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2. VALUE-ADDED DOGS AND LIVELY CAPITAL

Marx dissected the commodity form into the doublet of exchange value and use value. But what happens when the undead but always generative commodity becomes the living, breathing, rights-endowed, doggish bit of property sleeping on my bed, or giving cheek swabs for your genome project, or getting a computer-readable ID chip injected under the neck skin before the local dog shelter lets my neighbor adopt her new family member? *Canis lupus familiaris*, indeed; the familiar is always where the uncanny lurks. Further, the uncanny is where value becomes flesh again, in spite of all the dematerializations and objectifications inherent in market valuation.

Marx always understood that use and exchange value were names for relationships; that was precisely the insight that led beneath the layer of appearances of market equivalences into the messy domain of extraction, accumulation, and human exploitation. Turning all the world into commodities for exchange is central to the process. Indeed, remaking the world so that new opportunities for commodity production and circulation are ever generated is the name of this game. This is the game that absorbs living human labor power

without mercy. In Marx's own colorful, precise language that still gives capitalism's apologists apoplexy, capital comes into the world "dripping from head to toe, from every pore, with blood and dirt."¹

What, however, if *human* labor power turns out to be only part of the story of lively capital? Of all philosophers, Marx understood relational sensuousness, and he thought deeply about the metabolism between human beings and the rest of the world enacted in living labor. As I read him, however, he was finally unable to escape from the humanist teleology of that labor—the making of man himself. In the end, no companion species, reciprocal inductions, or multispecies epigenetics are in his story.² But what if the commodities of interest to those who live within the regime of Lively Capital cannot be understood within the categories of the natural and the social that Marx came so close to reworking but was finally unable to do under the goad of human exceptionalism? These are hardly new questions, but I propose to approach them through relationships inherent in contemporary U.S. dog-human doings that raise issues not usually associated with the term *biocapital*, if, nonetheless, crucial to it.

We have no shortage of proof that classic rabid commodification is alive and well in consumer-crazy, technoscientifically exuberant dog worlds in the United States. I will give my readers plenty of reassuring fact-packages on this point, sufficient to create all the moral outrage that we lefties seem to need for breakfast and all the judgment-resistant desires that we cultural analysts seem to enjoy even more. However, if a Marx-equivalent were writing *Biocapital*, volume 1, today, insofar as dogs in the United States are commodities as well as consumers of commodities, the analyst would have to examine a tripartite structure: use value, exchange value, and encounter value, without the problematic solace of human exceptionalism.³ Trans-species encounter value is about relationships among a motley array of lively beings, in which commerce and consciousness, evolution and bioengineering, and ethics and utilities are all in play. I am especially interested here in "encounters" that involve, in a nontrivial but hard-to-characterize way, *subjects* of different biological species. My goal is to make a little headway in characterizing these relationships in the historically specific context of lively capital. I would like to tie my Marx-equivalent into the knots of value for companion species, especially for

dogs and people in capitalist technoculture in the early twenty-first century, in which the insight that to be a situated human being is to be shaped by and with animal familiars might deepen our abilities to understand value-added encounters.

VALUING DOGS: MARKETS AND COMMODITIES

Like a 1950s TV show, companion-animal worlds are all about family. If European and American bourgeois families were among the products of nineteenth-century capital accumulation, the human-animal companionate family is a key indicator for today's lively capital practices. That nineteenth-century family invented middle-class pet keeping, but what a pale shadow of today's doings that was! Kin and brand are tied in productive embrace as never before. In 2006, about 69 million U.S. households (63 percent of all households) had pets, giving homes to about 73.9 million dogs, 90.5 million cats, 16.6 million birds, and many other critters.⁴ As an online report on the pet food and supplies market from MindBranch, Inc., for 2004 stated, "In the past, people may have said their pet 'is like a member of the family,' but during 1998–2003 this attitude has strengthened, at least in terms of money spent on food with quality ingredients, toys, supplies, services, and healthcare."⁵ The consumer habits of families have long been the locus for critical theory's efforts to understand the category formations that shape social beings (such as gender, race, and class). Companion-species kin patterns of consumerism should be a rich place to get at the relations that shape emergent subjects, not all of whom are people, in lively capital's naturecultures. Properly mutated, the classics, such as gender, race, and class, hardly disappear in this world—far from it; but the most interesting emergent categories of relationality are going to have to acquire some new names, and not just for the dogs and cats.

The global companion-animal industry is big, and the United States is a major player. I know this because I have dogs and cats who live in the style in which my whole post-Lassie generation and I have become indoctrinated. Like any scholar, however, I tried to get some hard figures to go with the coming examples. The Business Communications Company publishes an annual analysis of market opportunities and segments,

company fortunes, rates of expansion or contraction, and other such data dear to the hearts of investors. So for the first draft of this chapter I tried to consult *The Pet Industry: Accessories, Products, and Services* for 2004 online. Indeed, I could have downloaded any of the alluring chapters, but all of them are proprietary, and so to peek is to pay. To obtain access to the whole package would have cost me over five thousand dollars, a nice piece of evidence all by itself for my assertion in the first sentence of this paragraph. An alternative data source, Global Information, Inc. (the self-described online "vertical markets research portal"), offers twenty-four-hour, five-day-per-week updates for pet marketers on forecasts, shares, R&D, sales and marketing, and competitive analysis. Ignore these services at your peril.

In the end, I settled for training-sized statistical tidbits from Business Communications and from the 2006 free summaries on the Web site of the American Pet Products Manufacturers Association, Inc.⁶ In the United States alone in 2006, pet owners spent about \$38.4 billion overall on companion animals, compared with \$21 billion in 1996 (constant dollars). The global figure for pet food and pet care products for 2002 was U.S.\$46 billion, which is an inflation-adjusted increase of 8 percent over the period 1998–2002. The inflation-adjusted growth rate for 2003 alone was 3.4 percent, driven, we are told, by pet owners' demand for premium foods and supplies.

Consider just pet food. ICON Group International published a world market report in February 2004. The report was written for "strategic planners, international executives and import/export managers who are concerned with the market for dog and cat food for retail sale." The point was that "with the globalization of the market, managers can no longer be contented with a local view." Thus, the report paid special attention to which countries supply dog and cat food for retail sale, what the dollar value of the imports is, how market shares are apportioned country by country, which countries are the biggest buyers, how regional markets are evolving, and so how managers might prioritize their marketing strategies. Over 150 countries are analyzed, and the report makes clear that its figures are estimates of potential that can be drastically altered by such things as "mad cow" disease, foot-and-mouth disease, trade embargoes, labor disputes, military conflicts, acts of terrorism, and other events

that will certainly affect the actual trade flows." Indeed. Nonetheless, the report neglected to state the underlying obvious fact: industrial pet food is a strong link in the multispecies chain of global factory farming.

The *New York Times* for Sunday, November 30, 2003, is my source for the \$12.5 billion figure for the size of the 2003 pet food market in the United States (\$15 billion in 2006). I did not know how to think about the size of that sum until I read another *New York Times* story (December 2, 2003) telling me that in 2003 the human cholesterol-lowering statin market was worth \$12.5 billion to the pharmaceutical industry. How much human blood-lipid control is worth how many dog dinners? I'd throw away my Lipitor before I shorted my dogs and cats. Marx told us how the purely objective nature of exchange value obviates the trouble springing from such use-value comparisons. He also told us how such things as statins and premium dog food become historically situated bodily needs. For my taste, he didn't pay nearly enough attention to *which* needy bodies in the multispecies web link slaughter labor, chicken cages, pet dinners, human medicine, and much more.

I cannot now forget these things as I decide how to evaluate both the latest niche-marketed dog food purported to maximize the sports performance of my agility dog and the difference between her nutritional needs and those of my older but still active pooch. A large and growing portion of pet food products addresses specific conditions, such as joint and urinary tract health, tartar control, obesity, physiological demands, age-related needs, and so on. I cannot go to an agility meet to run with my dog without tripping over brochures and booths for natural foods, scientifically formulated foods, immune-function enhancing foods, foods containing homemade ingredients, foods for doggy vegans, raw organic foods that would not please vegans at all, freeze-dried carrot-fortified foods, food-delivery devices to help out dogs who are alone too much, and on and on. Indeed, diets are like drugs in this nutritional ecology, and creating demand for "treatment" is crucial to market success. Besides diets, I feel obligated to investigate and buy all the appropriate supplements that ride the wavering line between foods and drugs (chondroitin sulfate and glucosamine sulfate or omega-3 fatty acid-rich flaxseed oil, for example). Dogs in capitalist technoculture have acquired the "right to health," and the economic (as well as legal) implications are legion.

Food is not the whole story. The Business Communications Company stressed the growth occurring in all segments of the companion-animal industry, with rich opportunities for existing players and new entrants. Health is a giant component of this diversifying doggy version of lively capital. Small-animal veterinarians are well aware of this fact as they struggle to incorporate the latest (very expensive) diagnostic and treatment equipment into a small practice in order to remain competitive. A special study done in 1998 revealed that vets' income was not growing at the rate of comparable professionals, because they did not know how to adjust their fees to the rapidly expanding services they routinely offer.⁸ My family's credit card records tell me that at least one of the vet practices we frequent got the point in spades. In 2006, people in the United States spent about \$9.4 billion for vet care for pets. As a reality check, I turned to the "World Animal Health Markets to 2010," a report that profiles animal health markets in fifteen countries, accounting for 80 percent of the world share.⁹ The conclusion: in the affluent parts of the globe, the pet health market is robust and growing.

Consider a few figures and stories. Mary Battiata wrote a feature article for the *Washington Post* in August 2004; it followed her search for a diagnosis for her aging family member, her beloved mutt, Bear, who showed troubling neurological symptoms. After the first sick visit to the vet cost nine hundred dollars, she began to understand her situation. She was referred to Washington, D.C.'s Iams Pet Imaging Center for an MRI. Or rather, Bear was referred, and his guardian—owner, Mary, wrestled with the ethical, political, affectional, and economic dilemmas. How does a companion animal's human make judgments about the right time to let her dog die or, indeed, to kill her dog? How much care is too much? Is the issue quality of life? Money? Pain? Whose? Does paying fourteen hundred dollars for an MRI for Bear add to the world's injustice, or is the comparison between what it costs to run decent public schools or to repair wetlands and what it costs for Bear's diagnosis and treatment the wrong comparison? What about the comparison between people who love their pet kin and can afford an MRI and people who love their pet kin and can't afford annual vet exams, good training education, and the latest tick and flea products, much less hospice care (now available in a few places for dogs and cats)? What comparisons are the right ones in the regime of lively capital?

Other high-end treatments now available for pets include kidney transplants, cancer chemotherapy, and titanium joint-replacement surgeries. The University of California at Davis recently opened an up-to-the-minute treatment and research hospital for companion animals with the kind of cancer care expected in the best human medical centers. New veterinary drugs—and human drugs redirected to companion animals—emphasize pain relief and behavior modification, matters that hardly appeared on the radar screens of Lassie's people but involve serious money and serious ethical dilemmas today. In addition, vets in training today take courses in the human–animal bond, and this diversifying region of the affectional family economy is as richly commodified and socially stratified as is any other family-making practice, say, for example, assisted reproduction for making human babies and parents.¹⁰

Pet health insurance has become common, as is malpractice insurance for vets, partly fueled by the success of court arguments that companion animals cannot be valued as ordinary property. "Replacement value" for a companion dog is not the market price of the animal. Neither is the dog the same as a child nor an aged parent. In case we missed the point in all the other aspects of daily life, efforts both to establish money damages and to pay the bills for our companions tell us that *parent-child*, *guardian-ward*, and *owner-property* are all lousy terms for the sorts of multispecies relationships emerging among us. The categories need a makeover.

Besides vets, other sorts of health professionals have also emerged to meet companion-animal needs. I get regular professional adjustments for my Australian shepherd sports partner, Cayenne, from Ziji Scott, an animal chiropractic-certified practitioner with magic hands. No one could convince me that this practice reflects bourgeois decadence at the expense of my other obligations. Some relationships are zero sum games, and some are not. But a central fact shapes the whole question: rights to health and family-making practices are heavily capitalized and stratified, for dogs as well as for their humans.

Beyond the domains of dog medical services, nutrition, or pedagogical offerings, canine consumer culture of another sort seems truly boundless. Consider vacation packages, adventure trips, camp experiences, cruises, holiday clothing, toys of all kinds, day care services, designer beds

and other animal-adapted furniture, doggy sleeping bags and special tents and backpacks, and published guides to all of the above. On September 24, 2004, the *New York Times* ran ads for dog shopping that featured a \$225 raincoat and \$114 designer collar. Toy dogs as fashion accessories to the wealthy and famous are a common newspaper topic and a serious worry for those who think those dogs have doggy needs.¹¹ The American Kennel and Boarding Association in 2006 reported that the significant industry growth is in the high-end pet lodgings, such as the new San Francisco hotel, Wag, which charges eighty-five dollars per night and offers massage, facials, and swimming pools. Webcam TV for traveling humans to watch their pets in real time in communal play areas is standard at San Francisco's middle-of-the-market forty-dollar-a-night Fog City Dogs Lodge.¹² For those whose commodity preferences are more bookish, look at the companion-animal print culture. Besides a huge companion-species book market in categories from anthropology to zoology and the whole alphabet in between, two new general-audience magazines make my point. *Bark* is a Berkeley, California, dog literary, arts, and culture rag that I read avidly, and not just because it favorably reviewed my *Companion Species Manifesto*. The East Coast finally faced its responsibilities in this market segment, and so, with articles on such matters as how to win a dog custody battle and where to find the best ten places to walk with your dog in Manhattan, the *New York Dog* appeared in November–December 2004, aiming to rival *Vogue* and *Cosmopolitan* for glossy values.¹³ And all of this hardly touches the media markets crucial to hunting with dogs, playing dog–human sports, working with dogs in volunteer search and rescue, and much more. It seems to me that it is all too easy in dogland to forget that resistance to human exceptionalism requires resistance to humanization of our partners. Furry, market-weary, rights bearers deserve a break.

Enough, or rather, almost enough; after all, in lively capital markets “value-added” dogs aren’t just familial co-consumers (or coworkers, for which you must go to the next section of this chapter). In the flesh and in the sign, dogs are commodities, and commodities of a type central to the history of capitalism, especially of technoscientifically saturated agribusiness. Here I will consider only kennel-club registered “purebred” dogs, even though those surely aren’t the canines that come first to mind in connection

with the term *agribusiness*, no matter how much pedigree-packing dogs return us to crucial nineteenth-century economic and cultural innovations rooted in the biosocial body. In *Bred for Perfection*, Margaret Derry explains that the public data keeping of lineage (the written, standardized, and guaranteed pedigree) is the innovation that fostered international trade in both livestock such as sheep and cattle and fancy stock such as show dogs and chickens.¹⁴ And, I might add, race- and family-making stock. Institutionally recorded purity of descent, emphasizing both inbreeding and male lines that made female reproductive labor all but invisible, was the issue. The state, private corporations, research institutions, and clubs all played their roles in moving practices for controlling animal reproduction from pockets of memory and local endeavors of both elites and working people to rationalized national and international markets tied to registries. The breeding system that evolved with the data-keeping system was called scientific breeding, and in myriad ways this paper-plus-flesh system is behind the histories of eugenics and genetics, as well as other sciences (and politics) of animal and human reproduction.

Dog breeds, not variously differentiated and stabilized kinds, but breeds with written pedigrees, were one result. Across continents, dogs with those credentials could command very nice prices as well as fuel amazing practices of heritage invention, standards writing and maintenance, sales contract development, germ plasm trading, health surveillance and activism, reproductive-technology innovation, and the passionate commitment of individuals, groups, and even whole nations.¹⁵

The proliferation of dog breeds and their movement into every social class and geographical region of the world are part of the story. Many breeds have been specifically produced for the pet market, some quite new, such as the cross of Borzois and long-haired whippets to make the little sight hound called the silken windhound. Witness today's explosion in toy breeds and teacup breeds as fashion accessories (and too often, medical disasters). Or the popularity of the puppy mill–produced dogs because they carry an AKC purebred dog pedigree. Or, as I move away from outrage to love affair, I am reminded both of the knowledgeable, talented, self-critical dog people whom I have met in performance dog worlds, as well as in conformation show dog scenes, and of their accomplished, beautiful dogs. And of my dogs, including Roland, the one

with the fraudulent (that chow chow dad) AKC Australian shepherd registration, acquired so that he can play agility in their sandbox, as long as he is reproductively sterilized.

But is he necessarily reproductively silenced? What happens when pedigree, or lack of it, meets petri dish? Consider the Dolly technique so insightfully written about by Sarah Franklin in *Dolly Mixtures*. Dolly the pedigreed sheep might have been the first mammal who was the fruit of somatic cell nuclear transfer cloning, but she was at the head of a growing parade of critters. By tracing the many biosocial threads in Dolly's genealogy across continents, markets, species, sciences, and narratives, Franklin argues that emergent ways of fleshly becoming are at the heart of biocapital, both as commodities and as modes of production.¹⁶ Franklin maintains that breedwealth was the crucial new kind of reproductive wealth in the late eighteenth and nineteenth centuries, and control over the reproduction (or generation by other means) of plants and animals (and, to varying degrees, people) is fundamental to contemporary biocapital's promises and threats. The traffic between industrialized agriculture and scientific medicine for people and animals is especially thick in Dolly mixtures and spillovers. Current innovations and controversies in stem cell research and therapeutic as well as reproductive cloning are at the heart of the transnational, transspecific action.

Stem cells and dogs take us inevitably to Hwang Woo-Suk and Seoul National University. The international scandal surrounding Hwang's announcement in *Science* magazine in 2004 and 2005 of achieving the globalized biomedical grail of human embryonic stem cell clones and the subsequent revelation in December 2005 of fabricated data, bioethics violations in egg donation, and possible embezzlement have a more authentic canine backstory that only makes sense in light of *Dolly Mixtures*. In the United States, the well-hyped dog-cloning Missyplicity Project was directed to the affectional commodity pet market.¹⁷ Not so the biomedical dog-cloning efforts of Hwang and his nine South Korean associates, plus Gerald Schatten, a stem cell researcher at the University of Pittsburgh, who announced Snuppy, an Afghan hound puppy cloned with the Dolly technique, in August 2005.¹⁸ Snuppy is a biotechnical splice to his core, his name fabricated of S(eoul) N(ational) U(niversity) and (pu)ppy. Hwang's research career must be understood in the context of agribusiness

animal research moved to human biomedicine. His professorship is in the Department of Theriogenology and Biotechnology in the College of Veterinary Medicine at Seoul National University. Before Snuppy, Hwang reported a cloned dairy cow in 1999, and he was widely regarded as a world leader in the field. A great deal about Hwang's dramatic rise and fall is not clear, but what is clear is the thick cross-species travel between agribusiness research and human biomedicine often obscured in the U.S. "ethical" debates over human stem cell technologies and imagined therapies or reproductive marvels.

Pricey U.S. dog cryopreservation services, university-private company collaborations for canine-cloning research geared to the pet market, and Korean national efforts to become first in a major area of biomedical research are not the only arias in this lively capital opera. However, even if freezing the cells of my AKC-mutt Roland in anticipation of making a nuclear clone of him could happen only over the dead bodies of my whole polyspecific and polysexual family, these Dolly spillovers, especially Snuppy, do suggest just the right segue to the next section of "Value-Added Dogs."

VALUING DOGS: TECHNOLOGIES, WORKERS, KNOWLEDGES

Referring to advertisements for the sale of working sheepdogs, Donald McCaig, the Virginia sheep farmer and astute writer on the history and current state of herding border collies in Britain and the United States, noted that categorically the dogs fall somewhere between livestock and coworkers for the human shepherds.¹⁹ These dogs are not pets or family members, although they are still commodities. Working dogs are tools that are part of the farm's capital stock, and they are laborers who produce surplus value by giving more than they get in a market-driven economic system. I think that is more than an analogy, but it is not an identity. Working dogs produce and they reproduce, and in neither process are they their own "self-directed" creatures in relation to lively capital, even though enlisting their active cooperation (self-direction) is essential to their productive and reproductive jobs. But they are not human slaves or wage laborers, and it would be a serious mistake to theorize their labor

within those frameworks. They are paws, not hands. Let's see if we can sort through the implications of the difference, even in spite of the evolutionary homology of the forelimbs.

To do so, I turn to Edmund Russell's arguments about the evolutionary history of technology in his introduction to the collection *Industrializing Organisms*.²⁰ Far from keeping organic beings and artifactual technologies separate, putting one in nature and the other in society, Russell adopts recent science and technology studies' insistence on the coproduction of natures and cultures and the interpenetration of bodies and technologies. He defines organisms shaped for functional performance in human worlds as biotechnologies—"biological artifacts shaped by humans to serve human ends."²¹ He goes on to distinguish macro-biotechnologies, such as whole organisms, from microbiotechnologies, such as the cells and molecules that draw all the attention as biotechnology itself in the current science and business press.

In that sense, dogs deliberately selected and enhanced for their working capacities, for example, as herders, are biotechnologies in a system of market farming that became contemporary capital-intensive agribusiness through a welter of nonlinear processes and assemblages. Russell is interested in how the ways in which human beings have shaped evolution have changed both themselves and other species. The tight boxes of nature and society do not allow much serious investigation of this question. Russell's major efforts are directed at analyzing organisms as technologies, and he looks at biotechnologies as factories, as workers, and as products. Even though Russell gives almost all the agency to humans—who, I admit readily, make the deliberate plans to change things—I find his framework rich for thinking about valuing dogs as biotechnologies, workers, and agents of technoscientific knowledge production in the regime of lively capital.

Aside from such critters of the past as spit-turning dogs or cart-hauling dogs, whole dogs are simultaneously biotechnologies and workers in several kinds of contemporary material-semiotic reality. Herding dogs are still at work on profit-making (or, more likely, money-losing) farms and ranches, although job loss has been acute. Their work in sheep trials is robust but located in the zone between work and sport, as is the labor of most sled dogs. Livestock guardian dogs have expanding job

opportunities in sheep-raising areas of the French Alps and Pyrenees because of the reintroduction of ecotourism-linked heritage predators (wolves, bears, and lynxes), as well as on U.S. ranches no longer allowed to use poisons for predator control. Dogs have state jobs and jobs franchised to private providers as airport security laborers, drug and bomb sniffers, and pigeon-clearing officers on runways.

The popular television show *Dogs with Jobs*, using the classified help-wanted ads in newspapers as the visual icon for the show, is a good place to get a grip on dogs as workers.²² Most of the dogs seem to be unpaid voluntary labor, but not all. Jobs include warning of epileptic seizures, detecting cancer, guiding the blind, serving as aides for the hearing impaired and the wheelchair-bound and as psychotherapeutic aides for traumatized children and adults, visiting the aged, aiding in rescues in extreme environments, and more. Dogs can be and are studied and specifically bred to enhance their readiness to learn and perform these kinds of jobs. For all of these jobs, dogs and people have to train together in subject-changing ways. But more of that later.

Part dogs (or delegated dog wholes or parts in material bases other than carbon, nitrogen, and water) might have more work in lively capital than whole dogs. Consider, in addition to Snuppy's stem cell scene, dog genome projects. Archived canine genomes are repositories useful for research in product development by veterinary pharmaceutical enterprises and human biomedical interests, as well as for research in—a gleam in researchers' eyes—behavioral genetics.²³ This is "normal" biotechnology. Sequencing and databasing the complete dog genome were made a priority of the U.S. National Human Genome Research Institute in June 2003. Based on a poodle, the first rough dog genome sequence, about 75 percent complete, was published that year. The first full draft of the dog genome was published and deposited in a free public database for biomedical and vet researchers in July 2004. In May 2005, a 99 percent complete sequence of the genome of a boxer named Tasha, with comparisons to ten other kinds of dogs, was released. Dogs belonging to researchers, members of breed clubs, and colonies at vet schools provided DNA samples. The team that produced this draft, in the process developing procedures that might speed the deposition of many more mammalian genomes, was headed by Kerstin Lindblad-Toh, of the Broad Institute of MIT and

Harvard as well as the Agencourt Bioscience Corporation. Part of the National Human Genome Research Institute's Large-Scale Sequencing Research Network, the Broad Institute received a thirty-million-dollar grant for the work. These are the kinds of public-private arrangements typical of microbiotechnology in the United States and, with variations, internationally.²⁴

Further, once the genome was published, the Center for Veterinary Genetics, at the University of California School of Veterinary Medicine, called for individual dog people and clubs to contribute to a full repository of many of the different breeds of dogs in order to address the needs of different domains of dogdom. The goal was to enlarge the DNA data bank from its then current sampling of the genetic legacy of one hundred breeds to more than four hundred international canine populations. Many research projects involving dog genes, organs, diseases, and molecules could be addressed to canine questions as well as to comparative queries for humans. The part dogs are reagents (workers), tools, and products, just as whole dogs are in macrobiotechnological kinds of knowledge and production projects.

Dogs are valuable workers in technoculture in another sense as well. In laboratories, they labor as research models both for their own and for human conditions, especially for diseases that could be "enclosed" for medical commodity production, including for previously unknown sorts of services to address newly articulated needs. That, of course, is what their archived genomes are doing, but I want to look more closely at another mode of this scientific medical canine labor in the context of lively capital. Stephen Pemberton explores how dogs suffering from hemophilia became model patients, as well as surrogates and technologies for studying a human disease, over the course of years beginning in the late 1940s in the laboratory of Kenneth Brinkhous at the University of North Carolina at Chapel Hill. This research is what made human hemophilia a manageable disease by the early 1970s with the availability of standardized clotting factors.²⁵

Bleeder dogs did not just appear at the lab doorstep as ready-made models and machine tools for making things for humans. The canine hemophiliac was made through representational strategies, dog care practices, breeding and selection, biochemical characterization, development

of novel measurement devices, and the semiotic and material joining of hemophilia to other metabolic deficiency disorders (especially diabetes and pernicious anemia, both treatable by administering something functionally absent in the patient and both diseases in which dogs played a large role in the research, with crucial payoff in techniques and devices for working with dog organs and tissues). The principal problem Brinkhous faced in his lab when he brought in male Irish setter puppies who showed the stigmata of bleeding into joints and body cavities was keeping them alive. The puppies had to become patients if they were to become technologies and models. The entire labor organization of the laboratory addressed the priority of treating the dogs before anything else. A bleeding dog was given transfusions and supportive care. Lab staff could not function as researchers if they did not function as caregivers. Dogs could not work as models if they did not work as patients. Thus, the lab became a clinical microcosm for its research subjects as an essential part of the last century's revolution in experimental biomedicine. As Pemberton put it, "We cannot understand how scientists discipline their experimental organisms without understanding how these organisms also discipline scientists, forcing them to care."²⁶

In the late twentieth century, drugs developed for people (and surely tested on rodents) came to be agents of relief for dogs too, in a kind of patient-to-patient cross-species transfusion. This kind of dogs-as-patients scene is part of my own adult origin tale in dogland. My middle-class childhood tale had more to do with the confining of the multispecies civic commons through leash laws in the 1950s than with biomedicine. Toward the end of her sixteenth, and last, year of life in 1995, my half-Lab mutt, Sojourner (that grace-giving whelp of an irresponsible backyard breeder, a dog whom we named for a great human liberator), and I began to frequent her vet's office in Santa Cruz. I had read Michel Foucault, and I knew all about biopower and the proliferative powers of biological discourses. I knew modern power was productive above all else. I knew how important it was to have a body pumped up, petted, and managed by the apparatuses of medicine, psychology, and pedagogy. I knew that modern subjects had such bodies and that the rich got them before the laboring classes. I was prepared for a modest extension of my clinical privileges to any sentient being and some insentient ones. I had read *Birth of the Clinic*

and *The History of Sexuality*, and I had written about the technobiopolitics of cyborgs. I felt I could not be surprised by anything. But I was wrong. Foucault's own species chauvinism had fooled me into forgetting that dogs too might live in the domains of technobiopower. *The Birth of the Kennel* might be the book I needed to write, I imagined. *When Species Meet* is the mutated spawn of that moment.

While Sojourner and I waited to be seen by her vet, a lovely Afghan hound pranced around at the checkout desk while his human discussed recommended treatments. The dog had a difficult problem—obsessive self-wounding when his human was off making a living, or engaging in less justifiable nondog activities, for several hours a day. The afflicted dog had a nasty open sore on his hind leg. The vet recommended that the dog take Prozac. I had read *Listening to Prozac*,²⁷ so I knew this was the drug that promised, or threatened, to give its recipient a new self in place of the drab, depressive, obsessive one who had proved so lucrative for the non-pharmaceutical branches of the psychological professions. For years, I had insisted that dogs and people were much alike and that other animals had complex minds and social lives, as well as physiologies and genomes largely shared with humans. Why did hearing that a pooch should take Prozac warp my sense of reality in the way that makes one see what was hidden before? Surely Saul, on the way to Damascus, had more to his turnaround than a Prozac prescription for his neighbor's ass!

The Afghan's human was as nonplussed as I was. She chose instead to put a large cone, called an Elizabethan collar, around her dog's head so that he couldn't reach his favorite licking spot to suck out his unhappiness. I was even more shocked by that choice; I fumed internally, Can't you get more time to exercise and play with your dog and solve this problem without chemicals or restraints? I remained deaf to the human's defensive explanation to the vet that her health policy covered her own Prozac, but the pills were too expensive for her dog. In truth, I was hooked into the mechanisms of proliferating discourse that Foucault should have prepared me for. Drugs, restraints, exercise, retraining, altered schedules, searching for improper puppy socialization, scrutinizing the genetic background of the dog for evidence of canine familial obsessions, wondering about psychological or physical abuse, finding an unethical breeder who turns out inbred dogs without regard to temperament, getting a good toy

that would occupy the dog's attention when the human was gone, accusations about the workaholic and stress-filled human lives that are out of tune with the more natural dog rhythms of ceaseless demands for human attention: all these moves and more filled my neo-enlightened mind.

I was on the road to the fully embodied, modern, value-added dog-human relationship. There could be no end to the search for ways to relieve the psychophysiological suffering of dogs and, more, to help them achieve their full canine potential. Furthermore, I am convinced that is actually the ethical obligation of the human who lives with a companion animal in affluent, so-called first-world circumstances. I can no longer make myself feel surprise that a dog might need Prozac and should get it—or its improved, still-on-patent offshoots.

Caring for experimental dogs as patients has taken on intensified meaning and ambiguities in twenty-first-century biopolitics. A leading cause of death for older dogs and people is cancer. Enabled by comparative postgenomics tying humans and dogs together as never before, the National Cancer Institute set up a consortium of over a dozen veterinary teaching hospitals in 2006 to conduct drug trials on pet dogs living at home, to test for possible benefit in fighting the same malignancies they share with humans. A parallel nonprofit group will collect tissue samples and DNA from these pet dogs to pinpoint genes associated with cancer in dogs and people. The companion dogs will be clinic patients and not kenneled lab poodles, possibly relieving some of the latter of their burden, and grants and companies will pay for the experimental drugs. Dogs may benefit from the drugs, but they will get them with lower standards of safety than required in human testing. That's the point, after all, for enlisting dogs in National Cancer Institute state-of-the-art testing in the first place. Pet owners may have to pay for things like biopsies and imaging, which can be very expensive. Researchers will not have either the animal rights scrutiny or the financial burden of caring for lab dogs, including paying for those MRIs.²⁸ Pet owners and guardians will have the power to call a halt to further experimental treatment on the basis of their sense of their dogs' experiences. This system of drug testing seems to me superior to the current one, because it places the burden of suffering (and opportunity of participating in scientific research) on those specific individuals, humans and dogs, who might reap the benefit of relief. In

addition, experimentation will take place much more in the open than can ever be possible or desirable with lab animals, perhaps encouraging deeper thinking and feeling by a diverse human population of pet owners, as well as clinicians and scientists.

What I find troubling here is a growing ethos that subjects pet dogs to the same search for "cures" that human cancer patients endure, rather than continuing to work within and improve current standards of care in vet practice to reduce cancer burdens and provide supportive care guided by quality-of-life criteria, not by the goal of maximally prolonging life. Chemotherapy that dogs currently get rarely aims to eliminate the cancer, and dogs consequently generally do not experience the terrible sickness from drug toxicity that most people, in the United States at least, seem to feel obligated to accept. How long can that moderate veterinary approach to dog illness, and acceptance of death as profoundly sad and hard but also normal, endure in the face of the power of comparative postgenomic medicine and its associated affectional and commercial biopolitics?

So, dogs have become patients, workers, technologies, and family members by their action, if not choice, in very large industries and exchange systems in lively capital: (1) pet foods, products, and services; (2) agribusiness; and (3) scientific biomedicine. Dogs' roles have been multifaceted, and they have not been passive raw material to the action of others. Further, dogs have not been unchangeable animals confined to the supposedly ahistorical order of nature. Nor have people emerged unaltered from the interactions. Relations are constitutive; dogs and people are emergent as historical beings, as subjects and objects to each other, precisely through the verbs of their relating. People and dogs emerge as mutually adapted partners in the naturecultures of lively capital. It is time to think harder about encounter value.

VALUING DOGS: ENCOUNTERS

In considering the value of encounters, why not start with prisons, since we have been touring other large industries in lively capital, and this one is immense? There are many places we might go—dogs terrorizing detainees in Iraq, for example, where the encounters that shaped enemies, torturers, and attack dogs made use of the social meanings of all the

"partners" to produce definite value in lively capital. International human rights apparatuses (and where were the animal rights outcries on this one?); franchised interrogation functions; and the moral, psychological, and financial economies of contemporary imperialist wars: who could deny that all these are at the heart of enterprise and investment? Or we could travel to the high-security, high-technology, soul-destroying prison in California's Pelican Bay to track the attack-dog production, dog-fighting culture, and Aryan gang operations run from the prison, resulting in the dog-mauling death of a young woman in her apartment hallway in San Francisco and an outcry for exclusion of dogs from public space in general (but not from apartment hallways).²⁹

All of these prison dog-human encounters depend on the face-to-face meeting of living, meaning-generating beings across species; that is the encounters' power to terrorize and to reach into the core of all the partners to produce both dogs condemned to euthanasia when their usefulness is ended and people fit to carry on the profitable enterprise of the prison-industrial complex, as inmates, lawyers, and guards. However, I want to think about coshaping dog-human encounters in another prison context, one that makes me pay a different kind of attention to coming face-to-face across species and so to encounter value. Therefore, let's go to Animal Planet television again, this time to watch *Cell Dogs*.³⁰ If dogs became technologies and patients in the world of hemophilia, then they have become therapists, companions, students, and inmates in the world of prison cells. It's all in the job description.³¹

Animal Planet focuses each week on a different prison work project that has reforming prisoners teaching reforming pooches their manners in order to place them in various occupations outside the prison. The narrative and visual semiotics are fascinating. First, the entering dogs have to be made into inmates in need of pedagogy if they are to have productive lives outside. Fast frame cuts have cell doors clanging behind the dogs, each of whom is then assigned to one prisoner-apprentice teacher, to live in the same cell with this individual human inmate for the duration of his or her joint subject-transforming relationship. Dog trainers teach the prisoners to teach the dogs basic obedience for placement as family member house pets and sometimes higher-order skills for placement as assistance dogs or therapy dogs. The screen shows the incarcerated dogs

preparing for life outside by becoming willing, active, achieving obedience subjects. The pooches are obviously surrogates and models for the prisoners in the very act of becoming the prisoners' students and cell mates.

The technologies of animal training are crucial to the cell dog programs. These technologies include the postbehaviorist discourses and the equipment of so-called positive training methods (not unlike many of the pedagogies in practice in contemporary schools and child-counseling centers); some older technologies from the military-style, Koehler training methods based on frank coercion and punishment; and the apparatuses and bodily and mental habits crucial to making family members and happy roommates in close quarters. Another sense of technology is operating here too: in their personal bodies themselves, the dogs and people are freedom-making technologies for each other. They are each other's machine tools for making other selves. Face-to-face encounter is how those machines grind souls with new tolerance limits.

The canines must be modern subjects in many senses for the cell dog program to work. The dogs both require and model nonviolent, non-optional, and finally self-rewarding discipline from legitimate authority. Both dogs and people model nonviolent, nonoptional, and self-rewarding obedience to an authority that each must earn in relation to the other. That is the route to freedom and work outside—and to survival. That death awaits the failed dog is a leitmotif in many of the programs, and the lesson for their teachers is not subtle. The traffic between performing and modeling is thick for both the humans and the dogs, who are teachers and students, docile bodies and open souls to each other. Life and death are the stakes in the prison-industrial complex. Prison reform discourse has never been more transparent. *Arbeit macht frei*.

Leaving the prison through the mutual self-transformation of dogs and people is the nonstop theme. The humans must stay behind to finish their sentences (some are lifers); nonetheless, when their dogs are successful canine citizen-workers outside, the human inmates leave jail in two senses. First, through their dog students, the convicts give themselves to another human person, to someone free, someone outside, and so they taste freedom and self-respect both by proxy and in their *substantial* presence in the flesh of both dog and human being. Second, they demonstrate their own reformed status as obedient, working subjects who can

be trusted with freedom in a society divided into the outside and the inside. Part of the proof of worthiness is the human prisoners' act of surrendering, for the benefit of another, the companion and cell mate with whom they have lived for weeks or months in the only physically intimate, touching, face-to-face relationship they are allowed. The graduation scenes, which involve the human inmates sacrificing themselves by giving their intimate companions to another to achieve a better life for both, are always intensely emotional. I dare you to be cynical, even if all the knives of critical discourse are in your hands. Maybe it's not all "*arbeit macht frei*" here, but something more like "touch makes possible." Since I can't be outside ideology, I'll take that one, face-to-face and eyes open. The rhetoric that connects categories of the oppressed in these programs is not subtle (prisoners, animals, the disabled, women in jail, black men, strays, etc.); all belong to categories that discursively need much more than remedial training. However, these projects hold potential for much more promising entanglements that question the terms of these tropes and the conditions of those who must live them.

Perhaps it would be possible to rethink and retool cell dogs to work their magic to build subjects for a world not so fiercely divided into outside and inside. Marx understood the analysis of the commodity form into exchange value and use value to be a practice crucial to freedom projects. Maybe if we take seriously encounter value as the underanalyzed axis of lively capital and its "biotechnologies in circulation"—in the form of commodities, consumers, models, technologies, workers, kin, and knowledges—we can see how something more than the reproduction of the same and its deadly logics-in-the-flesh of exploitation might be going on in what I call "making companions."

In *Making Parents: The Ontological Choreography of Reproductive Technologies*, Charis Thompson compares and contrasts capitalist production with what she calls a "biomedical mode of reproduction," which I think of as core to the regime of lively capital. Thompson is studying the making of parents and children through the subject- and object-making technologies of biomedically assisted reproduction, a very lively area of contemporary investments of bodily, narrational, desiring, moral, epistemological, institutional, and financial kinds. She is acutely alert to the classical processes of production, investment, commodification, and so on, in

contemporary human-assisted reproduction practices in the United States. But she is adamant that the *end* of the practices makes a difference; that is, the whole point is to make parents by making living babies. *Capital*, volumes 1–3, did not cover that topic. *Biocapital*, volume 1, must do so.

In two columns, Thompson sets out the following lists, which I borrow, abbreviate, and abuse:³²

| Production | Reproduction |
|---|---|
| Alienated from one's labor | Alienated from one's body parts |
| Capital accumulated | Capital promissory |
| Efficiency/productivity | Success/reproductivity |
| Life course finite and descent linear | Loss of finitude/linearity in life course and descent |
| Essentialism of natural kinds/social construction of social kinds | Strategic naturalization/socialization of all kinds |

In practice, parents-in-the-making selectively seek out, endure, elaborate, and narrate various objectifications and commodifications of their body parts. Women do this much more than men do because of the fleshly realities of assisted conception and gestation. Many sorts of social stratification and injustice are in play, but they are often not of the kinds found by those seeking their fix of outrage whenever they smell the commodification of humans or part humans. Properly assigned, living babies make living parents content with their objectifications. Other actors in this mode of reproduction may be made invisible in order to ensure their status as nonkin and as reproductively impotent. The lure of kin making is the name of this promissory game of reproduction.

I am interested in these matters when the kin-making beings are not all human and literal children or parents are not the issue. Companion species are the issue. They are the promise, the process, and the product. These matters are mundane, and this chapter has been replete with examples. Add to those many more proliferations of natural-social relationalities in companion-species worlds linking humans and animals in myriad ways in the regime of lively capital. None of this is innocent, bloodless, or unfit for serious critical investigation. But none of it can be approached if the fleshly historical reality of face-to-face, body-to-body subject making across species is denied or forgotten in the humanist doctrine that holds

only humans to be true subjects with real histories. But what does *subject* or *history* mean when the rules are changed like this? We do not get very far with the categories generally used by animal rights discourses, in which animals end up permanent dependents ("lesser humans"), utterly natural ("nonhuman"), or exactly the same ("humans in fur suits").

The categories for subjects are part of the problem. I have stressed kin making and family membership but rejected all the names of human kin for these dogs, especially the name "children." I have stressed dogs as workers and commodities but rejected the analogies of wage labor, slavery, dependent ward, and nonliving property. I have insisted that dogs are made to be models and technologies, patients and reformers, consumers and breedwealth, but I am needy for ways to specify these matters in non-humanist terms in which specific difference is at least as crucial as continuities and similarities across kinds.

Biocapital, volume 1, cannot be written just with dogs and people. I face up to my disappointment in this sad fact by rejoicing in the work of my fellow animal (and other critter) studies and lively capital analysts across lifeworlds and disciplines.³³ Most of all, I am convinced that actual encounters are what make beings; this is the ontological choreography that tells me about value-added dogs in the lifeworlds of biocapital.

59. Check out Food Alliance, founded in 1997, as a collaboration among Washington State University, Oregon State University, and the Washington State Department of Agriculture (www.foodalliance.org/). Explore the "Certified Humane" labeling project (www.certifiedhumane.org/), and see "Humane Treatment of Farm Animals Can Improve the Quality of the Meat We Eat," *San Francisco Chronicle*, September 27, 2006. Then go to the Community Food Security Coalition (www.foodsecurity.org/) for a view of race, class, gender, and—in embryonic form—species intersectional analysis and action. Then go to the American Livestock Breeds Conservancy (<http://albc-usa.org/>) and the networks of the National Campaign for Sustainable Agriculture (www.sustainableagriculture.net/index.php). The California Food and Justice Coalition (www.foodsecurity.org/california/) prominently states in its key principles that "the production, distribution, and preparation of food must be healthy and humane for all humans, animals and ecosystems." Brave words, and a lifetime's work. Not so finally, check out the Intertribal Bison Cooperative, uniting fifty-one American tribes around the restoration of agriculture and the well-being of Indian land, its organisms, and its people (www.intertribalbison.org/). There are also many vegan approaches to food security and justice, for example, track from www.vegan.org/, the Humane Society of the United States, and, of course, People for the Ethical Treatment of Animals. (All Web sites accessed in November 2006.) I end this list, however, not with my sometimes-allied PETA foe but with vegan colleagues-in-struggle—that is, the antiracist, antisexist, justice-oriented, animal-focused vegan Carol Adams, *Neither Man nor Beast*, and her British counterpart, Lynda Birke, *Feminism, Animals, and Science* (Milton Keynes, U.K.: Open University Press, 1994).

60. John Law and Annemarie Mol, "Complexities: An Introduction," in *Complexities: Social Studies of Knowledge Practices*, ed. John Law and Annemarie Mol (Durham, N.C.: Duke University Press, 2002), 20. For a beautiful analysis of the inadequacy of humanist, personalist models for worldly human–animal encounters, see Charis Thompson, "When Elephants Stand for Competing Philosophies of Nature: Amboseli National Park, Kenya," in *Complexities*, 166–90.

61. Perhaps here, in an endnote at the close of introductions, is the place to remember that apparently friendly and curious behavior from wild wolves directed at people is most likely to be an exploration of a possible lupine lunch rather than an affectionate cross-species romp. Companion species, *cum panis*, breaking bread, eating and being eaten, the end of human exceptionalism: this, and not romantic naturalism, is what is at stake in the remembrance. Wildlife expert Valerius Geist explained to hunters in the northern U.S. Rockies that as

wolf population numbers rise well above the levels to which active extermination reduced them and herbivore populations adjust downward from renewed predator pressure, the competent North American opportunistic canids start acting more like Russian wolves than like remnants of a vanishing species set down in the midst of gustatory excess. That is, they start checking out and then stalking and occasionally attacking humans and their animals. Valerius Geist, "An Important Warning about 'Tame' Wolves," *Conservation Connection* (newsletter from the Foundation for North American Wild Sheep) 10 (Summer 2006): 4–5. Thanks to Gary Lease for the article and for many generous conversations about hunting, dogs, and conservation.

2. VALUE-ADDED DOGS AND LIVELY CAPITAL

1. Karl Marx, *Capital*, vol. 1, trans. Ben Fowkes (New York: Vintage Books, 1977), 926.

2. Marx came closest in his sometimes lyrical early work, "Theses on Feuerbach" and "The Economic and Philosophic Manuscripts of 1844," in *The Marx–Engels Reader*, 2nd ed., ed. Robert Tucker (New York: Norton, 1978). He is both at his most "humanist" and at the edge of something else in these works, in which mindful bodies in inter- and intra-action are everywhere. I follow Alexis Shotwell's subtle analysis of Marx's near escape from human exceptionalism implicit in his discussions on how labor power becomes a commodity, sensuousness, aesthetics, and human species being. Alexis Shotwell, "Implicit Understanding and Political Transformation," PhD dissertation, History of Consciousness Department, University of California at Santa Cruz, December 2006, 111–21.

3. An early interdisciplinary effort to write that missing Marxist volume is Sarah Franklin and Margaret Lock, eds., *Remaking Life and Death: Toward an Anthropology of the Biosciences* (Santa Fe, N.M.: School of American Research, 2003). Then came the following abbreviated but crucial list that I take from my winter 2007 graduate seminar called Bio[X]: Wealth, Power, Materiality, and Sociality in the World of Biotechnology: Kaushik Sunder Rajan, *Biocapital: The Constitution of Postgenomic Life* (Durham, N.C.: Duke University Press, 2006); Jerry Mander and Victoria Tauli-Corpuz, eds., *Paradigm Wars: Indigenous People's Resistance to Globalization* (Berkeley and Los Angeles: University of California Press, 2006); Marilyn Strathern, *Kinship, Law and the Unexpected: Relatives Are Always a Surprise* (New York: Cambridge University Press, 2005); Catherine Waldby and Robert Mitchell, *Tissue Economies: Blood, Organs, and Cell Lines*

in *Late Capitalism* (Durham, N.C.: Duke University Press, 2006); Achille Mbembe, *On the Postcolony* (Berkeley and Los Angeles: University of California Press, 2001); Franklin, *Dolly Mixtures*; and Adriana Petryna, Andrew Lakoff, and Arthur Kleinman, eds., *Global Pharmaceuticals: Ethics, Markets, Practices* (Durham, N.C.: Duke University Press, 2006). The course grew partly from thinking about a “figure” in the sense introduced in chapter 1, “When Species Meet: Introductions”: Consider a fictional multiple integral equation that is a flawed trope and a serious joke in an effort to picture what an “intersectional” theory might look like in Biopolis. Think of this formalism as the mathematics of sf.

Ω

$\int \text{Bio} [X]_n = \iiint \dots \iint \text{Bio} (X_1, X_2, X_3, X_4, \dots, X_n, t) dX_1 dX_2 dX_3 dX_4 \dots dX_n$
 $dt = \text{Biopolis}$

α

$X_1 = \text{wealth}, X_2 = \text{power}, X_3 = \text{sociality}, X_4 = \text{materiality}, X_n = ??$

α (alpha) = Aristotle's & Agamben's bios

Ω (omega) = Zoë (bare life)

$t = \text{time}$

Biopolis is an n -dimensional volume, a “niche space,” a private foundation committed to “global is local” biocracy (www.biopolis.org/), and an international research and development center for biomedical sciences located in Singapore (<http://en.wikipedia.org/wiki/Biopolis>). How would one solve such an equation?

4. These are American Pet Products Manufacturers Association figures from the free online teaser taken from their 2005–2006 APPMA *National Pet Owners Survey*, available for purchase to non-APPMA members for \$595. See www.appma.org. The APPMA annual Global Pet Expo, the industry's largest trade show, is a real eye-opener for any remaining sleeping romantics about pet commodity culture. It is open not to the general public but only to retailers, distributors, mass-market buyers, and “other qualified professionals.” By not shelling out \$595 for the pet owners survey, I lost my chance to get the lowdown on such things as details on where U.S. pet dogs are kept in the day and at night, groomer visits and methods of grooming used, methods used to secure dogs in the car, types of food and size of kibble purchased, number of treats given, types of leashes or harnesses used, type of food bowls used, information sources consulted and books and videos owned, dog-care items purchased in the last twelve

months, pet-themed gifts purchased, holiday parties given for dogs, expressed feeling about benefits and drawbacks of dog ownership, and much more—all duplicated for every common species of pet. Not much in the practice of capital accumulation through the lives of companion animals is left to chance.

5. “The US Pet Food and Supplies Market,” April 2004, www.MindBranch.com.

6. www.appma.org/press_industrytrends.asp (accessed May 4, 2007).

7. “The World Market for Dog and Cat Food for Retail Sale: A 2005 Global Trade Perspective,” ICON Group International, February 2004, www.MindBranch.com. A brief, free, pdf-format summary is available online from MindBranch, Inc. To learn more, you have to pay. Obtaining my limited commercial facts for this chapter cost only my phone number inscribed on an online form, followed by an advertising call or two—much more easily resisted than the new liver cookies at Trader Joe's. I am indebted to Joe Dumit for thinking about the right (or obligation) to health and food as drugs.

8. Mary Battiata, “Whose Life Is It, Anyway?” (*Washington Post*, August 2, 2004) tells us that a four-year vet education in the United States costs about two hundred thousand dollars. Setting up a small vet practice starts at about five hundred thousand dollars. Battiata cites the 1998 study of vet fee structures and lagging salaries by the consulting firm KPMG.

9. See www.pjpubs.com/cms.asp?pageid=1490, November 24, 2003.

10. Charis Thompson, *Making Parents: The Ontological Choreography of Reproductive Technologies* (Cambridge, Mass.: MIT Press, 2005). See also Haraway, *The Companion Species Manifesto*.

11. See, for example, Ruth La Feria, “Woman's Best Friend, or Accessory?” *New York Times*, December 7, 2006, E4, 7.

12. Justin Berton, “Hotels for the Canine Carriage Trade,” *San Francisco Chronicle*, November 13, 2006, A1, 6. The marketing in all of the examples discussed was entirely directed to affluent human beings' ideas/fantasies and paid scant heed to anything like biobehavioral assessments of how dogs and other boarded species would do best in unfamiliar surroundings. Paying for a “training vacation” might go a long way to increasing civil peace, say, compared with paying for suites appointed with color-coordinated humanesque furniture and Animal Planet TV shows.

13. Brian Lavery, “For Dogs in New York, a Glossy Look at Life,” *New York Times*, August 16, 2004.

14. Margaret E. Derry, *Bred for Perfection: Shorthorn Cattle, Collies, and Arabian Horses since 1800* (Baltimore: Johns Hopkins University Press, 2003).

15. For their place in complex nationalisms and ethnic identity discourses, consider the Karelian bear dog, the Suomen-pystykorva (Finnish spitz dog), the Norsk elghund grå (Norwegian elkhound), the Kelef K'naani (Israeli Canaan dog), the Australian dingo (an Eora Aboriginal word), the Islandsk farehond (Iceland sheepdog), the Korean Jindo dog, and the Japanese Shiba inu, Hokkaido inu, Shikoku inu, Kai inu, and Kishu inu—and I have hardly started. Comparing the fascinating histories, discourses, and naturalcultural politics in which Canaan dogs and dingoes figure would require another book. Both kinds of dogs scavenge and hunt in the so-called pariah or primitive dog categories, made over for globalized breed club standardization. Reconstituted or reinvented dogs of the hunting elites of European feudalism also are a fascinating contemporary story. Check out the Irish wolfhound in this regard, complete with the breed's first-century B.C.E. Celtic origin story, along with the details of the dog's nineteenth-century "recovery" enabled by the Scottish captain George Augustus Graham's breeding of dogs called Irish wolfhounds, who still remained in Ireland with Borzoi, Scottish deerhounds, and Great Danes. The popularly recited details of the Great Rescuer's craft seem never to pollute the pure-origin story of ancient nobility or disturb the keepers of the closed stud books in the breed clubs. *Value-added* seems the right term for these breeding operations!

Probably the most important collection in the world of Southwest Indian art, including weaving, pottery, Kachina figures, and much else, is housed at the School of American Research in Santa Fe, New Mexico, in exquisite adobe buildings commissioned by two transplanted, wealthy, eccentric, New York women, Elizabeth and Martha Root White. The sisters also raised many of the most famous Irish wolfhounds of that breed's early period in the United States, between the 1920s and World War II, on this rugged and beautiful property. The land and buildings now serve as a major anthropological research and conference center. Rathmullan Kennel's Irish wolfhounds are buried in a little graveyard on the grounds, marking the value-added encounter of wealth, gender, aestheticized and reinvented tradition in dogs and human beings, white people's collection of indigenous artifacts on a grand scale, philanthropy, activism in support of Pueblo Indian land rights and health, patronage of the arts of Europe, the United States, and Indian nations, as well as scholarship of a kind that reaches across generations, nurturing some of the best twentieth- and twenty-first-century anthropology in all subfields. When I visited the dogs' graves at the School of American Research in 2000 after writing the first versions of "Cloning Mutts, Saving Tigers" for Sarah Franklin and Margaret Lock's workshop "New Ways of Living and Dying," the bones of the Whites' Irish wolfhounds seemed like fleshly,

fantasy-laden, Euro-American ancestors in this complex colonial and national tangle. See Gregor Stark and E. Catherine Rayne, *El Delirio: The Santa Fe World of Elizabeth White* (Santa Fe, N.M.: School of American Research, 1998). For photographs of people, grounds, and dogs (including a re-creation by the White sisters of a sixteenth-century hunting party with Irish wolfhounds for a Santa Fe festival) and for a detailed description of the myriad practices that sustained these upper-class show dogs, see Arthur F. Jones, "Erin's Famous Hounds Finding Greater Glory at Rathmullan," *American Kennel Gazette* 5, no. 5 (1934), online at www.irishwolfhounds.org/jones.htm.

16. Franklin, *Dolly Mixtures*.

17. Donna Haraway, "Cloning Mutts, Saving Tigers: Ethical Emergents in Technocultural Dog Worlds," in *Remaking Life and Death: Towards an Anthropology of the Biosciences*, ed. Sarah Franklin and Margaret Lock (Santa Fe, N.M.: School of American Research Press, 2003), 293–327; also discussed in chapter 5, "Cloning Mutts, Saving Tigers," in this volume. Genetic Savings and Clone, Inc., the private corporate labs in which the never-successful Missyplicity Project came to rest after the researchers at Texas A&M lost heart, went out of business in October 2006, leaving its frozen companion-animal tissue bank to the livestock-cloning firm ViaGen. Genetic Savings and Clone did announce the live birth of two cloned cats in 2004 and mounted its Nine Lives Extravaganza, the world's first commercial cloning service for cats, with an advertised price of twenty-three thousand dollars plus sales tax in February 2006. CopyCat, one of the 2004 kittens, cost fifty thousand dollars. No sequel called Cheaper by the Dozen followed. The president of the Humane Society of the United States could only have been called ecstatic at hearing of Genetic Savings and Clone's departure; he was quoted by Reuters news service on October 13, 2006, calling the business failure a welcome "spectacular flop" in light of the resources needed for addressing pet overpopulation. Truth be told, that is my reaction too. I just read my newspaper's monthly list of shelter dogs and cats needing homes in my small town.

18. Hwang W.-S. et al., "Dogs Cloned from Adult Somatic Cells," *Nature* 436, no. 7051 (August 4, 2005): 641. Somatic cell nuclear transfer—the Dolly technique—was the technology employed. In view of the faked data on human embryonic stem cell (hESC) clones, Snuppy's authenticity was doubted, but he was pronounced a definite clone of Tel, the DNA donor, and a major advance for stem cell research by independent investigators in January 2006. See <http://en.wikipedia.org/wiki/Snuppy> to get started on this story. Over a thousand dog embryos were transferred into 123 different bitches to produce three pregnancies

and one living dog. The special difficulties involved in cloning dogs compared with other animals are detailed in Gina Kolata, "Beating Hurdles, Scientists Clone a Dog for a First," *New York Times*, August 4, 2005. On the hESC controversy, Hwang still has supporters in South Korea, and many scientists elsewhere acknowledge the extraordinary international competitive pressures at play in the whole field.

19. From McCaig's posting on CANGEN-L, the Canine Genetics Discussion Group Listserv, around 2000. To understand the work of border collies and the way they are regarded by their people, see Donald McCaig: *Nop's Trials* (Guilford, Conn.: Lyons Press, 1992; orig. 1984); *Nop's Hope* (Guilford, Conn.: Lyons Press, 1998); *Eminent Dogs, Dangerous Men* (Guilford, Conn.: Lyons Press, 1998).

20. Edmund Russell, "The Garden in the Machine: Toward an Evolutionary History of Technology," in *Industrializing Organisms: Introducing Evolutionary History*, ed. Susan R. Schrepfer and Philip Scranton (New York: Routledge, 2004), 1–16.

21. *Ibid.*, 1.

22. Track the show through www.dogswithjobs.com/.

23. For the history of dogs as subjects for behavioral genetics research, see Scott and Fuller, *Genetics and the Social Behavior of the Dog*; Paul, "The Rockefeller Foundation and the Origin of Behavior Genetics"; Haraway, "For the Love of a Good Dog: Webs of Action in the World of Dog Genetics." The early hopes for the first U.S. Canine Genome Project, which was led by Jasper Rine and Elaine Ostrander, included connecting dog genes and behaviors, using crosses of purebred dogs identified for different behavioral specializations, such as Newfoundlands and border collies. Some of the talented fruits of those odd crosses play agility at the same trials that Cayenne and I frequent. The ideas about behavioral genetics in some of the early pronouncements of the Canine Genome Project were the butt of joking among dog people and also other biologists for simplistic formulations of what different kinds of dogs do and how "genes" might "code for" "behaviors," formulations that are rarer in postgenomic discourse. Check out "Finding the Genes That Determine Canine Behavior," www.bordercollie.org/kggenome.html (accessed May 4, 2007), for an explanation to dog people of what the Canine Genome Project was about. Research into behavioral genetics is not necessarily simplistic or unimportant for people or other species. However, old-fashioned ideology dressed up as research plays a big role in the history—and probably future—of this field. Ostrander mainly concentrated on comparative cancer genomics in dogs and humans at the Fred Hutchinson

Cancer Research Center, in Seattle. In 2004, the National Human Genome Research Institute (NHGRI) named her as the new chief of its Cancer Genetics Branch, one of the seven research branches in the Division of Intramural Research. Related to psychopharmacogenetics, comparative behavioral genetics remains a long-term research commitment in the NHGRI.

24. Kerstin Lindblad-Toh et al., "Genome Sequence, Comparative Analysis, and Haplotype Structure of the Domestic Dog," *Nature* 438 (2005): 803–19. Elaine Ostrander was one of many prominent (and not so prominent) coauthors on this paper. Several international labs also had canine genetic mapping projects of various kinds dating from the 1990s.

25. Stephen Pemberton, "Canine Technologies, Model Patients: The Historical Production of Hemophilic Dogs in American Biomedicine," in *Industrializing Organisms*, ed. Schrepfer and Scranton, 191–213.

26. *Ibid.*, 205.

27. Peter Kramer, *Listening to Prozac* (New York: Penguin, 1993).

28. See Andrew Pollack, "In Trials for New Cancer Drugs, Family Pets Are Benefiting, Too," *New York Times*, November 24, 2006.

29. This awful story can be tracked from the Southern Poverty Law Center, Intelligence Report in 2001, "Aryan Brotherhood: Woman's Death Exposes Seamy Prison Scam," www.splcenter.org/intel/intelreport/article.jsp?aid=203 (accessed May 5, 2007). In the year of the mauling death of Diane Whipple by two large mastiff-type dogs in a San Francisco apartment building, the incidence and severity of dog bites in San Francisco in all public places were significantly lower as a result of effective public education programs. That did not stop the public demand to remove dogs from public areas or greatly restrict their freedom in the wake of the mauling. About twenty dog-bite related human deaths occur in the United States per year in a dog population of over seventy million. Those statistics do not justify any of the deaths, but they do give a sense of the size of the problem. See Janie Bradley, "Dog Bites: Problems and Solutions," *Animals and Society* Institute, Baltimore, Md., November 2006. This policy paper is available through the Society and Animals Forum, http://plus7.safe-order.net/psyeta/catalogue/product_info.php?products_id=41 (accessed May 4, 2007).

30. For the 2004 series, see www.imdb.com/title/tt0395048/.

31. See also Andrea Neal, "Trained Dogs Transforming Lives: A Service Program to Benefit People with Disabilities Is Also Helping U.S. Prison Inmates Develop a Purpose for Their Lives," *Saturday Evening Post*, 277, no. 5 (September 1, 2005). Go to www.pathwaystohope.org/prison.htm for the Prison Dog Project (accessed May 5, 2007). Canine Support Teams is the project at the

California Institute for Women. The Pocahontas Correctional Unit in Chesterfield, Virginia, is a women's facility that trains inmates in dog grooming. Gender assumptions seem well groomed here. The Second Chance Prison Canine Program in Tucson, Arizona, is "a group of advocates for people with disabilities, prison inmates, and animal welfare in Arizona [who] coordinate a prison pet partnership program to address issues common to these three groups" (www.secondchanceprisoncanine.org/, accessed May 5, 2007). Go to www.coyotecommunications.com/dogs/prisondogs.html (accessed May 5, 2007) for a partial list of active prison dog-training programs, which include institutions with projects for training stray dogs and cats as well as dogs for people with disabilities. See T. Harbolt and T. H. Ward, "Teaming Incarcerated Youth with Shelter Dogs for a Second Chance," *Society and Animals* 9, no. 2 (2001): 177–82. Canada and Australia also have programs. Animal Planet TV shows analyzed in this chapter were first aired in 2004.

32. Thompson, *Making Parents*, figure 8.1.

33. For example, besides the texts already cited in note 3, see Cori Hayden, *When Nature Goes Public: The Making and Unmaking of Bioprospecting in Mexico* (Princeton, N.J.: Princeton University Press, 2003); Stefan Helmreich, "Trees and Seas of Information: Alien Kinship and the Biopolitics of Gene Transfer in Marine Biology and Biotechnology," *American Ethnologist* 30, no. 3 (2003): 341–59; Kimberly TallBear, "Native American DNA," PhD dissertation, University of California at Santa Cruz, December 2005; Eric Hirsch and Marilyn Strathern, eds., *Transactions and Creations: Property Debates and the Stimulus of Melanesia* (Oxford, U.K.: Berghahn, 2005). I use the idiomatic term *critter* to mean a motley crowd of lively beings including microbes, fungi, humans, plants, animals, cyborgs, and aliens. Critters are always relationally entangled rather than taxonomically neat. I pray that all residual tones of *creation* have been silenced in the demotic *critter*. It would not do for entangled "turtles all the way down" to be burdened with origin and telos in a father god.

3. SHARING SUFFERING

1. Nancy Farmer, *A Girl Named Disaster* (New York: Orchard Books, 1996), 239. Rejecting medical treatment of any kind for themselves, the Vapostoris adhere to an independent African Christian church founded in 1932 by Johane Maranke. In 2006, besides other mammals, about three hundred thousand to five hundred thousand people in sub-Saharan Africa are infected with sleeping sickness, and about forty thousand human beings die every year. The

current epidemic dates from 1970, after screening and surveillance effective against previous outbreaks were relaxed. See http://en.wikipedia.org/wiki/Sleeping_sickness.

2. See Rebecca M. Herzig, *Suffering for Science: Reason and Sacrifice in Modern America* (New Brunswick, N.J.: Rutgers University Press, 2005).

3. The classic exposition is C. B. Macpherson, *The Political Theory of Possessive Individualism* (London: Oxford University Press, 1962).

4. Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham, N.C.: Duke University Press, 2007), has, over many years and in several publications, crafted the powerful feminist theory of intra-action and agential realism. She and I are in firm solidarity that this theory richly applies to animals entangled in relations of scientific practice.

5. My thinking about what sharing suffering might mean was worked out partly in an extended e-mail dialogue in July 2006 with Thom van Dooren, an Australian scholar and writer on the worlds of seeds in technoscientific agriculture. On July 3, 2006, van Dooren wrote: "Some suffering appears to benefit only very specific groups in very superficial ways. Seeing how this all happens requires that we inhabit the kinds of shared spaces that you're talking about. But this is all 'epistemological sharing,' and I have no idea how we might share in a more concrete, messy, and I think meaningful, way. This is also important, I think, in getting at what's going on in global human relationships in which we are all very definitely implicated in the suffering of countless humans (e.g., in the way in which our lifestyles are made possible by theirs), and also in factory farming. These 'critters' (to borrow another of your terms) all suffer for us too—in one way or another. How might we actually inhabit a shared space of suffering with them, and to what end? Especially, when so much of this suffering seems completely unjustified and preventable. In short, I'm not sure that I really do get it. . . . I'm not sure what solidarity and sharing amount to unless I'm willing to take their place. Which prompts a whole lot of questions about why I can't switch places with them, why, for example, some creatures (even some humans) are 'allowed' to suffer and others are not."

6. See Schrepfer and Scranton, eds., *Industrializing Organisms*. Karen Rader, *Making Mice: Standardizing Animals for American Biomedical Research, 1900–1955* (Princeton, N.J.: Princeton University Press, 2004), is indispensable for understanding how economic, scientific, cultural, and institutional meanings of *natural* and *man-made* are negotiated in shaping keystone experimental organisms.