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ETHNOGRAPHIC CRITIQUE AND TECHNOSCIENTIFIC
NARRATIVES: THE OLD MOLE, ETHICAL PLATEAUX, AND
THE GOVERNANCE OF EMERGENT BIOSOCIAL POLITIES

ABSTRACT. A reading of the puzzle novel *Vienna Blood*, by Adrian Mathews, is juxtaposed to three ethnographic sketches of contemporary ethical plateaus or domains of ethical challenge – the challenges of informed public consent to new technologies, the seductions to do whatever is medically possible (sometimes at the expense of quality of life or the ‘good death’), and the power of money in driving the biotechnological industries. *Vienna Blood* deals with precautionary germplasm modification and chemical camouflage justified as protection against ethnically-targeted biological warfare, and touches on a series of technologies such as new reproductive technologies, genetic engineering, and cryptographic attacks and defenses, as well as the ability to evade regulatory controls. Such technoscientifically informed novels are useful as cautionary tales, in exploring the complexity and interaction among new technologies, and the phantasmagoria that help drive new technologies. They are not so good at thinking through institutional development: a challenge for ethnography and new social theory. Ethnography, like novels, can function as checks on the mechanisms of abstraction and universalization that frequently bedevil the non-anthropological, non-cross-culturally or cross-temporally comparative, social sciences. Questions are raised about new or emergent biosocialities, forms of governance, and forms of cultural critique.

KEY WORDS: biosocialities, critique, governance, the literary and the ethnographic

CAUTIONARY TALES:
THE PHANTASMAGORIA/REAL OF BIOTECHNOLOGY

At a time when Vienna is making itself heard once again through the voice of its Opera . . . the eternal city of Freud’s discovery, if it can be said that as a result . . . the very centre of the human being was no longer to be found at the place assigned to it by a whole humanistic tradition.

– Jacques Lacan, *The Freudian Thing* (1997: 145)

Memory has value only as foresight.

– Balzac, cited by Walter Benjamin (*Lukacher*: 265)

Both opera and novels theatricalize society and culture, dramatizing the conflicts, uncertainties, dilemmas, misrecognitions, differences, fantasies, wills, psychodynamics, obsessive repetitions, labilities of desire, and power differentials that individuals and institutions negotiate. So does



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much good ethnography in the sense of showing how people appropriate and use cultural forms in multiple ways, and showing the unfolding of social action over historical time and across social structures. In his 1955 lecture at the Neuro-Psychiatric Clinic in Vienna, Jacques Lacan recalled Sigmund Freud's observation that there are three impossibilities: to educate, to govern, to psychoanalyze.¹ In each endeavor, what escapes is also formative. As Walter Benjamin, Jacques Lacan, and Slavoj Žižek all elaborate, phantasmagoria ground and structure the terrain in which reason, will, and language operate. To understand our experiences and place in the world requires a study of language and institutions and of the resonances of history, memory, literature and the arts.

Among the quasi-mapping functions that technoscientifically literate novels help put on the table are the ways in which technologies interact and help define historical horizons, social landscapes, and what I will dub "ethical plateaux" (horizons of ethical issues posed by the intersection of several technologies, their institutional formatings, and their deployments through markets and other mechanisms). Novels also often describe changing and temporary ethical boundaries, ways of handling the phantasmagoria of technoscientific possibilities, and modes of narrating or thinking about the above elements. What does fiction leave out that ethnography supplies? Two first approximation hypotheses: First, ethnography provides better sociological imagination about how social institutions work and might integrate and regulate new technologies (for some reason, thinking about institutional development is not a task that most novelists have taken on, although some of the aggressive competition, blocking of information flow, and working around the rules is described realistically). Second, ethnography is a better "reality"² check about what is actually the case, against both the hype of promoters of the new technology (which hype is often a necessary part of the development of these technologies, and thus in ethnographic terms, itself a discourse needing documentation and putting in its place or mapping its contours, limits, contradictions, and departures from reality) and the cautionary tales, as well as fantasies of hope, in which novels excel. In a sense, then, novels often can be tools to help explore the ideological cultural armatures of technoscientific developments; while ethnography can play the complementary role of exploring the institutional or sociological placing of these armatures, constituting a form of cultural critique by staging such armatures vis-à-vis other perspectives or cultural formations.³

A wonderfully satirical puzzle novel, *Vienna Blood* (1999), by a Paris-resident author of English and Czech background, Adrian Mathews, may serve to pose an initial nexus of emergent ethical, regulatory, policing,

civil society vs. expertise-run oversight issues in the space of overlap between new molecular biology, computer and informatics technologies, and environmental challenges.

Vienna Blood is but one of a series of novels (and bioartist performance pieces⁴) I would use as novelistic probes into the contemporary landscape of dilemmas – ethical, social, and conceptual – posed by the new technologies. Among the others are *Mendel's Dwarf* (1998) by Simon Mawer on achondroplasia dwarfism, and the transformations from biological gardens to molecular biology laboratories; Gunther Grass's novels and essays on the destruction of that cultural icon of German Romanticism, the forest; Greg Bear's two science fiction novels on biotechnology entrepreneurship, *Blood Music* (1985) on molecule production that gets out of hand and *Darwin's Radio* (1999) on stresses that activate distributed retroviruses lodged in our hereditary genome; Amitav Ghosh's *Calcutta Chromosome* (1996) on computer data banks and the displacement of Third World contributions to malaria (read biological) research; Rohini Nilekani's *Stillborn* (1998) about the transnational entrepreneurial terrain in which poor Third World women are used as testbeds for clinical trials and the expansion of new medical technologies; and Richard Powers's novels on molecular biology (*The Gold Bug Variations* [1991]), artificial intelligence (*Galatea 2.2.* [1995]) and the uncertainties of cancer etiologies in industrial production (*Gain* [1998]).

Vienna Blood is about precautionary germplasm modification and chemical camouflage justified as protection against ethnically-targeted biological warfare. These technological possibilities are in fact under current investigation if of somewhat dubious potential. If, however, one understands ethnicity, as the Human Genome Diversity Project encouraged us to do, in terms of the eight thousand or so genetic population clusters defined by HLA markers, rather than as biologically meaningless race categories or merely culturally defined ethnicities, it is not quite as fanciful as it may first seem. In any case, the attendant questions of new reproductive technologies, genetic engineering, eugenics, biotechnology entrepreneurship, ethical review boards (and their circumvention), privacy (violation), electronic databases, cryptographic defenses and attacks, electromagnetic monitoring devices, virtual reality devices, networked communication devices, including customized personal agents, pagers and remotely operated cyborgian enhancements for the disciplining of the body – these are already very real contemporary technologies and issues.

In this article I try to explore new roles and challenges for anthropology in terms of three frames: the cautionary tales of novels; the ethnographic

cultural critique of challenging the constitutive hype of new technologies, including the constructions of “risk,” “cost-benefit,” and “bioethics”; and the delineation of new social theory and new ethical landscapes not reducible to the dyadic choices, rational man calculus, binary trade-offs of pro and con and split-the-difference adjudication television-style debate, or “for the moment” pragmatics of political decision-making that go into the “policy” industry. The next section’s novelistic figuration and literary critical reading is followed by ethnographic sketches of ethical discourses and new arenas of ethical challenges; novelistic and ethnographic parts are intended as comment upon and complement to each other, each skeptically quizzing the other, and together composing a (set of) ethical terrain(s).

The continued viability of critique by the individual moral voice (novelist, ethnographer) is also at issue in this post “death of the author” age. Novels and other story forms constructed by individuals remain invaluable modes of access to social worlds, to scenarios of how the collective consciousness, collective representations and symbol systems of society, are deployed and work their effects. Ethnography, like novels, can function to check the mechanisms of abstraction and universalization that frequently bedevil the non-anthropological, non-cross-culturally or cross-temporally comparative, social sciences. Though a fuller exploration of the semi-socialized individual authorial voice, or hand, cannot be pursued here, it is worth noting that narrative theory in the new highly technologized arenas of computer mediated communication and the neurosciences is supplementing the traditional humanistic approaches to narrative by considering the ways in which, for instance, micro-narratives might be temporal units of mapping rhythm and memory physiologically in the brain (see, e.g., the MENO workshop⁵), and in any case by showing that the history of technology can be made much more powerful by asking “who” did it, a feature that is replicated in the obsessive attempt to give credit among software innovators to one another. Consider also the degree to which social theorists’ understandings (Marx, Weber, et al.) are rarely separable from their biographies, historical horizons, and literary technologies. This is less a matter of the individual escaping social generalization or the impossibility of modeling social processes. Rather it is a matter of precipitating loci where historical and cultural social processes intersect, allowing detailed accounting of particularities, strengths and blinders of perspective. Whether or not anthropologists can ever again have the public voice that once accrued to Margaret Mead, Bronislaw Malinowski, Franz Boas, Robert Redfield, Claude Levi-Strauss, or perhaps Clifford Geertz; or whether or not anthropologists can ever have the kind of functional moral voice that Mary-Jo DelVecchio Good notes accrues to some senior physi-

cians through the accumulation of experience, credit and grappling with public medical issues; they can continue to play various “reality check” roles. “Reality check” here can be taken both in its ordinary usage, but also in its more quasi-Freudian, Benjaminian, Lacanian, or Zizekian resonance of going through the city of phantasmagoria out of which humans spin their worlds of anxiety and meaning, walking with a lantern, not to shine the light of truth (an impossible locution), but rather to illuminate the technologies of displacement, symbiosis, production, testing, and marketing upon which the technosciences depend.

At issue thus are three methodological questions: (a) the relation between *the literary and the ethnographic*: that is, the roles of cultural resonances in the shaping and understanding of the technosciences, along with the roles of the social peopling of technologies in their non-perfectionist implementations, real world operations, and entropies; thus conversely the ways in which ethnographic projects might be entered from the literary to complement and contest it; (b) the role of *critique* more broadly, both in its more systematic “reality checking” modalities (cultural, historical, and discursive juxtapositions; mapping differential demographic, sociological, institutional terrains; probing meaning structures at the individual, structural, or cultural levels), and in its more individualized craft-like signatures; (c) the probing of whether the field of *politics* is undergoing structural shifts such that traditional terms of politics misrecognize more fundamental changes, or whether (à la Ned Lukacher’s [1986] mid-nineteenth century Karl Marx and Michael Hardt and Antonio Negri’s [2000] twenty-first century Empire) politics for the moment is impossible as a “viable alternative,” that we are in a transitional period waiting until a different politics may again be possible, the period of the old mole being driven underground by the imperial eagle.⁶ Can the figure of the “old mole” of critique – the artisanal voice or textual hand of situated experience, of historical and cross-cultural juxtaposition – continue to play the role of outsider perspective, of letter carrier from earlier or culturally other temporal horizons, and of witness to human singularities?

Two modifications or mutations of the old mole make it appropriate for contemporary biotechnological settings. First the authorial/ethnographic voice/hand is often best pursued in a hybrid/collaborative insider/outsider tension with the scientist-technologists of new technoscientific worlds either to elicit their informing worlds of meaning (with the attendant seductions of playing into the public relations, advertising/advocacy, that shapes the futures of the scientist/technologists), or also to help in the evaluation and advocacy that attempts to place some civil society oversight on technoscience and correct for adverse byproducts of industrial accidents, toxic

wastes or the like. In a wonderful recreation of Freud as a psychologist taken along cryogenically on a space voyage, unfrozen whenever there is a human crisis, Barry Maltzman (1985) humorously shows Freud as failing each time to be of much pragmatic help, and yet the fantasy of his presence and mode of inquiry helps to humanize the technoscientific project, to serve as passage between historical periods, and to remind of the human composition of technoscientific projects. A similar but ethnographic “peopling of technology” is Rayna Rapp’s (1999) study of how different communities of families react quite differently to amniocentesis detections of Down Syndrome, some using it to trigger abortion, others to mobilize familial resources for care and support, invoking different religious and moral imperatives.

The second genetic modification/mutation of the old mole, like the antibody or enzyme productions of its oncomouse relative, is its production of new social theory to provide at least partial meta-narratives for creative thinking about the structuring of these new worlds (social movements, risk society and reflexive or second order modernization, deliberative politics, mediated civil society). As the new technosciences and their media make our social worlds more complicated – often more locally demanding/disciplining of individualistic choice/responsibility while increasingly more dependent upon global economies of scale, changing temporalities of social calculation and spatialities of accountability; and shifting the parameters of life and health into data sets that are not directly perceptible to the individual’s senses but require scientific instrumentation, processing, and testing for visibility, themselves subject to various sorts of manipulation and interpretation – consequent to these processes are there emergent a New Man/Woman,⁷ new biosocialities, and new governances? Are the technosciences creating not only new subjects (cyborgian bio-machine hybrids, genetically engineered new life forms, self-disciplining objects of testing regimes, bureaucratically recognized/excluded citizens, etc.) but also new political stakes and processes that escape traditional institutions and categories of politics and regulation?

WIENER BLUT

... is not all this dream interpreting and newly emergent psychoanalysis, which expressly and polemically dissociates itself from hypnotism ... itself part of Art Nouveau, with which it indeed corresponds in time? ... Art Nouveau replaced interiority with sexuality ... it was only in sex that private individuals could encounter themselves as corporeal rather than as inward.

– T. Adorno and Gretel Karplus to W. Benjamin, 2–4 Aug 1935 (Adorno and Benjamin 1994: 112)

Vienna Blood is dense with Viennese localities and cultural references, doing for turn of the twenty-first century Vienna, if more sketchily, what James Joyce did for turn of the twentieth century Dublin (or if much more briefly, what Robert Musil did for an earlier Vienna), but also lightly and ironically gesturing at Viennese and Hapsburgian literary themes of the uncanny, vampiric, masked, and faux facade. The historical layering provides a way of referencing the generational changes in popular usages, confusions, and correct understandings of eugenics, racism, anti-foreigner feeling, anti-Semitism, and new post-genomic eugenics. Right-wing attacks by groups called Fortress Europe (Festung Europa, [FÖ]⁸) or Neues Oestmark (New Austria, Oesterreich) against immigrant workers' hostels, thus, are part of the plot, together with the disconcerting youth culture of Nazi-like symbolism with no true historical connection, grounded in resentment of aliens being given jobs or welfare benefits.⁹ More arresting is the explanation by some of these youths that violence is no longer necessary as in earlier right wing politics, because they say aliens will not survive long in the local environment. What makes this archaic and recirculated reasoning arresting in the contemporary setting is that a scenario is constructed whereby environmentally disseminated biological toxins affect population groups differently: in this case the affected population is not Turkish, but Slovak (see also n. 8).

The novel is plotted as a peculiar kind of murder mystery, displacing the genre, not quite inverting it inside out as did Kafka's *The Trial* where at issue is not who did it or why, but rather what, if any, was the crime, and what, if any, was the justice of the process. *Vienna Blood* involves instead a displacement of the opening murder, and so mirrors the ethical substitutions that biotechnology effects through changing what counts as the basic terms of life, kinship, bodily integrity, genetic makeup, ethnicity, national identity, sovereignty, and international accountability. Germplasm genetic engineering is currently one of those unstable ethical boundaries: there are many who say somatic gene therapy is fine (to correct diseases), but germ line genetic engineering is taboo because it turns future generations into commodities, and worse (for some) it is the slippery slope towards changing the fundamental nature of the species, and along the way probably instituting a caste society of the gene-rich (or genetically enhanced) who might in time not even be able to interbreed with those who have not been genetically enriched. Put into question then could be many of the major categories by which we understand life, kinship, etc. The person we assume murdered at the opening of the novel turns out to be other than what we think (physically, genetically), involving a kind of Moebius-like reconstruction of various assumptions the reader (and characters) initially

make. And indeed the genre is itself, in fact, not so much a peculiar kind of murder mystery, as an updated play upon Sir Gawain and the Green Knight,¹⁰ crossed with bits of Disney (“where da wabbit go?” “what’s up, doc?” are chapter section titles), and homage to Graham Greene’s *The Third Man* (1988) with its themes of a penicillin racket, disappearance, and Oedipal rivalries.¹¹ Like a murder mystery puzzle, however, the trajectory through a maze of clues to a predetermined end both raises questions about the hiring of bioethicists by corporations (in the novel a figure of this type plays a role in laying down the clues), and also raises the ethnographic question of how we are to narrate to ourselves the changing ethical plateaux in which we live (new technical possibilities that initially seem like warning flags rapidly become absorbed into routine markers of a changed common sense).

The novel is set a quarter of a century into the future, so that it can revolve around two generations of characters who are us: young adults born with the aid of reproductive technologies of the 1990s; and the adults today who are creating those reproductive technologies who will then be in their sixties and seventies. The science in *Vienna Blood*, with some minor extrapolations, is that of contemporary biology. Passages of explanation sound exactly like what one gets from 1990s molecular biologists and entrepreneurs of the Human Genome Project. It is as if the literary form has been dipped into the circulation of today’s scientists’ explanations, with the effect of (slightly, but only slightly) widening the speculative horizons that scientists allow themselves in thinking through the ethical, legal, and social (ELSI) implications of what they do. The head of the Whitehead Institute’s Human Genome Project at MIT, in his public and pedagogic presentations in 1999–2000, will at moments of reflection say that he is personally opposed to any tampering with the human germline, but that he cannot find any firm philosophical or principled groundings for that opposition, because he is also opposed to any regulation or constraint on scientific investigation. It is just a deep personal unease and ethical dilemma for him about the shift line between therapies for disease and unacceptable commodification of human beings.¹² (In fact the same “slip-page” or “contradiction” or conflict between principles can be found in the 1997 UNESCO Universal Declaration on the Human Genome and Human Rights.) In the meantime, he is engaged in a high speed, highly capitalized, race to pursue the science, the creation of a new biological “periodic table” which will form the basis of new practical tools. This race, of course, allows relatively restricted space for ethical discussion or redirection.¹³

Or again, if one thinks about the debates concerning cloning (a technology which makes a cameo appearance in *Vienna Blood* as older and

less acceptable legally and biologically than the lead technologies of the book), genetically modified food crops (at the center of 1990s trade wars and struggles over the World Trade Organization's intellectual property, labor, and welfare rules), or Iceland's model of genetic information mining through Kari Stefansson's company deCode which by Icelandic Parliamentary agreement in the 1990s has monopoly control over creating a triple linked data base from the Icelandic genome, Icelandic genealogies, and Icelandic health data (with an exclusive license with the Swiss multinational, Hoffman-LaRoche, to develop therapeutic drugs, and various agreements with other research groups), one sees again and again temporary boundaries of (un)acceptability placed under economic, scientific, and legal pressure. We are *always*, says Harvard ethicist and cystic fibrosis physician Dr. Walter Robinson, on the slippery slope (1999).

I will provide a reading of the novel in three parts: a preliminary setup; a listing of interlocking new technologies explored or referenced; and most importantly then an account of the key molecular biology technologies and the series of ethical plateaux worked through from older traditional dilemmas to newly emergent ones.

A Reading of Vienna Blood: The Setup

The title *Vienna Blood* is worked to signal the ethical thematic of the ways rules and regulations about genetic engineering, clinical trials, privacy, and so on, can be subverted. *Vienna Blood* is, of course, a pun referring to Strauss waltzes as well as to blood and its fractionable products. An opening epigram, from Otto Weininger, deprecates the waltz as circular, thus suppressing liberty, thus immoral; and the Viennese as fatalists ('leave things be, there's nothing we can do'). The ostensible initial murder victim is described characterologically as "waltzing from the waist down." "It's what they say about the Viennese, isn't it? . . . Stiff as a ramrod from the waist up, a picture of honesty and rectitude. Then down below, all the fancy footwork" (45). This is less to be taken as any serious commentary on the Viennese, even though these characterological aspersions are part of old Viennese self-deprecations, and rather are a signaling of the ethical problematics staged by the novel.

Narrated by a journalist, Oskar "Starkey" Gewinnler, the story opens with the obituary of a Leo Detmers and a phone call from the pregnant widow, Petra, who asks Starkey for help because Leo told her he was a friend. Although reported as a hit-and-run accident at the Prater, Vienna's famous amusement park, Petra thinks Leo knew he was targeted to die. Starkey and Leo had met going to a conference in Hamburg on Securicom (secure communications); Starkey thought him a boor, but Petra hints at

a deeper connection. The opening chapter is littered with allusions and markers, operating both as clues in the murder mystery story, and also as technoscientific, political, and cultural pointers or resonators:

Environment: for the first time in seven years, it is snowing in Vienna (global warming, “perverse decaying laws of the physical universe”).

Genetics: Leo Detmers may have been a boor, but there is something disarmingly familiar about him, “a common Austrian phenotype,” “like generic supermarket packaging,” and Sharkey finds himself mentally “proof-reading the human galleys” of Leo’s quirks. Sharkey also eerily feels an echo of Leo in Petra’s movements, which turns out to be more than just the long term behavioral mirroring of spouses who met in kindergarten and married at eighteen (in the same church where they also held Leo’s funeral).

Computer technologies: Leo was a hacker, who worked at home – ostensibly as a commodities and precious metals trader – on an “early green fluorescent protein computer, the kind where the silicon’s replaced by jelly fish molecules.” Leo was the kind of hacker who would walk his dog “by putting an old fashioned electronic pager on its collar and when it was time, ring up the pager on his Networker.”

Genealogies: Among the clues Leo has left are serial numbers on post-its “in frantic blue felt tip,” stacks of Mormon publications, and a GeneDraw software handbook.

Forensics: His dog, Argos, is named after Odysseus’ dog, the only sentient being to recognize Odysseus when he returns to Ithaca, and Argos plays an analogous role in the forensics of the novel by way of the night traffic camera at the Prater that records one angle on the hit and run crime scene.

Names: One wonders if some of the other names are not similarly significant. For instance is “Oscar” a nod to Gunter Grass’ *Tin Drum*, especially given that it also becomes the name of Petra’s child, born into what may become a genomic brave new world of the twenty-first century?¹⁴ Petra is perhaps more literally descriptive: Sharkey tells us she has presence, she is “class but high maintenance,” and that “[l]ife arranges itself obediently around women of her sort, like iron filings around a magnet.” She is also an homage to the filmmaker, Fassbinder.¹⁵

Experimental systems: There is a play between down-to-earth gravitas and biological life, versus virtual reality environments and wall-screens, the Mariott Hotel orbiting in space above Vienna where one can go to experience sex in zero gravity, and behind the scenes genomic manipulations that may or may not be evident to the phenotypic, sentient carriers.

Transnational science: Then there is a Hannah Delbrück, which could be

a nod to Max Delbrück, the physicist who migrated from Germany to America and from physics to biology, a key figure in the early history of molecular biology.¹⁶

Politics and history: The political landscape in which this all occurs is sketched deftly: Starkey¹⁷ lives in the Karl Marx Hof (“Stalinian Red Vienna home to two thousand proles,” but in fact solid middle and working class since the 1930s); Leo and Petra live across town in the 1980s Hunderwasser Haus apartment block (“a touch of the Grimms, a dash of Arabian Nights, more than a hint of Klee and Mondrian”).

Contemporary politics: As Petra and Leo start to light a Cannoboid, a detonation goes off in the distance, which Starkey analyzes as probably a fire-bomb against guest workers from the Balkans or Turkey by one of the right wing groups, Festung Europa or Neues Oestmark.¹⁸

Interlocked Technologies

The inventory and interconnections of contemporary technologies under development invoked in the novel function as both (a) repeated crossings between fantasy and reality, between the promises scientists and technologists make in order to get funding and political support for their projects and the more mundane workings of these projects; and (b) the confluence of two temporalities or loci in two ethical plateaux, the one – pasts present – operative as legacies of the past in the present; the other – futures present – operative already or potentially operative as the result of promised technological futures.

Forensics stories, policing and computing-hacking of database stories involve surveillance versus privacy, conspiracy and/or proprietary information versus openness of information, civil rights and policing, but also the ability of multinational, transnational, and even primarily national corporate organizations to operate around state and international regulatory and governance organizations. The forensics technologies (investigating Leo’s death, and the later explosion in Petra’s apartment which kills Argos) include both current technologies and some that might soon be developed: night camera traffic monitors (for low security areas taking only a photo every two seconds and using fractals to fill in between); virtual reality animation reconstructions that can be programmed for different velocities of impact; blimps with thermal imaging and surveillance equipment with computerized face recognition that can scan crowds at twenty faces per second and match against a data base of millions of photos; voice recognition machines to take depositions that print the transcripts and use biometric signatures for verification; chromatographs, chemical

analyses, and spectrometers to distinguish Semtex plastic explosives from other kinds (211).

The hacking stories are basic to individualistic and journalistic efforts to fight corporate secrecy, and include not only computer skills, but “hacks” of wit, including verbal, non-technological gambits. Leo had been hacking into databases of financial and medical records in search of his own past. The trail of his efforts provides clues for Starkey. In a classic hack of wit or gaming, Starkey breaks into the first levels of a secure database (a closed architecture not connected to the Net, protected by multiple levels of symmetric and asymmetric or public key style encryption algorithms, dynamic passwords with voice and biometric authentication, and information segregated into different levels of access) by simply putting on a uniform that looks like that of a telecom repairman, calling the proprietary organization on a video phone, and asking if they’ve been having computer problems (“Who doesn’t?”), and thereby getting the dial-up number. In a satiric aside, we are told that bits of partial, distributed information held in the highest level of security in this elaborately protected database are not in fact secured electronically, but are known only orally to the people with the highest authorization.

The medical technologies are all contemporary ones, tweaked by a few slight extrapolations, and likewise their ethical problematics are that they are mediated by markets, both white and black, as well as by various forms of health maintenance organizations. Thus while we already have organ donor cards, these are slightly extrapolated into harvest contract cards that allow major organs from a fresh cadaver to be auctioned on the Net (liver, kidneys, heart and lungs), that distribute corneas, inner ears, jaw bone, heart pericardium, pancreas, stomach, bones, hip joints, ligaments, cartilages, bone marrow, over two square metres of skin for burn victims, a hundred thousand kilometres of blood vessels (“they reckon one card-carrier can end up in over fifty people”), and that in Leo’s case allows special uses for his high concentration of antibodies for hepatitis B (“take the plasma, . . . fractionate . . . a little cloning and you’ve got vaccines and diagnostics” [26]). Similarly fermentation biotechnologies are market driven with both salutary economy of scale outcomes (“installing the basic technologies as they came along: recombinant DNA, biochemical reactors, mass cell-cultures”) for producing marketable diagnostics, reagents, growth hormones, human insulin; but also (as is the case) ethically problematic results in companies trying to avoid orphan drugs (potentially useful but for illnesses that afflict relatively few people, thus not yielding the profits obtainable from mass markets [98]). Among the latest of technologies registered in the novel are genome mapping by

machine-gun sequencing and flow cytogenetic analysis (163); efforts to understand pleiotropic genes that affect more than one characteristic; and testing the switching on and off of genes at particular times.

More sardonic are the new uses for human growth hormone such as boosting athletic performances in ways not detectable by drug tests, said to be popular with cyclists, despite killing a few by putting too much strain on their hearts. More controversial today is fetal tissue research, initially experimentally to treat Parkinson's Disease, but then to accelerate wound healing and athletic performance. The downside temptations, much debated today, are of encouraging abortions, or taking embryos without permission (219). Again a bit satirically, but raising a central issue about who might be in control of decision-making, is this comment on new reproductive technologies: "There are sixteen ways of doing [sex] now . . . gamete intrafallopian transfer . . . zygote interfallopian transfer, . . . tubal embryo transfer, partial zona d-dissection, microsurgical epididymal sperm aspiration . . . You do it one way, right? But *they* can do it any way they like!" (39).

More marginal to the story line of the novel, but suggestively linked to some of the more central technologies, are genetically engineered crops (the genetically engineered Virginia creeper that grows on the Karl Marx Hof walls and produces strawberries and beans); virtual reality devices (the data headset worn by police inspector Usinski; Plasmavision wall screens for news, entertainment, communication); and remotely networked haptic feedback devices (the finger sheaths that allow distance learning style piano practice with a master teacher controlling the fingers from afar, also able to make one's own hand slap one's self if one is not paying attention or following instructions).

As important as the genetic technologies are the ecological ones. Ecological understanding involves recognizing how activities might be interconnected, and is a cognitive terrain for puzzling out what is technological intention and what is unintended consequence. Differential ecological die-offs of fish, and flu affecting different human populations are clues to biological warfare testing. Biological warfare involves national (or ethnic) security arguments, justifications for secrecy, and avoidance of normal oversight by civil society. On a more global scale, reference is made to turn of the millennium pollution and other factors beginning to affect fertility rates, to the rise in Multiple Chemical Sensitivity (the comic agoraphobic, allergy-ridden, as well as MCS affected, officer who operates the computer databank for police intelligence, named Walter Reik [=?Wilhelm Reich in an inverse orgone box?]), and the comic series of posters on the outpatient clinic of the General (Allgemeines Kranken-

haus): “‘Did you possess one of the following cellphones between 1998 and 2013? If so, you were exposed to unsheathed e-m radiation. Make an appointment for a brain-scan now.’ There are posters for Creutzfeldt-Jacob clinics, posters featuring syringe-crucified heroin addicts, posters on all the latest T-cell lymphocytotropic viruses . . . I look around for a poster warning against posters. The place is an angst-factory, scrupulously designed to induce mortal terror” (125).

LADDER OF ETHICAL PLATEAUX AND NEW SOCIAL THEORY

Kafka’s novels . . . represent rather the last and disappearing connecting texts of the silent film (and it is no accident that the latter disappeared at almost exactly the same time as Kafka’s death.

– Teddie Wiesengrund[-Adorno] to W. Benjamin 17 Dec 1934 (Adorno and Benjamin 1994: 70)

The linkages of interconnections among technologies, and how they are part of the ladder of ethical plateaux, whereby one works from easy and historically older issues to more complex ethical landscapes, might provide a way to think about how traditional critical social theories are being challenged to evolve in new directions. Thus Ulrich Beck’s (1986) account of “risk society” and pressures towards reflexive modernization begins from the generation of toxics which cannot be perceived by the ordinary senses, and which need to be registered by scientific instrumentation and interpretation not available to the man on the street, hence demanding social tools to force companies and governments to disclose what they know. One source of such demands is industrial accidents and the demands that “polluters pay.” While companies and governments tend initially to respond to cancer clusters and other indications of trouble by denial, they often can be forced to acknowledge that for instance the handling of chemicals on the shop floor differs from conditions in the laboratory, and that they would be better off with a system of information inputs from many actors within a complex system, rather than relying on design diagrams from the top down that can be like fantasies of perfect control. But actually pinning blame on particular sources can also turn out to be complicated and elusive where multiple causes may be involved, accumulated effects over time may work differently than single direct causation, and where society needs to share risk rather than shut down economically vital industries. These pressures and contradictions can be formulated into a new social formation struggling to emerge from first stage capitalist modern-

ization, much as Marx described the emergence of capitalism out of the contradictions of feudalism.

Among the actors forcing this emergence are new units of politics that have been dubbed “new social movements,” originally focussed less on traditional electoral politics than on insistence that everyday life needed tending. While organizing and lobbying tactics can be drawn from traditional politics, there are also new modalities that have powered the environmental, women’s, and patient-support groups. The Internet has become an important tool of access to information, sharing of knowledge, and reconfiguring power relations based upon access to knowledge (among doctors and patients, or insurance payers and patients, or industry scientists or bureaucracies’ databanks and local communities). And in turn the Internet has generated a sophistication in the use of the media generally, including the countering of “grass-roots organizing” by corporations attempting to undo the force of new social movements. These forms of local activism in alliance across communities have also directed attention – given the widespread despair about the deadlock, or capture by market forces, of conventional politics – to new formats for “deliberate politics.” The ability of patients and others to insert themselves in bureaucracies as empowered citizen-actors often takes the form of new biosocialities constructed by new modes of accounting for life, illness, and degrees of access to citizenship. These components of new social theories – second order modernization through distributed, participatory decision-making; social movements; critical deployment of media; deliberative political experimentation; shifting biosocialities – are not well represented in novels like *Vienna Blood*. Instead the novel presents scenarios of why such initiatives might be necessary, and does so in at least a two step appreciation of older biosocial understandings and newer ones.

At a first low level on the ladder, there is the logic of old style eugenics, and its legacies in the neo-Nazi right-wing parties fuelled by resentments against ethnic immigrants, sometimes acted out through fire-bombings of guest worker hostels. These are guarded against by policing and surveillance balanced by protection of civil liberties (“That’s life. People get killed, kids get orphaned. It happens everyday . . . The only preventive medicine is good information. Good information in the right hands.” With a certain German irony, Uscinski continues: “Ruhe und Ordnung. Remember that, my friend.” [142].) This ethical landscape operates on a macrolevel of the Cold War overtly but also in subterranean secrecy: there are rumors of weapons and money caches buried by the American forces after World War II in preparation for use against Communist incursions. These weapons were perhaps funneled to the resistance in Czechoslovakia in 1956. The

money may have flowed into right-wing anti-Communist politics, unintentionally flowering in the various 1990s anti-immigrant and neo-fascist parties across Europe.

The next ethical plateau is a kind of second-order deployment of that older first-order politics. Suppose one were not just deploying money to influence the balance of politics in a back stage, but fairly ideologically obvious, manner. Suppose one were using the tactics of small scale shifts in balance of power within national governments to block too much open attention to the rules of ethics about bioengineering and experimentation, justified in the name of national security defense against biological warfare. Here the resources of the old eugenics serve as a serendipitous clue for Starkey: the neo-Nazis continue to circulate old Aristotelian, Galenic, and Romantic notions of organisms adapted to place, and foreign organisms inevitably becoming diseased. The neo-Nazis use this to claim that they will not have to resort to violence, but it triggers in Starkey some worries about why certain kinds of fish in the Neusiedler See have died but not others, and why Slovaks, but not Austrians, came down with the flu at meetings of the Slovak-Austrian Friendship Society. Might there be a way to target particular ethnic groups within a multi-ethnic society? Might first trials be with delivery systems like aerosol sprays in air-conditioning ducts, or through water systems or subways, using non-banned substances like flu or pneumonia viruses ("Flu viruses, for example, are not outlawed particles. . . . Nor is it a criminal offense to pass flu on to another person." Starkey: "But spraying it into ventilation ducts with patent periodic aerosol deodorisers may well be" [296–297]).

The history of biological warfare is not new, but molecular biology can refine the targeting. The novel invokes the genealogy of such warfare from Tartars catapulting plague victim bodies over the walls of Kaffa, to the British giving blankets infested with smallpox to Indian allies of the French in the French and Indian war, Japan aerially dropping flea-infested material into China to cause bubonic plague, suspicions about what the U.S. might have used in Indochina or the USSR in Afghanistan, or even the legacies of defensive testing of anthrax on the island of Gruinard off Scotland. The fear of biological weapons has long been a strategic concern (294). Despite the 1972 Biological and Toxic Weapons Convention, the Gulf War again put the issue on the public agenda, as did the outbreak of anthrax from a Russian biological weapons facility, and the Aum Shinrikyo's sarin nerve gas attack in the Tokyo subway.¹⁹ Suppose you could "engineer your agent to search the HLA system and VNTRs for sequences specific to certain population groups. . . . Those are the mantras of modern warfare.

... In attacks on multiethnic communities you avoid, for example, killing members of your own population group who happen to be in situ" (295).

How would you protect your population against such targeted attacks? Suppose, the novel speculates, you took frozen embryos all from one egg donor and fertilized by one sperm donor, and genetically engineered them at the two to four cell or morula stage, screening them for any life-threatening abnormalities (e.g. spina bifida, Down syndrome, haemophilia, cystic fibrosis, Huntington's Chorea), and then chemically masked these "Safe" individuals using population specific sequences in Human Leucocyte Antigens, Variable Numbers of Tandem Repeats, and non-coding stretches of 'junk' genes. (Such masked sequences would function normally but would not show up on an ACGT read out or would be scrambled, and so would seem to be ethnically neutral. While population groups are not closed systems, and there are not races in the old nineteenth century sense, there are some four to eight thousand relatively distinct population groups that carry thirty different systems in the blood that can be analyzed and used to map population migration patterns.) And suppose then you substituted these "Safe" embryos for IVF harvested or donated gametes in couples seeking infertility treatments (255–256). You would thus create a "eugenically cleansed population" safe from biowarfare targeted for your population, a technology which like all technologies could be used for good or ill ("it is new science and therefore ethically controversial. The code of silence, therefore, had the dual benefit of being good eugenic practice and sparing new parents (suffering all the stresses and strains of IVF) from becoming embroiled in a moral dilemma which, given the complexity of the issues involved, lay beyond the scope of simplistic or rapid clarification" [257]).

Two implicated issues arise in this scenario: (a) what escapes the various ethical review boards and conventions – that is, what is the status of contemporary institutions for ethical review; and (b) how does one protect patent, proprietary, and other secrecy demands of developing new science while at the same time protecting the right to know by individuals and populations affected – that is, how do the technologies of the law, cryptography, data banking and data mining intersect with science?

The corporate history of the novel's biotechnology firm provides a review of the second of these, placing it, like Zelig, within the actual history that we have experienced since the 1980 Chakrabarty decision that allowed the patenting of a bacterium that could eat oil slicks. Plant materials had been open to earlier patents, but this decision opened the U.S. patent system to a flood of patent applications for manufactured living materials, and dramatically changed the relationships of biology among

the academy, private industry, venture capital, and government regulation. Chakrabarty was followed in 1988 with the transgenic mouse, and in 1991 a patent for bone marrow immortal cell line taken from a cancer patient. By the late 1990s not only were there popular films like *GATTACA* on designer babies and the possible fascist, genetic caste system of controls this might encourage; but Iceland was the first population to give a corporation monopoly control over its genetic data base.

In *Vienna Blood*, Hannah Delbrück is represented as a genetic engineer turned patent lawyer who first lobbied in the U.S. against the patenting of animals, and then became a watchdog on ethics review boards in the U.S. and Europe against corrupt practices in the biotechnology field: inducing abortion for the purpose of harvesting fetal tissue, taking embryos without permission, blood and body parts that came in through the back door (all issues that have already occurred in reality). Biomass, as the novel's biotechnology company was originally called, was challenged at various times by Biomedical Ethics Review Boards, and so its CEO moved to Austria where, the novel claims, there was more latitude, Europe not having a unified system of constraints on research.²⁰ Biomass continued in the U.S. working on less controversial genetically engineered crops: pest resistant plants, less stringy celery, decaffeinated coffee beans, plants with genes from flounders to prevent damage from freezing, fluorescent genes from fireflies in tobacco. The more controversial pharmaceutical, health care and reproductive technologies research moved to Europe. There were three interlocking companies: Biowares, the pharmaceutical and pesticides firm that also distributed Biomass USA products; Primogen, a consortium of maternity and IVF clinics, general clinics, and genetic engineering labs; and Reprotech, an umbrella organization that did specialty research but also provided the lawyers, licensing services, and financial staff. (The ability to avoid the Austrian and European Review Boards revolves around the device in the novel of an assumed identity of a key board member who is part of the Primogen/Reprotech conspiracy to create a "Safe" Austrian population.)

Primogen's computers are the target of Leo Detmers's hacking efforts. After he succeeds with the help of an insider in getting partway into the computers, Primogen hires Nathan Buczak as a cryptographic architect to add layers of protection. He changes their multi-layer kernel-proxy architecture into a totally closed, cellular system, with no remote access to core information, and internally using very large integer public key algorithms that are difficult to factor. Session keys are random numbers generated by the ambient noise of the Neusiedl lake. Leo could hack in because Buczak signed him in as a technical assistant on a three day pass, and they rigged

a debug port or back door by placing a mike on the outside of the building camouflaged by an overflow pipe, to which they tied Argos, and when Leo bipped Argos on the pager on his collar, the generator used the bip sequence to deliver a decryption key. They recorded the whole encrypt-decrypt sequence on Leo's Networker. Buczak transfers this protocol onto Starkey's Networker, and he is able to use it to get past the first level of security; to get further he uses a clue left by Starkey, a date of a car crash in California which is also an amount which Leo debited on a credit card belonging to Starkey. While the defense-attack-defense-attack of cryptography becomes quite fanciful here, the point is the way in which defenses around scientific data banks are now being constructed. Indeed this is one of the touted innovations of Kari Steffanson's deCode company in Iceland in real life. Amusingly enough, the most secret information of all is not kept electronically and is only available to the top officials of Primogen.

Primogen of course is not totally secure. One of the reasons for security is that children born of their scheme need to be given life long care in their clinics: otherwise genetic tests might reveal the lack of biological match between the children and their social parents. But this provision of care has to be done with non-coercive inducements to stay with the Primogen care system. Indeed, as the elaborate stratagems of Primogen are gradually unraveled to Starkey, there is a non-life-threatening genetic abnormality that has neither been masked nor removed that comes into play: G6PD deficiency, which is on a gene next to that for red-green colorblindness and which becomes a marker to verify siblingship among the Safe population raised in the Primogen trials. G6PD, of course, is associated with malarial areas, has been used as a marker in migration studies, and is connected in the novel with both African-Americans, who are not particularly relevant, and Jews of Mediterranean background. Jewishness is a subterranean theme: who might have Jewish genetics (the Biomass geneticists' fathers were Nazis in the 1930s, were recruited to the U.S. before the War, and yet . . .) or Jewish upbringing (the police inspector of "Ordnung und Ruhe" and Starkey both went to a largely Jewish populated gymnasium and were taught by the same Jewish physicist)?

This is the iconicity of Jewishness of which Homi Bhabha writes as the experience of a "lethal modernity," a *danse macabre*, but also a space of "passage-ways . . . open for a range of border crossings and cross-border identifications" among those who have suffered colonialism, racism and discrimination, that can provide the grounds for self-critical communities, able to reflect upon and puzzle out the new ethical dilemmas of our emergent technologies and the forms of life and life forms they are creating (Bhabha 1998).

As a novel, however, and one done as a variant of a murder mystery, it is better as a cautionary tale, exploring the cultural armatures and fantasies of new technologies and the dark sides of institutions (driven by parental rescue fantasies, technocratic fantasies of knowing what is best for whole populations, as much as by drives for money or power in themselves) than at imagining how to build a stronger oversight of technoscientific development by civil society, or how to build new forms of continuously re-newed, open, distributed governmentality and legitimacy. For that we need to turn to what I will dub the ethnography of ethical discourses and their place in the development of new social theory around risk society, new social movements, media and public relations contestation, contemporary capitalisms and biosocialities, deliberative democracy and other modalities of public consultation.

THE ETHNOGRAPHY OF “ETHICAL DISCOURSES”: BIOTECHNOLOGICAL AND ADVERTISING EMBRACES

In an elegant essay on organ transplantation in India, the anthropologist Lawrence Cohen asks whether ethnography – the thick description of actual social relations, cultural perceptions, and experiences on the ground – can challenge both “ethical publicity” and “scandalous publicity” (Cohen 1999). Both are fantasy formations. By “ethical publicity” he means the professionalized bioethics and philosopher’s view of ethics that reduces all choice to “rational actor” dyadic exchanges eliding contextual conditions – I would re-label this ‘professionalized’ or ‘abstract ethics’, to allow us to continue to use the word “ethical”; and by “scandalous publicity” he means the conflation of imaginary and real bits of information into an often powerful rumor/propaganda mill as in the periodic allegations in Central and South America that Americans come to abduct children in order to sell their organs. As the spread of new technologies and their associated market redistributions of risks and benefits proceeds, it seems that we are in fact charting new political and ethical terrains, which may well require new forms of commentary by fields like science and technology studies, new forms of public consultation around the legitimacy of technoscientific research and innovations, and new forms of media contestation in the public sphere.

In Lawrence Cohen’s case of south India, cyclosporine, the drug that helps prevent organ rejection, also offers new biosocial strategies for the elaboration of debt markets in new cultural forms. Kidney commodity zones emerge through the interaction of entrepreneurial surgeons, persons in great debt, and medical brokers. Sales of organs are now (since 1994)

illegal, but donation by fictive kin is often an easy bureaucratic dodge, and the question of “where does it hurt” reveals much about gender dynamics and other hierarchies. An unintended consequence of making the sale of organ transplants illegal has been the demise of at least one clinic that actually paid attention to donors and their after-donation care.²¹ There is, perhaps, a certain irony in the fact that the doctors involved are often trained in the U.S. or the First World, returning to India with the intention of bringing the best of world standard care to India, working in the most modern of hospitals and clinics, subverted by the economics of the desire (on their part and that of their patients) for more and more donors. There are, no doubt, both relatively more honest and more deceitful entrepreneurs among them; there is also a structure of opportunities; and there is a policy debate about whether a regulated open market in organs might not be a more rational and more ethical system of governance than making sales of organs illegal and thereby encouraging a gray or black market.²² (A partially parallel novelistic account of these tensions set in the same region of India is *Stillborn* by Rohini Nilekani [1998]. It is not about the trade in organ transplants, but about the transnational networks of research, and the drive of America-returned scientist-doctors to pursue research and clinical trials, and how these too may become ethically subverted. Neither this novel, nor the article on the trade in organs, should be read in any way as casting aspersions on researchers or clinicians in India in general: they are rather ways of raising the ethical issues that need to be faced in the search for systems of oversight, transparency, and accountability.)

If Lawrence Cohen suggests a partial typology of two kinds of ethical discourse, other kinds of ethical discourse are worth elaborating, including those which emerge within doctor-patient relations, and those which emerge in the use of the market and intellectual property rights to promote biomedical research.

NARRATIVES OF HOPE AND BIOTECHNICAL EMBRACE

Mary-Jo DelVecchio Good has been exploring what in the nuclear world is called the seduction of “technical sweetness,”²³ and what, for the medical world, she calls the “biotechnical embrace”: the powerful moral, not just technical, forces that cause physicians to buy into the hype of doing for their patients whatever medical technologies might be able to do, whether or not it accords with the best interests, or ultimately the desire, of the patient (Good 1994, 1996, 1998, 1999). In part this is a consequence of an interpretation of the Hippocratic Oath ethos of always trying to preserve life, of being a healer, not someone who colludes with death. This is often

at the expense of an equally venerable ethos that would be concerned with the good death, not only paying attention to comfort, but doing the work of psychological, familial, community, or spiritual closure or passage – a kind of work that in older societies was often ritually facilitated at length, continuing after the death of the individual, and that in America is facilitated before death by the hospice movement. But in part it is also a critical component of attempting to manage what Professor Good calls the “narratives of hope” which are important components of both the patient’s will to live, and the doctor’s ability to cope with losing patients who have terminal illnesses. In detailed, longitudinal interviews and following of treatment protocols with breast cancer patients, Good lays out the conflicting pressures on patients and doctors in how to convey and interpret statistical information, uncertainties and trade-offs of any course of treatment.

The notions of the biotechnical embrace and narratives of hope (including the shaping of time) can be applied in a number of medical settings, ranging from end of life dilemmas to difficult choices about lung transplants for children with cystic fibrosis. In all these cases, among the ethnographic data points is the shift during the past three decades from paternalistic care (with limited information given to patients) to an ethos of patient autonomy (and disclosure of whatever information the patient can handle) to realization that the complexity of issues, as well as psychological pressures, can make pure patient autonomy untenable, at best an unattainable ideal. The role of physicians in subtly influencing or negotiating how patients receive information is an important way that these issues are resolved. Moreover increasingly now the shifting power relations between patient groups and physicians (and provider groups) due to the use of patient support groups mobilized through the Internet open up the evaluation of information and treatment options to a wider set of inputs than just doctors and their patients, or doctors, payers and patients. There is an important interplay between the political economy of health care in the American system (with cost-cutting efforts by managed care administrators) and the need for patient support groups sometimes to act as pressure groups in order to get procedures and options to be offered.

THE ADVERTISING EMBRACE: CONSTITUTIVE PROLEPSIS

In a study underway, Kaushik Sunder Rajan is exploring the ways in which genomic research provides a window into contemporary capitalism; one strand of the research focuses on how biology has become caught in a parallel “advertising embrace,” buzz, or hype, to the computer software and dot.com industries (Sunder Rajan 2000). Building on the work, not only

of Emily Martin (1994) and Joseph Dumit (1995) on the circulation and remaking of scientific information among different user groups in society, and of Paul Rabinow on the dynamics of biotech companies (1995, 1998), but also on the dissertation of Chris Kelty (1999) on the constitutive role of hype or buzz in the computer start-up worlds, Sunder Rajan explores how information is turned into value (use value, exchange value, symbolic value) in a “flow” from upstream patent claims to downstream uses, and how the play for market position requires both speed and high-throughput techniques and machines, which in turn set up a series of contradictions or tensions, constantly being fought out, over what counts as part of the market (as opposed to public domain).

Thus, for instance, the highly publicized competition over the mapping of the human genome between the NIH and the Celera Corporation turned upon the latter’s deploying of new Perkin-Elms machines which could speed up the mapping process albeit at lower resolution, and using a tactic of cutting up the genome for sequencing and then reassembling it later. The effect was to force NIH funded genome centers to buy the faster machines, and to adjust their goals and timetables. In the process, Celera is hoping to make money off access to the highest level of information, and to patent what it can, while NIH is hoping to preserve as much of a public domain registry of mapping as possible. A new game is now reshaping the next phase of genomics research: the mapping of single nucleotide polymorphisms in the race to produce maps of variable characteristics that can lead to individualized therapies. In order again to contest the shaping of the market, of what can be patented and what not, two consortia are attempting to capture the information first, the one a consortium of private companies, the other a consortium of NIH and its genome centers along with some of the pharmaceutical majors, promising that the mapping itself will become public, because after all it is the more valuable downstream applications which are really worth owning, and access to these rights can be complicated by too many upstream licensing and royalty agreements.

Among the most interesting of the contradictions in these races, for my present purposes, is that between speed and what Sunder Rajan dubs “speed bumps,” institutional mechanisms that slow things down. Among the important speed bumps I would include institutional needs to slow down the pace of to allow society to assimilate change. Stephen Breyer, Associate Justice of the U.S. Supreme Court, in an address at the Whitehead/MIT Conference on Genetics and Society in May 2000, argues that in the many of the new disputes raised by new technologies, it is premature for the courts to deliver definitive decisions: that appellate and supreme courts do best when the ground has been prepared by numerous lower-

level and community contests, and the submission eventually to the courts of briefs from the many parties and interests, so that what the courts can adjudicate is not the science, but the social consequences.

It turns out to be an older ethical plateau to think of the challenges here as an open field of public consultation, without detailed considerations of media strategies deployed, and hence again "caught in the advertising embrace." Numerous studies are now pointing out that when flows of capital are involved, public relations efforts to manage the information and impression flow are becoming more and more central. Corporations are learning how to organize "grass-roots" campaigns to offset citizen action groups, as well as to carefully stage manage what gets reported in the media. The years of struggle against the American tobacco companies, which managed to secrete the "smoking gun" scientific studies that demonstrated unequivocal nicotine addiction, as well as their strategies to increase nicotine levels and target market niches, is but the most public and currently obvious of these tactics (Greife and Linsky 1995; Stauber and Rampton 1995). Counter forces of concerned independent scientists and citizen action groups, sometimes with government support, are now using the Net as a new tool to help build alliances. One wonders to what degree the public sphere is being forced to move in the direction of a play of advocacy positions (K. Fortun 2001).

If information flows are managed, what role then for the anthropologist? These are not new questions, but it is often the case that if anthropologists can provide something back to the people being worked with, access is easier. In the work of Mary-Jo Good, she began by providing feedback to residents and young doctors on how they were taking medical histories, and how they listened and gave information to patients. In the breast cancer study, one of the goals was to continue to provide feedback to doctors about how patients were hearing them, and to provide additional channels of information for new patients (an information booklet was one outcome, including information about the way many women experienced different phases of treatment protocols). In the case of Paul Rabinow's three studies with biotechnology projects (1995, 1998, 1999), and most especially with the still new and emerging relationship with Kari Stefansson, CEO of Iceland's DeCode corporation, the question has been put on the table whether Dr. Stefansson says anything different in private, as it were, with the anthropologist, or whether this is a stepping into the same public relations role that has become Stefansson's persona (see also Sigurdsson 1999; M. Fortun 2000). In the cases of start-up companies in the dot.com world and the biotechnology world, hype about the promise of future products is required first for venture capital to flow, and if there

is a product, for larger firms to buy either the development rights or the company itself. The hype is constitutive. The point is that in all of these cases, the mediated and performative nature of ethical discourses needs to be taken into account in ever more careful ways, not simply to dismiss false claims, but to understand the different kinds of functionalities that claims help constitute.

The next instrumental question then becomes, can one create an informed public in the context of complicated technologies, with uncertain outcomes, hedged with semi-secret proprietary information, and veiled by advertising hype? But perhaps more important is the question about whether the very notion of an informed public is not itself a fantasy that can only be asked in relation to not merely what came before (a fantasized less informed public), but also in relation to what is excluded from “knowing,” “accounting” or “recognition.” As has been outlined in the cases of the victims of the Bhopal disaster (by Kim Fortun [2001]), the shaping of the statistics and self-monitoring of AIDS in Brazil (by João Biehl [1999]), and the assertion of rights and access to attention by radiation sufferers from the Chernobyl disaster (by Adriana Petryna [2000]), the biosocial structure of truth, health and illness, life and death changes with accounting procedures, and so the lantern of critique is sent back to shed light on these feedback loops, rather than being able simply to illuminate and clarify a reality that is uncontested or unproblematic.

NEW ETHICAL CHALLENGES: XENOTRANSPLANTATION

Perhaps one of the most interesting of the complicated new sets of ethical challenges presented by new biomedical technologies is the case of xenotransplantation, the potential for supplying whole organs to humans from pigs in particular, either knockout pigs or transgenic ones. Among the reasons this is an interesting case is that in addition to many of the ethical problems that attend other difficult biomedical issues of informed consent (as at end of life), of choice among unpalatable therapies (as in pediatric cystic fibrosis cases), of evaluating uncertainty and the play of such powerful ideological forces as the biomedical embrace, xenotransplantation presents two other features. First of all, the risk of xenosis (infection across species) is to populations at large. That is, the threat is of unleashing pandemics such as HIV currently. So both risk and decision-making cannot be left alone to the doctor-patient relationship, or the doctor-provider-hospital-patient institutions. Moreover, this is a risk that affects populations transnationally, and if a public health risk is to be contained, cannot be decided (or managed and regulated) within national

sovereignties alone. Secondly, despite the urgency of recipients waiting for organs, of the pressures of surgeons vying to claim the credit for innovative procedures, and of the monetary profits that might be reaped, the severity of scientific problems still bedeviling chances for success, if taken seriously, may help militate towards time for some of these issues to unfold and be widely discussed.

Indeed, I draw on this example precisely because an effort to guide such a broad public consultation is being mounted by one of the leading xenotransplant and basic vascular biology pioneers, Dr. Fritz Bach, the Lewis Thomas Professor of Medicine at Harvard Medical School, first with the aid of Harvey Fineberg, then Dean of the Harvard Medical School; bioethics philosopher Norman Daniels; other colleagues; and more recently, Dr. Elizabeth McGregor, veterinarian and staff member of the Canadian Privy Council. Following upon the 1997 UNESCO Universal Declaration on the Human Genome and Human Rights, Dr. Bach et al. published an article in *Nature Medicine* in 1998, and testified before the U.S. Congress for a moratorium on xenotransplantation experiments at least until the public could be consulted. In 1999 Dr. McGregor and Dr. Bach convened an international working group on xenotransplantation to draw up a series of white papers, create and test teaching modules for high schools and public discussion fora, and initiate preliminary experiments in Web-based Internet outreach. In 2000, the effort moved on to the establishment of a larger institute on technology and ethics.

Dr. Bach has called for a moratorium on xenotransplant experiments at least until "society" is able to take the decision whether or not, and under what conditions, to shoulder the risk, rather than allowing only the experts (i.e. those with interests at stake) to make the decision for all (Bach et al. 1998). What could such "public consultation" look like institutionally? The closest immediate analogy to the moratorium called for by Dr. Bach is the moratorium in the 1970s on recombinant DNA research called for by that technology's pioneers when they perceived a rising public fear and faced their own sense of uncertainty about whether or not they might be on the verge of inadvertently releasing new organisms into the environment with unclear consequences. In that case, through the calling of the Asilomar Conference to discuss standards for containment, and step by step rules for experimentation, the scientific community was able to self-police. The rules were turned into NIH guidelines, and gradually as experience was gained, the rules were relaxed (Weiner 1999). In the present case, the risks may be greater because of the complexity of the organisms, and the incalculability of potential long-term latencies of retroviruses like HIV.

A second, negative comparative example is the growing debate about genetically engineered crops, where the effort of for-profit corporations to reassure the public of the safety of transgenic crops has turned into something of a public relations fiasco. In this case there was, and continues to be, little public consultation, but rather a classic confrontational politics between some consumers and producers, and between national sensibilities and regulatory systems (mainly in Europe against the U.S. and Argentina).

In any case, the efforts of Bach's group to stimulate broad discussion may provide some interesting materials with which to think about public interest decision-making.

Without going into the science at any length, among the ethical conundra is that organ transplantation has been a quest since the last century, and an active research arena for at least forty years. At the beginning "sledge hammer" immunosuppression was used to try to prevent rejection of organs before anyone even knew about T-cells or lymphocytes, or endothelial cell activation. A great deal was learned about vascular biology in the process, and eventually allotransplantation techniques became successful for hearts, lungs and kidneys, especially if they came from identical twins, but increasingly from others as well. Xenotransplants, however, present daunting problems. Most work at the moment is directed towards preventing hyperacute rejection (HAR) in the immediate short term of minutes and hours. The immunosuppressant drugs that work with allotransplants do not seem to work across species. And so the techniques of genetic engineering are being tried to create pig organs that will be tolerated by human hosts. These are either knockout techniques, i.e. removing genes which code for antigens on the surface of porcine cells that are recognized by human hosts as foreign; or transgenic techniques, i.e. inserting a human gene into pig cells to block the action of human complements that attack foreign cells. But even if the HAR problem can be solved, at the moment we have no means of dealing with either medium term rejection, or so-called "delayed xenograft rejection" (DXR), or long-term "chronic rejection."

The short-term benefits of these paths of research are to the increase of basic biological knowledge rather than to therapy for organ recipients, although of course the longer term hope is for ways in fact to make such techniques therapeutic and to save hundreds of thousands of lives. Ethical questions already loom here about whether or not desperately ill patients and their families can give truly informed consent under these pressures of the biomedical embrace, particularly when the protocols for observation and monitoring will probably be life-long, and perhaps requiring (as

rules in Holland already envision) complete quarantine. Normal rules for volunteers in medical research protocols allow withdrawal at will, but this would perhaps not be possible, and yet it is unclear how one could enforce compliance. Moreover, if one is worried about pathogens whose latency may not appear for years or even generations, or unknown pathogens for which there are no diagnostic assays, the complications multiply, though rules have been formulated for the registry of all such experimentation, and standards will be developed.

Whether there are other paths of research that can deliver the same biological knowledge, e.g. the efforts to grow organs from pluripotent stem cells, remains to be seen. Beyond the general questions about ethics and the evolution of technoscience, there is also the series of issues surrounding the use of animals in research. Bach and McGregor have included an animal rights lawyer, Steve Wise, in their discussions (Wise 1999), but more interesting than animal rights issues per se, it seems to me, are the questions of whether the more we learn about the complex species-specific features of immunology, the less useful many of the animal experiments may be. It has been argued that monkey clinical trials in the past have seriously misled researchers developing the polio vaccine and treatments for AIDS; that most new therapeutic drugs are discovered rather through in vitro cell and tissue culture, biochemical, and computer simulation methods; and that patient groups such as the AIDS community are increasingly putting pressure to shorten animal trials, bypass them, or do them retrospectively (Greek and Greek 2000; see also Das 2000 on issues of political representation in clinical trials).

Efforts to stimulate discussion began with the guidelines laid down by the 1997 UNESCO Universal Declaration on the Human Genome and Human Rights, and involved an initial working group of representatives from both the Third World and the First World convened by Bach and McGregor at Meech Lake in Canada. Many of these participants were Ministers or deputy Ministers in their respective governments and undertook to begin forming national committees in their home countries to stimulate discussion. In the meantime Bach and McGregor commissioned a series of white papers on the scientific, legal, ethical, regulatory, and economic issues, and began to develop discussion kits for use in high schools, colleges, and churches. Initiatives continue on both high diplomatic levels and grassroots educational ones. The high school kit developed during the summer of 2000 presents an interesting model of having students spend a week being informed about the science, who the stakeholders are, what the risks and benefits are, exploring the topics of the white papers. A second week is then spent role-playing stakeholders'

positions on both sides of the debate as to whether the risks are worth proceeding with the research protocols, with an effort to work towards an ideal “consensus” or at least the kind of decisions that a Minister of Health might face. In the third and final week, various models of becoming agents of change are explored according to a matrix of using the judiciary, government executive agencies, elected officials, NGOs, and the media, at both the national and international levels. Students work through the ways in which, for instance, court cases involving the Harvard oncomouse were contested in Canada, or the ways in which the moral suasion of the World Court could be invoked, or the role of House Committees of parliament, or Royal commissions, trying in each case to compare historical actual cases to their utility in the issues surrounding xenotransplantation. In both these high school kits, and in a workshop this summer, models are explored comparing various models for initiating discussion and action: the World Court, International Agencies such as WHO or UNESCO, the Asilomar example, National Research Ethics Boards, and so on. Other models include the Danish consensus conferences, in which a group of lay citizens is informed and delivers opinions which are then disseminated in the news media, prior to electoral or parliamentary decisions.

The general model here is as Justice Breyer argued, that for broad social decisions to be made, many different groups must be able to argue out the issues, take positions and present their interests and differences. The ideal is an informed public, one that can modulate the dilemmas of expertise versus lay understanding.

What is potentially revealing here, thinking of this as a model for other issues, is seeing to what degree the process can remain open, against the spheres of discussion being colonized either by the power play of experts seeking to rationalize risks into controllable quantifications that can be discounted in various ways, or by use of the mass media by veiled advocacy advertising. Particularly important here, one suspects, is the ability to be able to identify “speakers” and their interests. When the Chief Medical Officer of Genzyme Corporation talks about the difficulties of multiple review boards and informed consent (“22 pages long”), he is being neither disingenuous (the problems are real) nor disinterested (he’s also concerned about time, expense and barriers to market). Likewise when the CEO of Imutran, one of the lead contenders to do the first xenotransplants, reviews all the known cases of porcine transplants to primates, and human patients perfused through porcine spleen and livers, and finds plenty of porcine cells, but no evidence of infection, nor anti PERV antibodies, is this to be taken as lack of evidence of harm (yes, as far as it goes), or a citing mainly of evidence in support of the business plan?

The case of Imutran is of further interest with respect to the dilemmas of secrecy in science and allegations of potential circumvention of regulatory efforts as noted in fn. 20. In addition, the whole xenotransplantation debate is part of the larger debate about the trade in organs, including where, as in the U.S. and Europe, there are national organ-sharing mechanisms and efforts to distribute organs by public and equitable criteria. The trade in kidneys provides a window on many of the dilemmas, beginning with the disconcerting shift from early cases where providing an organ was honored altruism, to an increasing trade which exploits poor donors to yield up organs for rich recipients.

Some transplant surgeons have argued for years that the only solution (both to inequities in the organ bazaar, and to the risks of xenotransplantation) is to increase the voluntary donation of organs through public education campaigns, that money in this trade is absolutely corrupting. Some countries have now passed presumptive donation laws, meaning that unless one stipulates that one's body not be harvested, if there is a need and match, organs may be taken. Controversial in Italy (where such a law passed against much opposition in 1999), such laws in countries like Brazil are seen by many as further disempowering the poor. Other proposals for avoiding monetary sale are futures markets organized so that only if one agrees to be a donor would one be eligible oneself to be a recipient. Other proposals include schemes for "compensated gifting," rather than monetary sale, i.e. provision of contributions to scholarships or funeral funds. Efforts, as in India in 1994, to outlaw the sale of organs, can have the unintended effect of stimulating a black market. Some transplant surgeons say that black markets are so pervasive that it would be better to legalize organ markets and regulate them.

Disempowerment of the poor or of political dissidents is intensified by those countries (China today, Argentina and Taiwan in the recent past) that use executed prisoners as sources of organs, and where increase in number of executions can be correlated with demand for organs (Scheper-Hughes 2000). The historical genealogy of such appropriation by the state or by society goes back, not only to medieval use of corpses of hanged criminals for medical dissection, but also to the 1883 Anatomy Act in England which made workhouses and public hospitals "lawfully in possession" of the dead whose families did not claim the body or who could not afford funeral costs (Das 2000). Morgues and end-of-life clinics can also provide organs in ways that are suspect (Scheper-Hughes 2000).

These considerations lead to three difficult moral issues. There is first what Veena Das, quoting Margaret Lock, calls the "Shiva-like character" of many new biotechnologies which are "potential creators of happiness"

while simultaneously “destroyers of society as we know it”; the micro-social relations in different parts of the “technoscape” are put under pressure and slowly transformed: between doctor and patient, family members who might be donors for one another, definition of citizen and social waste, of entitled and non-entitled. There is a sense, she continues, now quoting Bruno Latour, in which the creation of a free political subject is simultaneously the creation of the non-human, including those persons dealt with as if they were human social waste (Das 2000; Biehl 1999), bodies appropriable by the state or society through direct means (executions, workhouses) or indirect ones (markets, regulatory rules, access to clinics), including perhaps the definition of death as brain-stem death in order that organs and tissues can be harvested before they are deemed dead by other criteria.²⁴ Secondly, there is the on-going tension between outcomes that are contributions to scientific knowledge, but not therapeutic successes, though they are sold (to doctor and patient alike) as contributing eventually to the latter. Thirdly, there is the challenge that Das poses against even the most pragmatic justification for heavily regulated markets in human organs: that she can think of no principles that allow us to think of this as fair exchange. She invokes the legal recognition of background assumptions or counter-principles in contract law that prevent contract law from imperializing all areas of life: contracts are arguably invalid which imprint permanent character on things (workers are entitled to compensation for industrial hazards; the employer/capitalist is not free to invoke the idea of consent); the law refuses to see contracting parties as high risk gamblers (where value is only what the parties place on things).

In the end, from the point of view of critical theory, the issue is not the pragmatics of decision-making, but rather the ways in which the ethical dilemmas and trade-offs reproduce themselves in a variety of other settings, with changing boundaries of what is felt to be taboo and permissible, the fantasies of solution and the ways these fantasies are displaced elsewhere. From such questions, a sense of the contours of social differences and change remain visible in ways they cannot from inside pragmatic decision-making “solutions.”

NEW SOCIAL THEORY FOR EMERGENT ETHICAL ISSUES

The ethical dilemmas, discourses, and scenarios invoked above are among the kinds of challenges that have led to the formulation of a series of new social theory, including the bodies of work on risk society, social movements, biosociality, deliberative politics, and the uses of the new media from advertising to the Internet. All of these increasingly operate

on globalizing as well as localizing levels, giving increasing choice and responsibility to individuals, while at the same time forcing these choices to be made in globally extended networks and terrains. New forms of transnationally extended, but not necessarily uniform, governmentalities are being elaborated.

Composing ethnographically rich texts on emergent governmentalities, biosocialities, and forms of life generated under late- and post-modernities and capitalisms that can explore connections between changing subjectivities, social organization, modes of production, and symbolic or cultural forms is a challenge that the anthropological archive is increasingly addressing. This challenge requires being able to work in technoscientific imaginaries and infrastructures through multiple temporalities, cycles of political economy, and reconstructions of social arrangements across local and global expanses, as well as deploying and critiquing new, lively, metaphor-rich languages and semiotic skeins that arise from and articulate new cultural expressions, understandings and forms of mediation. Such ethnographic work can help clarify emergent forms of life for which conventional ethical guideposts from the past are not always sufficient, and while we have run out of “giving grounds” (Wittgenstein 1969: 17e), we nonetheless can watch ourselves perform ungrounded ways of acting that have both social and ethical weight and consequences. It is perhaps in this insider-outsider ethnographic effort at knowing our selves that we can formulate answers about the shaping of new subjectivities and subjects of science and technology. As to the question when it could be possible to have an alternative politics to the dominance of globalizing market forces today, it is likely that the “old mole” must remain underground yet awhile longer, attentive and awaiting opportunities.

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NOTES

1. Printed first in 1956 in *L'Evolution psychiatrique*, volume 1; translated by Alan Sheridan as ‘The Freudian Thing,’ *Ecrits* (London: Tavistock 1997) p. 145.
2. One can, of course, interrogate the idiosyncratic, social, and other forms of construction that go into the making of any description of reality. The point here is that this

inquiry about the constitution of reality is a fundamental inquiry for ethnography in a way that is only back stage in advertising, advocacy, or business discourses. This is not to say that the formulators of these other discourses are not as sophisticated about what they are doing as are anthropologists, literary critics, ideology critics, et al. Indeed such sophistication is increasingly part of the state of play in the real world. But their efforts are to veil such backstage understandings in order to deliver the message they wish to send, whereas arguably part of the mission of anthropology is to unveil such backstage understandings.

3. Similarly, if more generally, literary critic Wolfgang Iser (2000) suggests, ethnographies operate on a feedback principle of descriptively approximating reality, checking the descriptions, and then refining the approximations, in an ever more "closed" loop, "closer and closer" to reality. By contrast, novels, although often ethnographically and historically well researched, operate on a more "dissipative" and more "open" principle.
4. E.g., Oron Catts and Ionat Zurr's work with tissue engineering in an effort to create "semi-living objects" that can help us think about the changing of cultures of production from manufacturing to growing, from throw-away consumption to green, caring of ecologies of living objects. In their installation for the Ars Electronica Festival 2000, held in Linz, Austria, they made semi-living worry dolls, inspired by the traditional Guatemalan worry dolls, with cells grown over biodegradable polymers using the same techniques as medical researchers are using to create organs for patients, and hooked up to computers where installation visitors could type in their worries about these technologies. They point out that an early effort to grow an ear for a child born without one, using a "nude mouse" (lacking T-cells, lacking an immune system) and creating a chimera of an ear growing on the back of a mouse with cartilage cells from the patient, was seen by many as grotesque, and hence there was a drive to artificial bioreactors to grow the cells on polymer matrices rather than using mice so directly. Catts and Zurr have found places as artists in residence at the Massachusetts General Hospital, as well as the Department of Anatomy and Human Biology at the University of Western Australia (Perth). Other bioartists include Joe Davis and Adam Zaretsky, artists in residence in the Biology Department at MIT, and Eduard Krac at the Art Institute in Chicago. One conceptual interface, or other end of a continuum, of this work – as was partly explicit in the Ars Electronica Festival, whose theme was Next Sex, New Reproductive Technologies – is with the work of anthropologists working with families with genetic disabilities, and shifting the understanding of both the genetics and social challenges from discourses of normal/abnormal to ones of recombinant possibilities that require varied forms of caring (e.g. Ginsberg 2001; Rapp 2000).
5. The workshop papers are posted at <http://meno.open.ac.uk/meno/ht97.html>.
6. The figure of the old mole is from Hegel's *Lectures on the History of Philosophy* and Marx's *The Eighteenth Brumaire of Louis Napoleon*. As Ned Lukacher points out, it is in part a figure of waiting, of withdrawing or being driven (by the imperial eagle of ascendant state politics) underground during periods when politics is not "a viable alternative," of connecting through "passages" (a Walter Benjamin term) legacies from the past into the present, of tracking the ways the past haunts the present. Lukacher points out how Balzac's novels operate as a kind of prefiguration for Marx's analysis, and he works out connections between literature, philosophy and psychoanalysis. Lukacher analogizes Marx's analyses of nineteenth century France to the Oedipus story in its various tellings, drawing on the performative effects of rumor/prophecy (Greek, *phatis*); the conflict between chthonian laws of family (psycho-social struc-

tures) and the more abstract, legislative and procedural or bureaucratic powers of the state; and the recognition by Marx after 1848 that philosophy is “no longer a programmatic prescription for the future but rather a means of recognizing the detours and deferrals that must always be analyzed in retrospect,” including the misrecognition by the peasants and petty bourgeoisie in the 1850s of their interests, conflating them with those of Louis Bonaparte. Michael Hardt and Antonio Negri in *Empire* (2000) attempt to sketch out the ways in which global flexible production regimes attract cycles of protest directed, but in discontinuous modes, by new variants of the nineteenth century old mole. More precisely they “suspect that Marx’s old mole has finally died” (p. 57) and is replaced instead by the “infinite undulations of the snake.” By this they wish to point to the apparent oddity that revolts today like Tiananmen, the Los Angeles riots, the strikes in Paris, the Zapatistas in Chiapas do not seem to directly communicate with one another, there is not the continuity of cycles of proletarian struggles that emerged in nineteenth century Europe, nor the transnationally linked organization. Instead, in a kind of “paradox of incommunicability,” these hypermediatized attacks on the global order are like ripples or sinuous movements, occasionally with tidal or typhoon force. I will suggest below that a mutated or transgenic mole might be a better image: it is unclear that the old mole has died – Seattle and the environmental movements may yet construct the tunnels of the old mole – and yet it is the case that governance and politics, “the subject of labor” and the composition of the working, managerial, knowledge, and finance classes have changed, mutated, and recombinantly been reconfigured, and that new platforms and infrastructures have issued forth.

7. These are legacy terms from early twentieth century modernisms.
8. The abbreviation for Freiheits Partei Oesterreich, the party of Jörg Haider, which joined the Austrian government coalition in January 2000.
9. Ethnographically one might want to tease out some of these strands that the novel condenses: Austrian cultural critics often point out that contemporary right wing politics almost never results in actual physical violence. Burning of guest worker hostels happens in Germany, but not in Austria. On the other hand, these same cultural critics underscore that because Austria did not undergo official de-Nazification as Germany did, xenophobic and anti-Semitic verbal culture is socially acceptable (“*Salon-fehig*”) in ways that would be shocking in Germany. Indeed some of the furor surrounding the rise of Jörg Haider and the FPÖ has to do precisely with the ambiguity of what the younger generation recirculates unknowingly/knowingly from Nazi discourse. An oft quoted anecdote about an FPÖ elected official is that at his electoral victory party he said “Our honor is loyalty,” and when a reporter asked if he was aware that was the slogan of the SS, claimed he did not know. Similarly Haider tries to project an image of the casual/chic dressing, youthful sportsman (marathon runner, skier) of a new generation, while playing upon resentments and Nazi sentiments of his father’s generation. (They were good ordinary men; if Jewish victims of the Nazis are to be compensated, what about the Sudeten Deutsch forced out of Czechoslovakia after the War? Immigrants need not necessarily be deported, but they should stay in their place, segregated, “*mit Anständigkeit und Ordnung*,” proper and orderly, in the same way that reservations were made for the Slovenes and Slovaks after World War I.) Note that the novel was published well before the FPÖ joined the government, provoking outrage and mild sanctions from the European Union. The novel tapped nicely into the logic of the situation, which continued to unfold. Thus the vertiginous effect (or Moebius effect) of reality seeming to follow or imitate fiction.

10. I'm indebted to Adrian Mathews for revealing this structuring of the relation between the mystic-love triangle in the novel and the Chaucer era "testing tale" (in a June 13, 2000, conversation at the Au Cahi de l'Abbaye on rue de Buci, a key site in his first novel). He points out there are clues in the text, including the Green Chapel chapter title (which however I cannot find, and may have been removed in favor of "an abandoned chapel"). But the parallels are quite amusing.
11. Both novels open with the weather and a funeral: in Greene, it is February and the ground in Vienna's Central Cemetery is so frozen electric drills must be used; in Mathews satirical counterpoint, because of global warming (meteorological, political) it is the first time it has snowed for seven years. Greene's novel is set at the beginning of the Cold War and in the border crossings of the Four Power occupation of Vienna; Mathews' is set after the Cold War in the border crossings of entrepreneurial biotechnology. The penicillin racket is not only the stealing from military hospitals, nor only the growth of organized crime, but the dilution of the penicillin so that it becomes ineffective for the future. In both novels there is a romantic interest between the friend of the alleged diseased and his girlfriend or wife, and the plot revolves around the friend unraveling the oddities of the death to find that someone else is in the grave.
12. The cliché distinction in contemporary discussions is between therapy and enhancement, but the image here was parallel to the idea of a periodic table: a Sears catalogue by which parents could attempt to select genetic modifications for their descendants. The extraordinary ads for the film *GATTACA* played upon this thematic, though the film itself was less about this possibility than about establishing a dystopic totalitarian caste society in which molecular biology techniques of identifying people would become pervasive.
13. The degree to which there is, or is not, open space for debate and discussion is now being contested. At the Bio2000 Biotechnology Organization Conference, held in Boston, against which "Biodevastation" demonstrations and counter conferencing were mounted, organizers of the Bio2000 expressed frustration at debating scientifically poorly informed opponents, while insisting they were open to serious debate. The Council for Responsible Genetics, however, complained that their professionally accredited staff writer for GeneWatch was refused a press entry, and told he could attend only if he paid the full fees (GeneWatch 13(2):12). Industry organizations have learned in many subtle, and not so subtle, ways to influence and shape both who of the media are given access and what gets openly circulated (e.g., Greife and Linsky 1995).
14. Adrian Mathews claims to like this identification, but says it had not occurred to him. Oscar, for him, has to do with a bit of English cultural history: the oddity that since Oscar Wilde, the name has fallen into disuse. (Wilde is buried in the great Paris cemetery of Père Lachaise, which plays an important role in Mathews' first novel.)
15. "The Bitter Tears of Petra van Klimt." (I'm indebted here to Mathews for the identification.)
16. Adrian Mathews claims no longer to remember how he settled on this name, and not to know of Max Delbrueck, and has no particular explanation for the name. I suspect another of these cases where having done a great deal of reading about molecular biology, the name lodged subliminally, and structurally provided a neat reversal of trajectory.
17. A name that is phonemically resonant in several ways. Adrian Mathews says he originally thought of "Pinky" as a further homage to Graham Greene, whose *The Third Man*, of course, is a shadow text behind the novel (see n. 11 above). Starkey also resonates

- with “shark” (“sharks die if they do not keep moving: it is how they breathe”), a good name for a muck-raking journalist, caught in several liminal worlds.
18. See n. 8.
 19. See Murakami’s interviews with survivors of the Tokyo attack exploring the post-traumatic stress and social responses, and also with members of the Aum Shinrikyo cult (Murakami 2000). On the Russian anthrax accident, coverup, and exposure, see Guillemin (1999).
 20. Compare the allegations in England (Mathews’s native country) that Imutran – a leading biotechnology company involved in immunological experiments with genetically modified pigs for developing xenotransplantation of organs for humans – is circumventing Britain’s strict rules by exporting genetically modified pigs for experiments conducted in Holland’s Biomedical Primate Research Center in Rijswijk. Similarly, Imutran pigs have been transported to xenotransplant researchers in Italy. Novartis, which owns Imutran, as well as the rights to cyclosporine, the immunosuppressant drug that has made allotransplants possible, is a multinational operating in many countries, and Imutran itself says that its collaborative experiments in Holland are not circumvention, but merely conducting the collaborations it has with many international research groups. Given Europe’s sensitivities about genetic engineering and human experimentation, these are somewhat charged issues, and the questions of harmonizing international standards are real ones. Herbert Gottweis in a study of Germany speaks of the use of para-political commissions to study technological issues as a way of *limiting* public debate, especially where there are issues of using biomedical research as a tool of national economic competitiveness (1998).
 21. India’s 1994 Transplantation of Human Organs Act made the selling of solid organs illegal, allows the taking of organs from brain-dead cadavers, and forbids the gift of an organ from a live donor except parent, child, sibling or spouse. Exceptions can be allowed by Authorization Committees in each state. The Madras/Chennai newsweekly *Frontline* did an article on how easily these Committees could be circumvented (Cohen 1999: 136).
 22. For the argument in favor of regulated but legal markets, see Radcliffe-Richards et al. (1998).
 23. Originating in the famous comment of Robert Oppenheimer that when the physicists realized that the bomb was actually feasible, it became “too technically sweet” to stop.
 24. The 1968 Harvard Brain-Stem Death Committee report which established this definition was tied explicitly to justifications regarding a shortage of organs and tissue, and has slowly been accepted globally, in Japan, and in India with much hesitation.

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