interesting, but it's not mine.' You know, I was talking to Vicki, the marine zoologist I mentioned yesterday, about this issue, and her thinking about the way that scientists these days, at least the people she knows – and again, she's editing this journal – are much more present in their writing than they used to be. They regard it at least as a worthwhile effort to figure out what *kind* of presence they have in their work and it's not particularly personal. But a lot of mine is not particularly personal either; the presence of the 'you' is not some kind of authentic you that is there, but it is a situated kind of presence in the work, that is also itself under question, under a kind of a Derridean examination, deconstruction. So it's not like 'I' as a pretty clear entity.

What kind of mode of presence would the scientist as knower, as part of the configuration of knowledge making, rhetorically produce? Some kinds would be completely wrong-headed, and it would be completely wrong-headed to produce a kind of presence that had all the trappings of conventional subjectivity. But on the other hand, it might be extremely worthwhile to make rhetorically visible the kind of presence that's about what it is that enables this knowledge project to exist in the first place.

But I don't mean just naming the donors. I mean the whole configuration of equipment and organisms and landscapes and institutions. How ought that to be present rhetorically for a reader in such a way as to be part of the evidential structure in the argument, as to be part of the knowledge – not adjectives, conditioning that modifies the knowledge – but what sort of presence, and how do you make that rhetorical presence? Could scientists consider what kind of writing would make this sort of knowledge making rhetorically accessible to readers, including other scientists, but not only?

If you think of the history of the scientific paper, those sets of rhetorical conventions that produce the effect of objectivity in the

text, the division of methods and equipment from data, from discussion of data, the conventional toning down of metaphoric language, the effort to use only dead metaphors that no longer stir up associations, the deliberate kinds of forgetting language, a language that forgets itself, so that the language appears to not even be there, and somehow at the end of the day you can dispense with the language and have the results. All of those rhetorical conventions, understood as rhetoric, produce a kind of presence for the author, mainly the presence of the immodest witness, the presence of the witness who need not account for himself, structurally masculine, and so forth. So it is not that the author isn't present, but that it is a particular *kind* of presence. (*Laughing and letting dogs outside; their barking and running*) Cayenne gets in Roland's face and drives the boy nuts. It's a wonder that he hasn't killed her, seven times over.

Joseph: Do they just roam at will?

Donna: It's fenced [*the yard*]. We wouldn't let them roam. It's not safe, to wildlife or to them.

Joseph: I want to go on with the writing thing because in a couple of our email exchanges you said how much you have enjoyed the companion species writing. I wonder if you could talk a little about how that feels and why you think it so enjoyable.

Donna: Yeah, I think I can, actually. Part of it is that it's short pieces. And there is a different kind of pleasure in the short piece, and much of the writing that I do has the form of a short journal entry. I think I have sent you my 'Notes of a Sports Writer's Daughter'. It's just a sprawling piece.

Joseph: Yeah, I like that a lot. I have the sense that must have been fun to do and collect.

Donna: Each one of those little pieces didn't begin as official writing. It began as a note to a friend, and it turns out I spent a lot of time on most of those little pieces because they are very short. I was really aiming for a kind of vividness and a kind of reportage and also a kind of Aesop's Fable aspect to a lot of it, so that each one of those little pieces, with 'nothing but the facts', is also a story that has multiple meanings. I am enjoying the form and the wordplay.

I'm liking the humour of it, and then it also is a kind of writing that is profoundly emotional. I am trying to get a kind of precision

about the emotional contact that I am feeling with these other organisms. Particularly with one named one, you know, but it isn't just her, it isn't just Cayenne, although she is the principal partner in this. I'm feeling the writing as a way of bringing out and making explicit a certain bonding, a certain practice of affection, a practice of love.

Also, this is strictly a question of the security of having a good job and being a little bit older, and having done a lot of writing already. I don't have to publish anything. It is really okay if I don't get any more merit increases. (*Laughing*) I really don't have to do it, and that's an incredible release, compared to all of the pressure to publish in our profession. I have always enjoyed writing, truth be known, but more as time has gone on because I am more free from writing's punishment systems.

Joseph: So, what does The Birth of the Kennel project look like in terms of the 'big book' that you have alluded to?

Donna: I think the book is a triptych. Or, it may be in four parts. The first part will be a redoing of *The Companion Species Manifesto*. That piece of the triptych develops the whole conception of companion speciesism and also develops the question of different scales at which history has to be taken on – in the molecular, evolutionary, personal, and then the conventional, historical – in the sense of decades if you will. I'm sure I'll keep using the Australian Shepherds and the Great Pyrenees as the examples of all of this, and there are some more pieces of the puzzle I'll write there. The second piece of the triptych will be the 'Notes of a Sports Writer's Daughter', which in part is going to be about inhabiting a group of people, mostly middle-aged and older, who are taking on something new at this time in their lives when they are no longer physically at their most able. I am interested in the relationship to skill and physical achievement and competition in this group of people. It's one of the dimensions that interests me a lot, because I am watching people deal with mortality and limitation and injury and competitiveness and all of those things at this particular time in their lives, and with a partner who is not human, and who is almost always in better physical shape than they are. (*Laughing*) There are lots of other pieces of the 'Notes of a Sports Writer's Daughter' part, but that's going to be one big piece of it. The third

part of the triptych is going to be the health and genetics dimension. It will be the more conventionally technoscience studies section.

Some of the research I need to take that on – undone at this moment – is going to be in the University of California-Davis Small Animal Clinic. I want to do a lot of interviews and a lot of archival and other work, as well as some participant observation work in the Small Animal Clinic around behavioural medicine. Since Davis, Penn, and a couple other places are key to the emergence of the companion animal practice, including the therapy animal universe, way beyond the seeing-eye dog, I want to tell the story of the UC-Davis clinic and the people who are in it. UC-Davis is nearby. Besides, it's on the agility circuit. A lot of the agility games are played near Davis, so I can kill many birds with one stone. (*Laughing*) So I will do the story of the vet, the veterinary school and the land grant university and the emergence of companion animal practice, especially around behavioural medicine.

Another piece of the health and genetics story will be, I think, organized around C. A. Sharp. These are the so-called lay people, the interface between the knowledgeable medical and scientific people in the dog world, their interface with the professionals, including the veterinarians and also the university researchers, and the spin-off biotech companies.

Joseph: That will be a great chance to talk about the connections between the professionals and the so-called lay people who are activists and whose knowledge is actually quite remarkable, which I think is something that easily gets erased in so much conventional knowledge about knowledge projects, about science.

Donna: In this particular little world it's relatively harder to erase, in part because of the economics of research in the area, where the breed-club-raised money is sometimes rather important. It's not unlike the kind of worlds that Deborah Heath and Karen-Sue Taussig and Rayna Rapp and others have been studying in terms of human genetics and biosocialities, in Paul Rabinow's terms. There are parallels to that in the dog world; the kinds of biosociality around dog genetic disease issues are very similar. But there are also some really interesting differences. I will be relying intensely on the work of the folks who have been studying

the human biosocialities, and I will take it into the dog world for the interesting differences.

So, that's the book. It goes from intensely personal, face-to-face contexts – sports, training issues, the relationship with my godchild and his family, and that kind of thing – to the technoscience context in the way it's normally understood, both the activist and the credentialled professional ends. *The Companion Species Manifesto* is a philosophical reflection on all of this. Historical and philosophical. It is the one that proposes the figurations that will take me through the whole book. And so two years from now I will probably have this done, or three years from now.

Joseph In the Avenali Lecture you said as an aside that you were 'raised by scientists'. You didn't say not by wolves, but I wondered what point you were making when you said that.

Donna: One thing, I was looking at the audience. You know, noticing who, by and large wasn't there. A lot of my emphasis is the fruit of the science wars. I'm not going to let people forget our organic relations with the sciences again. I'm not going to be, me and my buddies, we are not going to be as vulnerable again. Because every single one of us is either conventionally credentialled at a higher degree level and/or very conversant with ongoing work, including long-term enduring collaborations with natural scientists around parts of our projects, and so on. I think we were pretty naive and careless in not insisting that that continue to be socially noticed. We became vulnerable to the cheap attacks, as if we were people denying 'reality' in some ways. I felt both the cheapness of the attacks and the success of the attacks, as well as the degree to which they came from within, in a sense, from within the broad left concern with science and technology issues. Never again.

Part of my approach in the new work is directly the result of having experienced the science wars and being labelled as an anti-science person. In no way. Part of my approach also is reminding my humanities and social science friends not to be afraid of the big bad wolf. We are afraid of the wrong things. The notion that somehow sociologists have to fear biological reductionism or something like that is a misstated danger. It would be much more effective for the sociologists and cultural studies people who are concerned about this matter to dive into the evolutionary psychology or the

whatever, for what it has to say that is interesting. Take it on board. The defensive stance is a guaranteed loser. That kind of assumption of authority in the world, the taking for granted that we have the right to universal curiosity, and all the rest of it, and then critique conducted from *that* mind set is much more powerful.

Joseph: In *Modest Witness*, one of the things that I was so taken by, because it helped me so much, is your metaphor of diffraction. Could you say some things about how you see your work since then as 'diffractive'?

Donna: Yes. It's actually a way of restating where we started this morning. I am talking about the particular interest and respect that I have for well-designed field experiments, in the study of a baboon troupe in a particular ecological setting, for example. That way of knowing intersects with the skills of reading a novel. Those two sets of skills – reading the experiment and the novel – condition the way each gets read so that I can't approach a grant proposal, a scientific paper in primatology – or these days in dog studies, which turns out to be a growing field – without carrying with it the ways that I know how to read a poem, a short story, a novel, a museum display or a painting.

Those different reading skills interact diffractively. I know the difference between one set of skills and another, but they constantly interrupt each other productively. They produce jokes, so that what appears to be straightforward gets bent in interesting ways. It's like reading science fiction, in the sense that statements that mean one thing within one framework, but read in the universe the science fiction story has created, mean something very different. The classic example that Samuel Delaney used was the phrase 'her world exploded'. In ordinary literature that generally means a psychological crisis. In a science fiction novel it probably means the world exploded. (*Laughing*) Right? Probably not a psychological crisis at all, and that's an example of diffractive reading; the two ways of reading make you laugh when they are juxtaposed, and then you read each differently because you read the other.

I think that's what multiple literacy is about, because everybody in the world ends up with many kinds of literacies, and as you foreground them to yourself, to each other, they interact diffractively. And in diffraction, light patterns can reinforce each other, so you

get a really intense dot on the recording papers. Diffracted waves can reinforce or not. These diffractive readings don't always interfere in the technical sense, but the interference can be in the form of reinforcement, not just interrupting.

Joseph: I think that the phrase 'make a difference in the world', which you discuss in *Modest Witness*, is so seductive, particularly for people of a certain age and certain political background because it is very easy to read it as the semi-sovereign subject making a difference in the world.

Donna: 'I will make a difference in the world!' 'We will ...' Well, it *does* mean that too. And that is another example of diffractive interaction, I think. That, as an emergent reality, people matter, not in some kind of ultimate sense, but I remain committed to the proposition that the folks who intelligently organize and think through and live through and attempt to change things for the better, best they see it, in the schools and the parties and the environmental movement and fisheries struggle, that making a difference in that very ordinary sense, (a) is possible and (b) is a good thing. It is an emergent possibility of ways of being in the world – certain kinds of action and actors are emergent realities. Our mistake is thinking of all of these things in capital letters. Patterns interrupt each other and end up producing some kind of effect of that interaction different from what anybody imagined or intended.

Joseph: That's helpful. Now, could you do 'non-innocence' one more time?

Donna: It means a lot of things to me. Part of it is a reminder out of my own little Catholic girlhood, consumed by problems of guilt and all the usual stuff. (*Laughing*) All the usual stuff – that drive to purity, including sexual purity since everything to do with sexuality was supposed to be a mortal sin practically. But mainly that extraordinary over-preoccupation with being in the right, particularly for those of us who were goody-goody kids to the point of neglecting what's important in the world, to the real neglect of jumping in, doing the best you can because jumping in and doing the best you can is inevitably going to involve you in not just mistakes but even evil. (*Laughing*) You know, you will discover things about yourself that you wish you didn't know – your sadistic self,

your whatever self, right? The lust to stay pure is finally a manifestation of Thanatos; it's a death urge. It's a stasis. It is a disengagement from the relentless lack of control that we all have. The need for innocence or purity is the drive to control, to a kind of transcendent containment, and it's deadly. So that's one meaning of purity. And that kind of jumping in and doing the best you can is one meaning of non-innocence.

Another meaning is, for example, in the current dog work ... well, if one owns a so-called pure-bred dog or engages in any kind of serious way in the pure-bred dog world, you are in the midst of eugenic discourse. Period. There is no way not to be. And so then, how are you going to relate to it? Are you going to be the old scolding self, you know, and point out yet again in how many ways eugenics was racist or classist or whatever ist? You can do that from now until the cows come home and you will be right, but you won't learn anything interesting about the way eugenics discourse works in dog land. You won't learn anything that you don't already know.

However, if you start listening to the people who are doing the dog breeding, you start watching what they actually do, you start noticing which struggles they have, and what language they have to take things seriously and what languages they don't, things start getting interesting. You'll start noticing that a line that a breeder uses doesn't mean what the 'population' means to a biologist, even when you think they ought to. The consequences for actions depend on which categories folks inhabit. We need a diffractive attention.

Eugenics in dog land is deeply related to eugenics in human land – including the same calendar, growing out of the same improving social movements in nineteenth-century Western societies, and the same progressivism. Nonetheless, you start noticing how oddly different the dog discourse is; you start noticing how it's *not* the same, and in some ways worse and in some ways better. You can't get any of that unless you start inhabiting the dirty category diffractively.

It's similar with 'dominance'. I will avoid the word 'dominance' most of the time, and instead use 'authority' or 'social position' or, 'my dog is really interested in social authority and tends to work on

a zero-sum game premise' (*laughing*), and so on. I'll try to use several languages, but keep it all kind of in play. Nonetheless, all of it is an effort to come to terms with the fact of profound inequality in these relationships that I am engaging in, and the realities of control and instrumentalism. You can't train with a dog in a sport without recognizing that you are using the dog instrumentally for your ends. If I didn't acknowledge that and acknowledge that I am training for obedience in a number of areas, training for spontaneity in others, and you know, if you lie to yourself about that stuff you will probably damage the dog, maybe to death; you might kill the dog. You won't be any good at your sport. You will fail in all the ways; you won't achieve anything good. The only possible way of achieving anything good, of telling the truth in these areas, is to come to terms with stuff I would rather not name.

One of the reasons I find myself repelled by a lot of animal rights discourse is because I find it involved, a lot of the time, in purity moves. Animal rights speakers recognize that a training relationship between a human and dog is a relationship of power and is unequal, even though the dog makes demands too. Nonetheless, in a training relationship with a dog, the human being is calling the shots or they are not any good at what they are doing. Animal rights discourse tends to recognize that and name it as a violation, so that the only possible solution is the abolition of the relationship. I think that is the wrong answer.

I think that any relationship of seriousness including parenting, loving, political work, labour, would involve having to face these issues of unequal skill and unequal power and unequal everything. And trying to figure out what languages to do it in that are somehow conducive to a kind of flourishing that wasn't there before. All flourishing involves recognizing that someone in that system is not flourishing at all. There is an area that you have excluded; you have drawn boundaries in such a way as not to notice those who aren't included in – the constitutive outsider in Judith Butler's terms – that makes your little inside possible. I think any honest, serious relationship involves facing up to all that, and that's what I mean by non-innocence.

Joseph: And as you allude to Butler's notion, I think of Leigh Star's question, 'Who benefits?'

Donna: Yes, exactly. *Cui bono?* And she means that. And that means it isn't everybody.

Joseph: In terms of the current political situation in the United States and the present George W. Bush administration, it's sometimes difficult to be hopeful, which is not to say one can't find hope in other places.

Donna: Well, yes. In many ways it feels like pretty comprehensive defeat. But, I mentioned the friend that I ran into in the grocery store, the Dean organizer, and her toying with the paranoid fantasies. I said, wait a minute, bad as it is, nonetheless, to say that everything is worse than it ever has been in America just isn't true. Anyone who has lived through the '50s can tell you something about paranoid security apparatuses and repressive apparatuses and war scares and war realities; and she said no, no, no, it's much worse than it was in the '50s. I said tell that to a homosexual who lived during that time. It just isn't true. The anti-communist paranoia. Tell me the number of black women who could find jobs in the '50s outside domestic service. Even Condoleezza Rice. It just isn't the same. We need to compare historical differences diffractively, not teleologically. I find hope in the continuity and complexity of the trouble as opposed to the discourse that everything is radically new or worse.

Joseph: That makes some sense actually.

Donna: Continuously bad, that's ground for hope? (*Laughing*) But not the same, and there have been enduring improvements, as well as newly awful stuff. And in the face of a planet that's got well over 6 billion people now, which throws me back into biology, the carrying capacity of this planet probably isn't that. And I don't care how many times you talk about the regressive nature of anti-natalist ideologies and population control ideologies. All true, but without serious population reduction we aren't going to make it as a species, and neither are thousands or millions of other species going to make it. So you can hate the Chinese for the one-child policy and also think they are right. (*Laughing*) And furthermore, the degree of coercion in the Chinese one-child policy, which surely needs to be moderated in a zillion ways, is probably less than the degree of coercion in the American penal system, for less serious infractions. Having too many kids is

probably a more serious social infraction than stealing out of a 7-Eleven store or doing a drug deal. The social violence of the drug deal is surely less than having too many kids.

Joseph: OK. Ending with a couple of questions. I wanted to ask you about psychoanalysis, psychoanalytic criticism. You have written that the Oedipal story needs to be rested for a while or for longer than a while and that new stories need to come forward, but at the same time there are places in your writing where you say I have learned some things from . . .

Donna: Lots of things . . . and more than 'things'. The fundamental *thing* is caught up in Derrida's lists of the wounds to primary narcissism, you know. The fundamental *thing* that psychoanalysis has given critical work is the unconscious. Whether you call it that or not, it is the radical limitation of rational processes for getting at what's happening in the constitution of beings in the world, including subjects, but not only.

Trying to understand how those processes work, feminist theorists in the psychoanalytic tradition, Teresa de Lauretis being a superb example, have enriched our ability to get at what's going on, for example in visual apprehension, the organization of the affections, and on and on. I have in fact a rather deep respect for psychoanalytic work, including the working of pretty straight Freudian material, *by the close readers*. The close readers of Freud are not necessarily Freudian; they are working a literary text, really. They are working as semioticians, as people who read these amazing writers with creative skill. Anyway, that kind of psychoanalytic work seems to me to have enriched our collective critical tool kits fundamentally, and I am not 'agin it', far from it. But I also don't know how to do it. I don't read those materials, except as a tourist. I read a case study or two, but I don't have a corpus. With all meanings of corpus intended. (*Laughing*)

Still, I want a bigger family of stories; so it isn't just that I don't do it, it's that I do something else. I'm serious about figurations for psychoanalytic work that take seriously kinds of organization and kinds of monstrosity that work otherwise from the Oedipal. I'm serious about wanting a bigger family of stories for us humans, but also for our relationalities with everybody else.

Joseph: All right, the last question. This is about social constructionist argument. Both you and Latour in different moments in your writing embrace or appreciate social construction, and then more recently you both talk about what might be called a too-facile social constructionism.

Donna: It gets to be orthodox.

Joseph: So, could you talk about what that is and what that leaves out?

Donna: Well, you know the way Adele Clarke and Teresa Montini and others have talked about foregrounding and backgrounding. Social constructionism got foregrounded; the volume got turned way up and it got developed in all kinds of creative ways. But then it becomes sclerotic. It becomes an orthodoxy. It becomes 'ANT' [Actor Network Theory]. It becomes an acronym. It loses its vitality and becomes an orthodoxy. Also, 'social' construction misleads people to think only of humans. First, Bruno drops the word social from the title in the re-issue of *Laboratory Life*. Right? So it's the construction of a scientific fact, not the social construction. And the constructionism . . . that kind of constructionism foregrounds non-human actors, who are, which are, engaged in the kind of sociality, but non-hominid kind. Constructionism starts being ontologically more heterogeneous. And then pretty soon the word constructionism gets in the way. So it is like turning up and down the volume on the different possibilities, because they become faddish. They get in the way. They aren't doing the work anymore [and see Latour, 2003].

Joseph: What you just said made me think of one more thing. On this epistemology/ontology thing, because you talk about worldliness and you talk about elsewhere and you talk about relationality and the project of the possibility of making new worlds . . .

Donna: . . . which is all of the science fictional rhetoric.

Joseph: Rheteoric, yes, but one that I assume you mean as a resource for us to think about living lives.

Donna: That's right, and it's also a way of naming without naming. I am committed to the nominalism in my work, the kind of refusal of the truth of names; as soon as you believe in a name you enact an idolatry. It's a theological position, if you will. And so this

way of constantly referring without referring, in order to take the reference seriously and not in order to have that kind of relativism that thinks you can never get to the referent. Of course we can never get to the referent, but not for that reason. As soon as you have turned the relational action of the word into a noun that you believe in, you have committed the mistake of misplaced concreteness. And in theological terms, it becomes an act of idolatry. You mistake the name for the world. And a lot of my language practice is an effort to say things without believing in the names.

Joseph: Which can be part of the problem of laziness for readers who are so schooled in believing in the names.

Donna: Or because language in scientific, including social scientific, genres, even the most qualitatively sympathetic, because the language is somehow supposed to disappear. I think you have to take the language seriously in order to not take it seriously. You can't make it disappear. That just means you've driven the trouble underground.

Chapter 6

Why Read Haraway? Recommendations

In this final brief chapter I answer a question that you might have asked – in your own fashion, of course – as you first came to this book: 'With all there is to read, why should I read Donna Haraway?' Just as I insisted in the opening pages that what you were about to read here could only be my version and vision of what Haraway offers, this too simple strategy of giving you a list of brief, even 'bulleted', points suggesting what you might take from turning to her published writing and even video records,[1] is surely neither exhaustive nor would it be constant across readers.

Consistent with how I began, you also would guess that it will not include what some might consider to be 'lacking' in Haraway's work. As noted, this does not mean all past readers have found her ideas, arguments, and writing to their liking or even useful in their own projects. And Haraway herself comments, in the interview that is Chapter 5, that some find her writing difficult or unsatisfying because it does not propose yet another 'new' set of closures to various debates in knowledge projects of one kind or another. It does not, she says – and quite intentionally so – resolve into theoretical or even narrative wholes; it does not aim to 'tie up' loose threads into a 'whole cloth' of orderliness either of feminism or science studies. And although there is hardly a chance of missing her own ethical and moral commitments, her work is ideologically heterodox. Haraway works hard and, I believe, successfully not to be a 'true believer' in any of the familiar and established '-isms' that define either the intellectual or public worlds in which she lives and moves.

Almost all of her analytic categories are leaky and messy and mobile in that, as she says, they so often are about 'both/and' rather than either/or or neither/nor/but *here*. It is easy to find

contradiction in Haraway because she forefronts it both as a productive way to think and imagine and because she insists that it is so easy to see in what she studies. She mixes things that are not usually mixed and asks for multiple and often diverse literacies in her readers.

That makes reading Haraway challenging, and one who comes new to her writing probably benefits from knowing that many readers find it so. A reading strategy that seeks certainty and 'clean edges' or 'clear lines' in category boundaries that produce homogeneity within and exclude many of the 'usual suspects' that 'cause trouble' in thinking for both the human and natural sciences – as well as in some feminist analyses – will be frustrated in its encounter with Haraway's texts. In worlds where the reduction of arguments and understandings to simplicity (which some call 'elegance') and/or quick readings congenial to 'rigorous' scientific realism and correspondence theories of truth are valued, Haraway is indeed very hard, as she herself might put it, to digest.

It should then not surprise that her ideas are received as 'out there'; 'about something else'; as 'not science', 'literary', 'hard to understand', 'political', and/or 'subjective' within such reading formations and/or discursive practices. Recall the very serious question from a cutting-edge thinker and academic colleague in animal studies that Haraway reports on in Chapter 5: 'Do you believe in reality?' As is obvious, I have not approached her work with those formations and so I have found much to take from my readings and thought about Haraway's ideas and arguments, including significantly expanded insight into what this 'reality' might be about (see Clough and Schneider, 2001; Schneider, 2002).

By way of summary and reiteration, then, here is a list of what most recommends that you invest the time and energy to read Haraway. One additional caveat: although this conceit of a list of points might be read to imply that the points exist as separate aims and arguments in Haraway's work, it would be a mistake to think that she offers them as such. They are entwined, being variously foregrounded and backgrounded at different periods and in different locations in the collection of her writing. What you might choose to do with any of these points is of course for you to decide, but one possibility is that by using certain of her 'ideas . . . to think

other ideas (with)' (Strathern, 1992: 10), you might embark on a much more complex and fascinating adventure than you could have imagined:

- Reading Haraway on science gives you rich and powerful resources for seeing the work of doing science and its objects and subjects in terms of material, highly consequential, and unmistakably interested storytelling practices. Haraway sees none of that as a criticism of science; she is not 'anti-science'; far from it, she often claims her love of science and of biology in particular. And she loves and respects stories rather than seeing them as non-serious or tangential to life and practices of all kinds, including technoscience. We live in and through stories, she might say, and they do and can make a difference. These commitments are apparent throughout her writings.
- In particular, Haraway underlines the ways that science is, at its heart and core, simultaneously 'society', which is to say that it cannot be thought of or studied as in any way separate from or other to the historical, local, particular, realworlds that it helps to constitute and that constitute it all at the same time (as though it were *an* 'it' – which of course 'it' is not!). In this she has chosen to foreground the ways that natural-social-human science is and has been central to the being – the 'is-ness,' the ontology – of nature and culture, sex and gender; to categories of race, class, and nation, especially in the Western Enlightenment histories of 'Man' and 'Civilization'. This is visible perhaps most clearly but not only in her work on primates discussed in Chapter 2 and in the review of her reading of the ways that sex/gender were 'at stake' in the origins of modern science, as noted in Chapter 4 and of course as discussed in the interview, Chapter 5.
- In Haraway's ways of seeing/writing/storying science and the worlds of naturecultures, one sees a radical connectivism that approaches worlds and their subjects/objects as congeries of linked material-semiotic entities, only some of which/whom are human or even alive. She often marks this quality with the phrase 'apparatuses of production'. Part of this is her sense of the profound articulatedness of subjects/objects/entities and

her preference for a 'politics of articulation' rather than a 'politics of representation' in the study of science practice. Developmental biologist and friend Scott Gilbert, in the Foreword to the reissue of her dissertation and 1976 book, *Crystals, Fabrics, and Fields*,[2] calls her philosophy, her way of seeing, epigenetic. Gilbert (2004: xi–xii) says this word is

> an embryological concept that celebrates interaction, change, emergence, and the reciprocal relationship between the whole and its component parts. Epigenesis states that the identity of any particular cell is not preordained, but that this particular fate arises through the interactions between the cell and its neighbors . . . Epigenesis tells us that 'being' is never anything except the processes of 'becoming.'

In this she challenges us to resist the almost intuitive fixing of subjects/objects of thought and action as separated and distinct, as fully constituted in terms of their familiar material-semiotic boundaries. Her claim that no-thing comes without its world should be read also to say that any-thing is always linked, connected to other entities and that to consider that thought-to-be-one thing decontextualized from that network of connections is to see it in very familiar but not very productive or promising ways for life in the global/local worlds of today and the future. This vision of connection is present in everything Haraway has written and was quite firmly in place when she completed her PhD studies in biology more than 30 years ago. In this we are challenged to see and imagine worlds that are considerably more permeable and characterized by flows and indistinction rather than by clear boundaries.

- A second part of Haraway's connectivism that opens thought is that it absolutely includes human being and subjectivity. That means, while not denying the particular wonder that *Homo sapiens* surely represents, her view of human subjectivity and physicality is that they are neither 'the whole show' of 'life on earth' nor that subjectivity is centred and whole inside the corporeal body/mind of a single human being. That, too, is dispersed. This dispersion can be seen in terms of the human as

only one of many nodes in networks made up of other humans and non-human living beings as well as inanimate and machinic entities. It also means that human subjectivity itself is not 'integrated' by 'reason' but rather can be understood to include quite disparate, shifting, and often contradictory parts. Humans share worlds with and are linked to many other entities, only some of whom are other humans. In fact, what is 'to count' as human is itself a question Haraway repeatedly examines in her work from the cyborg essay forward to the present work on companion species.

- A third part of Haraway's thought and vision is signalled by the word 'production', above. Her worlds – their subjects/objects and entitities – and the ways she sees them are profoundly processural. Thus, as noted by Gilbert, above, while all is linked, all also is, 'in the making' or unmaking or changing or is possible-to-change; in process. She often insists that we can benefit more from thinking of objects – usually marked by nouns in English – as verbs; as *being* done; as be-*ing*. We are repeatedly cautioned against reification of ideas, of mistaking the word (usually a noun) for the thing or things it (too easily and violently) collects up; or of 'reducing' complexity and dynamism to simplicity and stasis; of 'misplaced concreteness'; of idolatry. This view entwined with the dispersal and decentring of human subjectivity and its corresponding enlivening of the worlds studied requires a profound reworking of the popular notions of social construction so prevalent in the human sciences. There is indeed construction going on but it is neither all or mostly 'social' nor is it being directed by any 'centre', and certainly not by a 'consciousness' (cf. Hutchins, 2000; Taylor, 2001).
- Add to this networked or connectivist view Haraway's sense that capitalism, sexism, racism, colonialism, along with a whole range of considerably less troublesome but implicated sets of practices with long histories in Western modernity, such as technoscience itself, have contributed to the *implosion* of such networks and the stage is set for appreciating her strategy of analysis and inquiry. From the early work on primates to the recent work on dogs and companion species, Haraway practises a kind of material deconstruction in which she proceeds by

setting forth the ways that objects/subjects are locatable in such historically specific networks of connection and interdependence/interimplication that usually have not been seen as relevant to conventional practices of cultural and social analysis. This is not a disarticulation – which Haraway might see as in fact an attempted destruction and/or a not-seeing – but rather a specification of the details of that articulatedness – an opening up – and its implications for how we might understand the once-seen-as-essential, autonomous, and/or separate entities. She sometimes speaks of this practice as 'exploding' these imploded subjects/objects or 'taking' or 'following' them 'back' to their webbed and always material and 'sticky' historical connectedness.

- In reading Haraway you see that the aims of her analyses are not, finally, to tell a Truth about how things 'in fact' are put together or simple-to-deconstruct implosions, but rather, in seeing and showing the accomplished quality of the articulations in question she presents us with possibilities – always fed by imagination, metaphor, passion, and figuration, very often drawn from science fiction – for forging different ways of putting subject/objects/worlds together. Her conviction that one should study only what one loves and feels passionate about means that Haraway never stops with analysis but always leaves us with a sense that, to paraphrase, 'things might have been and could still be other than they are'. For her, this imagining and writing elsewheres are fuelled by the particular non-innocent, non-pure histories she has inherited and attempted to rework or as she puts it, 'inhabited' as 'too important' to discard due simply to their 'pollution', which is to say their implication in histories, events, practices that have been and remain quite at odds with all that she holds dear and important. This offers you, again, a messy and complicated sense of the political and ideological that does not resolve easily into favoured orthodoxies that you might bring to your reading, including commitments to Marxism, socialism, feminism, and, of course, liberalism, and capitalism.
- This entwined commitment to the possibility of elsewheres about things one loves contributes to a serious and deep

hopefulness in Haraway that can make her arguments about the fragmentation, partiality, locality, and contingency of knowledge and subjectivity – notions that in the context of Western thought can be read as disconcerting, if not frightening – feel much less threatening than alarmist and often dire claims about the dangers of 'postmodern posthuman' perspectives suggest. Indeed, it is precisely because Haraway sees the locatedness, contingency, and partiality of knowledge and subjectivity that she is hopeful about collective, partially shared, joint projects 'without guarantees' (no safety nets or *deus ex machina* to rescue 'us') that aim both to know and to live better lives with more flourishing for all living beings. In this insistence on love, passion, and hope, along with rigorous scholarship that takes the materiality of the world very seriously rather than resourcing it (Sofoulis, 1988) in service of, at the least, a 'theoretical framework' and that does not allow itself a cynical scepticism, reading Haraway introduces you to a way of doing intellectual work that is both uncommon, highly creative, and, in fact, at many points exciting if not thrilling.

In short, while reading Donna Haraway is neither easy nor fast – remember the requirements of multiple literacies – it offers you a great deal that you very likely have not encountered before, no matter where you have been reading. And along the way of this hard work, you are likely to occasionally laugh (and perhaps not only to yourself), for Haraway's delicious humour is as much present as are her passion and seriousness. Indeed, sometimes it is hard to imagine how these could be separated. While this little book easily could be twice its length, I hope you are able to see enough, both in Haraway's own words that I have here quoted and in my own, to convince you to take up and begin to shape your own version of *Donna Haraway: Live Theory*.

Notes

Chapter 1: Introduction

1. See Selinger (2003) as one example of this criticism of lack in Haraway's work.
2. When Haraway was a biology graduate student at Yale in the late 1960s and before she left for Hawaii, deconstruction was developing quite a following in literary studies there, but she knew nothing of this until much later in her career (Haraway, 2000a: 20–1).
3. For a lively, short, and appreciative reading of Haraway on genetically modified foods, see Myerson (2000).

Chapter 2: Science as Stories of Nature: The Case of Primatology

1. *Primate Visions* was indeed widely reviewed, with commentaries appearing in major urban newspapers in the United States and the United Kingdom and in popular as well as professional magazines and periodicals. I have a list of more than 60 reviews, which, quite aside from their content, underscores the book's importance. A sample of positive (the larger number and first) and negative reviews includes Fausto-Sterling (1990), Harding (1990), Heath (1990), Sperling (1989), Rossiter (1990), Scheich (1991), Scott (1991), Strathern (1991), Hubbard (1989), Marcus (1990), Masters (1990), Cartmill (1991), Jolly and Jolly (1990), Mitman (1991), Rodman (1990), Small (1990), and Stanford (1991).
2. Haraway comments in Gordon (1994: 248–9) on the sense in which 'cultural studies' can be seen as an 'intervention' into the (mostly denied) politics of academic 'science studies'. See Campbell (2004) for an argument that sees feminism as a similar intervention in/to science studies.

3. The chapter in *Primate Visions* on Robert Yerkes and subsequent comments are a prime example of this complexity in Haraway's writing about individual scientists (Haraway, 1989a: 59–83; 2000b).
4. Haraway (1989a: 9) notes the important role of Linnaeus, the Swedish 'father' of modern biological classification: 'He referred to himself as a second Adam, the "eye" of God, who could give true representations, true names, thus . . . restoring a purity of names lost by the first Adam's sin.' She also notes that those who had this power to bestow true names consistent with God's order of nature were those who became scientists.
5. As this chapter is being written, *The New York Times* (Collins, Glenn. 'Long live the elephants, long dead,' p. A25, 6/4/04) reports on a huge first restoration project for Akeley's dioramas and taxidermy specimens in African Hall. About the elephants that Haraway discusses in 'Teddy Bear Patriarchy', current museum president Ellen V. Fuller says: 'To generations of visitors, these elephants have conveyed the power and scale of the natural world in a very visceral way. It is essential to preserve this signature hall for future generations.'
6. In a look back at her earlier primate work, Haraway (2000b: 405–6) notes that while the notion of bias certainly can be applied to much once thought 'objective' in primatology (and in other sciences as well), what such a charge does not do is give us a sense of how the particular flawed argument made a difference in what was done, seen, and said as it was used along the way by various scientists. Short of what might be called error, to point out that a way of working in science is shaped and influenced by those many things to which it is connected would seem, for Haraway, to state the obvious.
7. In the 1986 re-issue of this book, Latour made apparent his critique of the narrowness of 'social' as a resource for analysis by insisting on its removal from the subtitle. See Latour and Woolgar (1986).
8. Haraway (2000c: 11) later would say, in distancing herself from 'social constructionist' argument: 'Humans invented neither nature nor culture, therefore social constructionism as a strategy of analysis ends up being kind of anemic and nutritionally deficient.' Latour (2003) has offered his own detached criticism of constructionism, unsure of whether it can be salvaged as a useful analytic resource in science studies.
9. Haraway (1989a: 133–85) gives a good deal of space to discussion of Goodall's origins, academic lineage and locations, and the nature of the contributions her field research made not only to primate

science but to underwriting the research at Gombe, begun by the Leakeys, and to the consequential ways she and that work were storied by the National Geographic Society, its famous magazine, and especially by the Gulf Oil Corporation in a series of television specials and advertisements between 1965 and 1984.

Chapter 3: A Queer Family of Companion Species: From Cyborgs to Dogs and Beyond

1. Sofoulis' essay is a primary resource for those particularly interested in cyborgism, as she not only discusses Haraway's manifesto in detail but she also locates it in the now-huge literature on cyborg studies. The volume in which her essay appears takes the reader even further across and into this work (see Tofts *et al.*, 2002); see also Gray *et al.* (1995) and Kirkup *et al.* (2000). For a discussion that links Haraway's essay specifically to selected SF works, see Christie (1993). For a sceptical view of just how radical her argument is, see Munnik (2001); and for an argument that prefers the vampire to the cyborg in Haraway's queer family, see Bartsch *et al.* (2001). Finally, see Crewe (1997) for an argument that the cyborg essay and Haraway's transcoding analyses deserve to be given more credit as postmodern theory.
2. See Haraway (1985: 104, fn 15) for a list of her earlier related essays.
3. Sofoulis (2002: 90) notes that Haraway in a 1991 interview (Penley and Ross, 1991: 20) allows that the cyborg 'really is a polychromatic girl . . . the cyborg is a bad girl, she is really not a boy'.
4. Haraway is of course fully aware and appreciative of Audre Lorde's (1984) famous claim about the improbability of 'dismantling the Master's house with the Mater's tools' (see Haraway, 1997: 193, 303 fn 26), but no doubt would not embrace it as an orthodoxy, as seems apparent throughout her writing.
5. For a provocative discussion of some of what might be seen as an inheritance of Haraway's call for cyborg writing as well as a trenchant and insightful analysis of teletechnology, see Clough (2000, esp. 152–87).
6. See Haraway's (2004a: 328–9) clarifying comment on the notion of a 'world without gender,' by which she means 'the non-necessity of this way of doing the world'.
7. Haraway draws this term and its meaning from the ecological feminist Chris Cuomo (1998: 62).

8. See Haraway's (1997: 131–72) application of this commitment to the concepts 'gene' and 'genome' and her wonderfully troped sense of mapping, in which she draws on Verran (1998; see also, Verran, 2001), among others.

Chapter 4: Bodies, Knowledges, Politics, Ethics, and Truth: Figuring a Feminist Technoscience

1. Haraway (1992b: 332) also notes that in his strict avoidance of conventional 'social' explanations of science (which he strongly criticizes), Latour refuses to incorporate discussion of 'matters like masculine supremacy or racism or imperialism or class structures' and their presence in science practice. For her, this is too great a loss. But see Latour's (1999: 216–65; 2002; 2004) own recent questioning of t/his war metaphor. And see Haraway's (1997: 279, fn. 19) own marking of the 'other Latours, in and out of print, who offer a much richer tropic tool kit than that in *Science in Action*'.
2. See Latour (1999: 266–92) for a parallel story/parable.
3. See Haraway (1992b: 311–13, 324) for a brief but pointed critique of this 'politics of representation' in science (described so well by Latour), to which she prefers and recommends foregrounding a 'politics of articulation' consistent with the other arguments that define her work.
4. In a well-known paper on the success of Pasteur's work in the explanation of fermentation, Latour's (1983) unambiguous title is 'Give me a laboratory and I will raise the world'.
5. Although Shapin (1994) in a later book does acknowledge the absence of women at the site of Nature's presence.
6. As noted, Haraway typically gives little space to criticism of particular, named colleagues' work for what it lacks but she gives much space to specifying what she takes, learns, from others.
7. Haraway's discussion of standpoint theories relies on and cites the work of Nancy Hartsock (1983) and Sandra Harding (1992), which she reworks to yield her notion of situated knowledges.
8. The profound mediation that Haraway here describes and that itself can be seen as a constructionism was powerfully set forth well outside the human sciences by Humberto Manturana (see Lettvin *et al.*, 1959); Manturana and Francesco Varela (1980) and Varela and other colleagues (Varela *et al.*, 1991) went on in subsequent work to

elaborate the nature and significance of autopoiesis and autopoietic systems (and see Hayles, 1999: 131–59).

Chapter 5: Conversations with Donna Haraway

1. Haraway here refers to the circumstances around her departure from the department at Johns Hopkins when she was hired at UC-Santa Cruz.
2. See Haraway (2003c) for a recent version of this argument about ethics and values as found in her study of genetics in dog land.
3. This important conference, held in Teresopolis, Brazil, produced an equally important volume, *Primate Encounters*, edited by Strum and Fedigan (2000).
4. In my reading for this project and for related teaching and writing, this mutual appreciation of each other's work and shared perspectives on how to study science are apparent. Latour often refers to Haraway as 'my friend' and then usually attributes an argument or view to Haraway of which he approves. Latour dedicates his 1999 *Pandora's Hope* to Shirley Strum, Haraway, and Steve Glickman and their 'baboons, cyborgs, and hyenas'.
5. A sense of what Haraway might mean here can be drawn from, for instance, the brief overview histories of science studies found in Pickering (1992, 1995: 1–34) in which feminist science studies authors are, as such, given little if any attention as having written quite parallel arguments to those found emerging in the 'new' turn to science as practice that is linked typically to the work of Latour, Michel Callon, and to Pickering himself. At the same time, Pickering's views of science and how to study it seem quite congenial in many ways to those that have been central to Haraway's work since the primate project (and see Selinger, 2003). For another example of 'insider' comments about science studies that ignore feminist contributions, see Lynch and Collins (1998). For a contrasting view set out in similar format, see Cussins (2000); and see Traweek (1992) as apparently the only author in the collection Pickering edited to take up gender as explicitly relevant to the analysis of science practice.
6. The name the Du Pont corporation gave to its new laboratory set up in the late 1920s when it strategically changed its research practices from 'applied' to 'pure' science (see Haraway, 1997: 86).

7. Young (1992: 104), for instance, speaking about *Primate Visions*, says:

> Most of the commentaries on this book that I have read have been very uncomprehending, especially in the British press. Readers don't know what the hell to do with it. They say, in effect, 'All this is very interesting and industrious, but the thesis is unproven.' They don't grasp that it is the cumulative weight of textured entanglements that makes her case. It's not an argument in the ordinary sense.

8. For a different reading of Haraway as Nietzschean, see Jensen and Selinger (2003).

Chapter 6: Why Read Haraway? Recommendations

1. See reference section for a list of video and digital records of Haraway's lectures.
2. Haraway has given this re-issued version of her first book – *Crystals, Fabrics, and Fields* – a new subtitle. Rather than 'Metaphors of Organicism in 20th Century Biology', the new subtitle is 'Metaphors that Shape Embryos'.

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PHILOSOPHY / LITERATURE / CULTURAL STUDIES / GENDER STUDIES

Donna Haraway: Live Theory is an invaluable introduction to the work of this key contemporary theorist and critic. Concise, accessible and comprehensive, it locates Haraway in the context of post-Vietnam US academic life, drawing out the roots of her political and intellectual concerns. The book makes clear the extent of her impact on the understanding of the relationship between 'nature' and 'culture', and how this helped shape the discipline of cultural studies.

In particular, the book explores and illuminates Haraway's important and ongoing contributions to 'feminist science studies', including the groundbreaking essays on the cyborg and situated knowledges. Haraway's identification of science and technology as being closely entwined with global capitalism is discussed in detail, as are her sense of, and hopes for, better practice in both science and science studies. The book includes a new interview with Haraway herself, in which she discusses the key themes in her work as well as future writing plans. *Donna Haraway: Live Theory* is a key resource for anyone studying this pioneering thinker within the context of sociology, cultural studies, literary criticism, feminism and science studies.

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