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Spatializing Technoscience: The Anthropology of Science and Technology and the Making of National, Colonial, and Postcolonial Space and Place

Stefan Helmreich

Abu El-Haj, Nadia. *Facts on the Ground: Archaeological Practice and Territorial Self-Fashioning in Israeli Society*. Chicago: University of Chicago Press, 2001. xiii + 352 pp., including notes, bibliography, and index. \$20.00 paper.

Miller, Daniel and Don Slater. *The Internet: An Ethnographic Approach*. Oxford: Berg Publishers, 2000. x + 217 pp., including appendix, glossary, bibliography, and index. \$19.50 paper.

Redfield, Peter. *Space in the Tropics: From Convents to Rockets in French Guiana*. Berkeley: University of California Press, 2000. xvi + 345 pp., including notes, bibliography, credits, and index. \$24.95 paper.

Horselover Fat, the schizophrenic protagonist of Philip K. Dick's science fiction novel, *VALLS* (1987), has an epiphany early into the book's narrative that convinces him that our present-day phenomenological world is an elaborate simulation crafted by the Christian God to mask the fact that humans are still living within Biblical, New Testament time, under the oppressive power of the Roman Empire. Everywhere he looks—on television, on beer cans in gutters—

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Fat sees signs that he is not in Santa Ana, California in 1974, as all the people around him believe, but rather in the political orbit of ancient Rome in 103 C.E., apostolic times. Fat is convinced that he is being tested to determine whether he can see through the world around him to discern the traces of another time, another space. In his diaries, Fat reminds himself of the illusory character of apparent reality with a simple sentence: "The Empire never ended."

I want to use this phrase to orient my thoughts on three recent anthropology books that explore how science and technology are used to craft space and place, nation, colony and postcolony, and culture and nature, in zones cross-hatched by the history of empire. The books are Nadia Abu El-Haj's *Facts on the Ground: Archaeological Practice and Territorial Self-Fashioning in Israeli Society*, on the use of archaeology to justify and enable the settling and colonization of Palestine/Israel by early Zionist programs and later by the Israeli state; Daniel Miller and Don Slater's *The Internet: An Ethnographic Approach*, on how Trinidadians imagine and reconfigure notions of nation as they seek to express and realize Trinidad online; and Peter Redfield's *Space in the Tropics: From Convoys to Rockets in French Guiana*, on how French, Guyanais, and others have struggled over the siting of a Franco-European rocket-launching space center in French Guiana, where a French penal colony was once located. Each seeks to employ the anthropology of science and technology to answer Gupta and Ferguson's call for anthropologists to inquire into how "space itself becomes a kind of neutral grid on which cultural difference, historical memory, and social organization are inscribed" (1992, p. 7), and each asks "how are spatial meanings established? Who has the power to make places of spaces? Who contests this? What is at stake?" (Gupta & Ferguson 1992, p. 11). Fusing the anthropology of science with the anthropology of space (see also Alonso, 1994; Appadurai, 1996; Low, 1996, 2003; Gupta & Ferguson 1997; Raffles, 1999) in order to examine how the superimposition of national, colonial, and postcolonial spaces sets up patterns of integration and disintegration, each in some sense addresses what Redfield (2001) has called "The Half-Life of Empire." Placing science alongside other space-making practices such as land politics, infrastructure construction, map making, architecture, tourism, war, and colonial resistance, Abu El-Haj, Miller and Slater, and Redfield offer new views into how space can become objectified, naturalized, and neutralized, and thereby also become available for new kinds of contestation. Let me take each book in turn.

FACTS ON THE GROUND

In *Facts on the Ground*, Abu El-Haj explores how Zionist and then Israeli archaeologists conjured up a deep foundation for Israeli identity and territorial claims through practices of surveying, mapping, and digging for signs of

ancient Israelite occupation. The book analyzes "the significance of archaeology to the Israeli state and society and the role it played in the formation and enactment of its colonial-national historical imagination and in the substantiation of its territorial claims" (p. 1). As archaeologists fastened their practice to the narrative of, first, Biblical archaeology and, later, Jewish history, they sought to make manifest in the land around them the evidence required to demonstrate what they saw as the necessary warrant for Jewish claims to the land of Palestine/Israel: earlier and uninterrupted habitation by peoples who might be recognized as forming an Israelite nation. They sought facts on the ground. These facts, Abu El-Haj argues, were far from *a priori*, for "The earth has to be carved up in particular ways in order for the objects of archaeology to become visible, not simply by transforming absence into presence, but, more specifically, by creating particular angles of vision through which landscapes are remade" (p. 131).

Zionist and Israeli nationalist commitments, harnessed more often than not to a narrative that saw Jews "coming home" to Israel, guided the angles of vision through which artifacts were viewed. As Palestine/Israel moved from colonial status under the British Mandate toward existence as a nation-state, a "far less completely territorialized focus was... replaced by an interest in the *biblical*, the *pre-Diasporic past*, which would finally stabilize the ancient Israelites, and national history itself, squarely within the parameters of national sovereignty and the boundaries of a clearly demarcated national home" (p. 76). "Diaspora Jews" would be transformed into "rooted Israelis" (p. 16). This transformation required work not just on the consciousness of future Israelis (socialist Zionists who founded kibbutzim, for example, thought returning to Israel meant working the land as farmers, not investigating stones they unearthed as they plowed fields). The rooting of people in place required that archaeology be stabilized as a science that could reveal solid facts. As Abu El-Haj points out, the epistemological danger of an archaeology motivated by an historical imagination resting heavily on Bible tales is that, in a milieu such as archaeology, where "stories are undetermined by the data" (p. 145, italics omitted), "the key (historical) texts and the key (archaeological) evidence remain in a circular relationship of discovery, explanation, and proof" (p. 146). The national narrative closes this circle at the same time that it obscures this action.

Abu El-Haj does not, however, want simply to argue that Israeli nationalists have been able to make archaeological artifacts sustain any narrative they chose. Archaeology in Palestine/Israel has had a life of its own, entangled with Zionist projects but not identical to them. So, in addition to examining how nationalist ideology directed choices of where to dig, what to say about it, and what to leave aside, Abu El-Haj examines archaeological institutional practice: "Rather than the discipline of archaeology being a

natural consequence of a national-cultural commitment to investigating the Jewish/Israeli material-cultural past, that national-cultural commitment to Jewish/Israeli antiquities was, at least partially, an outcome of the struggle for the science of archaeology itself" (pp. 55–56). Archaeologists needed names for places, reasons to dig. If for Israeli nationalism "the name Israelite performs nationality in the very ontology of material-cultural things" (p. 119), for science "the naming of objects (and eras) enabled the very work of archaeology to proceed" (p. 118). Abu El-Haj's attention to how concerns of archaeologists and nationalists shaped one another is animated by a commitment common among science studies scholars, often credited to Bruno Latour (1987), to examine how the boundaries between science and society are continually reconstituted in practice; neither science nor society pre-exist the other.

Abu El-Haj plots this relationship historically, tracking changing boundaries between archaeology and nationalism. She sketches the rise of the Palestine Exploration Fund in London. This organization, founded in 1865, put together with the cooperation of the British War office, had two aims: satisfying the "grand curiosity of Christendom" (Watson, 1915, p. 38, quoted on p. 22) about biblical times, and developing maps in service of British Empire Exploration Society, with a less imperial charge and a more Zionist charter. Abu El-Haj writes, "It was considered a 'sacred duty' to found a Jewish institute in Jerusalem, one through which they would be able to pursue 'Hebrew knowledge' of the land done in the 'spirit of Israel'" (p. 46, references omitted). The project was to "generate a belief in the value of antiquities, not just as objects of science, but... as objects of national significance" (p. 56). Some members of the society took the demand so literally that they "objected to drawing any distinction between the past and the present" (p. 57). One even wrote "*for the people of Israel in the land of Israel there are no antiquities, everything is alive*" (p. 58). This sense of contemporary Jewish presence as coterminous with the Israeli past found surreal articulation when one speaker at the inaugural conference of the society wrote, "Pottery is not pottery, it is Eretz Yisrael" (p. 59). This compulsion to see through present-day reality toward a social continuity that flattened time into a single Biblical moment first put me in mind of that phrase from Dick: "The Empire never ended."

But of course the British imperial presence did end, and Israel became an independent nation-state in 1948. And the view of the present simply overlapping the past was complicated. As Israel claimed the status of a secular state, the production of "facts on the ground" required the tools of an avowedly secular archaeology. The heritage of the many peoples recognized by archaeology done in the service of the British mandate would

have to be recognized to preserve the objectivity of archaeological science. As one effect of the half-life of empire, Israel had to become steward not only to a Jewish past but also to Christian and Muslim sites. Now the ways that nationalist commitments might enter into preservation were made more complex. By way of example: The colonial legacy had left in place distinctions between living and dead monuments. Under colonial eyes, many Muslim sites were classified as antiquities not to be modified by present day activity. Preservation became a way to arrest contemporary Muslim uses of sites. But the matter was complex: since adjudicating which Jewish monuments were to be kept active and which preserved was not a clear issue either. As Abu El-Haj puts it, "individual monuments were not so easily discernible as being either secular or sacred, religious or historical" (p. 67).

What is compelling about Abu El-Haj's discussion is the way she demonstrates how these issues of perspective were worked out in a scientific idiom, how archaeological space was crafted as a "neutral grid" (Gupta & Ferguson, 1992, p. 7). Her analysis is a useful complement to studies such as Susan Slymowics's 1998 *The Object of Memory: Arab and Jew Narrate the Palestinian Village*. While Slymowics examines how Arab and Jewish narratives about place and memory map differences in the power to define what will count as a settlement, city, or village, Abu El-Haj gives us an account of how such differences acquire differential authorities through one side's appeal to science. Science can legitimate inequalities by objectifying them and by enabling their further technical inscription in and on the ground. Abu El-Haj's work is among the first to examine the technoscientific remaking of the very land of Palestine/Israel (for an analysis of a science that works directly on ideas about the "nature" of Palestine/Israel, see Alatur, 2002).

Abu El-Haj's anatomy of how science's objectivity is used to underwrite national projects sent me back to Chandra Mukerji's *A Fragile Power: Scientists and the State* (1989), an analysis of the relationship between U.S. deep-sea scientists and Cold War government funding sources. Mukerji argued that it has been in the United States' national interest to fund deep-sea science for military purposes. By allowing scientists wide latitude in their projects, however, the government has been able to produce the effect that these scientists are doing disinterested research. Such an effect, Mukerji argues, provides a resource for founding political claims in what then appears to be objective science. Abu El-Haj's analysis of archaeology makes related points but allows science a greater life of its own; it can drift away from the imperatives that organize it and, even, sometimes, cause trouble for them, as when discovery of Muslim sites requires interpretative reframing as history rather than heritage.

If Abu El-Haj forwards a compelling anthropology of the making of space, her project also offers a necessary anthropology of time. She writes

that in grounding Israeli presence in the earth itself, "a seamless temporal connection was as fundamental as a spatial one" (pp. 81–82). This connection directs us to broader epistemological commitments about the facts of which history was made: "The archaeological record was understood to contain remnants of identifiable nations and ethnic groups all the way down. Those ethnical-chronological distinctions, in turn, were the lens through which archaeological data would be made to make historical sense" (p. 107). (In a later chapter, Abu El-Haj examines how many Palestinian archaeologists, in order to press a counterclaim, have to phrase their contest in these same terms. The scientific frame offers some tactics for resistance, though without the tools of state power these can be difficult to realize.) Abu El-Haj's analysis shows us how the categories of time we take for granted can themselves be products of scientific practice. *Facts on the Ground* provides a caution against such science studies formulations as Andrew Pickering's (1993) "mangle of practice," which assumes that historical ac-countings must cleave rigorously to an ontology of unidirectional time. Here, historical time as a "neutral grid" is itself under construction.

Abu El-Haj notes that Israeli archaeology has not been only about digging but also has been a crucial impetus for strewing the landscape with names that warrant Israeli presence, that remake the landscape as a place of Jewish rather than Arab indigeness (as had been the case under the British). In 1949, the Governmental Names Committee was founded to oversee the calling of things by names sited in a national history. If, under the British, "contemporary Arabic names were considered depositories of ancient historical geography" (p. 33), under much Israeli archaeology, Arabic names were distrusted as ordinary labels. Israeli archaeologists sought to discover the hidden signs of Hebrew names between the lines of Arabic ones. In a practice imagined as retrieval, but in many instances surely invention, Israeli archaeologists "often relied on existing Arabic names to determine the Hebrew one" (p. 95). According to one Governmental Names Committee document cited by Abu El-Haj, one project sought to create "a Hebrew map of the Negev, cleansed of foreign names, in which every place is called by a Hebrew name" (p. 93). Here, the land is understood as a palimpsest, though because of the indeterminacy of figure and ground, we might rather think of it as a kind of Möbius strip.

The textual imagery introduces the metaphor of writing that guides the archaeology Abu El-Haj examines. In one early British Museum pronouncement Abu El-Haj reproduces, we read "to dig an ancient site unskillfully or without keeping a proper record is to obliterate part of a manuscript which no one else will ever be able to read" (p. 43). Abu El-Haj takes seriously for her own approach the linguistic charge of archaeological rhetoric, writing

of "a historical grammar of biblical recovery" (p. 44) replaced by a "historical grammar in empirical form" (p. 104). It is from within these grammars that "positive facts of nationhood" (p. 99) are produced. The textual metaphor in the archaeology and in Abu El-Haj's analysis is not accidental. After all, the Bible was consistently used as a talisman for excavation. But a strange thing happened on the way to scientific archaeology:

It was the secondary evidence, the texts, that composed the primary evidence, or observable empirical facts, *as primary*, in the first place. Those facts subsequently gained a life of their own and emerged as being independent of the textual sources; they were used to empirically confirm or falsify specific aspects of the Bible's historical tales and to validate once and for all the historicity of the Bible itself (p. 123).

This is an elegant deconstructionist move, linking together language and fact construction (the grammar of fact construction, after all, as Donna Haraway reminds us, depends on the use of the neuter past participle of "fact" to shift attention from the linguistic construction of reality to an assumed durable and pre-existing set of deeds and things (1989, p. 3)). Abu El-Haj might have made more of this linguistically inspired examination of fact making, especially in light of the grammatical metaphor she returns to again and again. Given her obviously Foucauldian bent, I also wondered why Abu El-Haj did not meditate on Foucault's use of the archaeological metaphor (1972 [1969]) to do just the sort of layered history she delivers here.

But these are minor quibbles. The history of archaeological practice she presents is rich with examples of how particular pasts became realized. In a narrative reminiscent of Mike Davis' 1992 *City of Quartz: Excavating the Future in Los Angeles*, Abu El-Haj details the excavation of Jerusalem after the 1967 war, which entailed the destruction of Palestinian neighborhoods and the strict enforcement of ethnic habitation in the newly revived Jewish, Christian, Muslim, and Armenian quarters, which in turn enacted a kind of spatial (and often racial) apartheid. Abu El-Haj writes, too, of the extremely controversial practice, engaged in by some Israeli archaeologists, of bulldozing recent strata of the archaeological record in an attempt to find appropriately Jewish histories. Abu El-Haj notes that "Israeli excavators tend to use large shovels, pickaxes, and large buckets in order to move through the earth. In contrast, for example, the European (mostly British) trained archaeologists at Jezreel explained that they would prefer to excavate with smaller tools and slower digging techniques, including, for example, sifting dirt in search of very small remains" (p. 148). And, in excavating some locales, the last 1,300 years of habitation have often been treated as inconsequential. One archaeologist, Nahman Avigad, went further than this. In a

report on excavation in Jerusalem, he wrote: "Prior to excavation, the upper debris (mainly of recent buildings) were removed by mechanical means, and a layer of large stone slab was exposed" (1970b, p. 140, quoted on pp. 149–150). Abu El-Haj fills in the rest: "He then clarifies that the 'layer of large stone slab' is the *Herodian* street level—everything above it having been removed as upper debris" (pp. 149–150). Using bulldozers and rhetoric, many excavators of Jerusalem sought to deliver "a story with Israeli origins and an Israeli ending" (p. 174).

To discover how archaeological facts acquire everyday meaning in Israel, Abu El-Haj joined several Israeli-led tour groups as they walked around Jerusalem. The idea of such heritage tourism, aimed mostly at diaspora Jews, has been to get people to put their feet on facts on the ground. Abu El-Haj kept her ears on how facts were interpreted. One example she gives is of discussion of some ancient ash, offered by tour guides as evidence of a specific fire on the 8th of Elul in 70 C.E., "when the upper city was captured and destroyed by the Roman army" (archaeological tour film, "Burnt House," quoted on p. 211). After researching the dating of ash and finding it was difficult to pinpoint so exactly in time and space a fire so long ago, Abu El-Haj asked guides how sustainable their story was. They admitted, Abu El-Haj that, yes, there was no way to know for sure. When pressed, however, one Israeli archaeologist on a tour brought discussion to a halt, offering, "*it's a better story*" (p. 212). The question is, of course, for whom.

The appearance of Abu El-Haj on tours as an ethnographer makes vivid her points about the force of her earlier in the book. Throughout *Facts on the Ground*, she refers to interviews she conducted with various archaeologists, but we do not often learn enough about the conditions of these interviews and who exactly these people are. At one point, Abu El-Haj mentions "one excavation in which I participated" (p. 268), but offers no more. An ethnographic discussion of this excavation would have added a welcomed dimension to her analysis of practice.

Toward the end of the book, Abu El-Haj points to fissures in Israeli archaeology. Many Israeli archaeologists in the postprocessual tradition (which holds that archaeology is interpretative and always political, more humanities than science) have become critical of nationalist archaeology, and some have begun to attend to Palestinian claims and to the complaints of Ultra Orthodox Jews, who think archaeologists are defiling the graves of the Jewish dead. Abu El-Haj allows us to see the increasing disunity of national and scientific narratives about what the land of Palestine/Israel might mean, one virtue of beginning her analysis from the sphere of a science with a claim to a life of its own. Abu El-Haj does not make much reference to studies of the use of archaeology in other national projects (see

e.g., Díaz-Andreu, 1995; Castañeda, 1996; Hamliakis, 1996, 2000; Hamliakis & Yalouri, 1996), but her book will be extremely useful to those who wish to make comparisons. Archaeological practice has mattered deeply in Israel. Whether it has mattered everywhere in the same way is an open question, and one to which this important book in the anthropology of science, colonialism, and space offers careful, convincing, and compelling contributions.

FACTS IN CYBERSPACE

Daniel Miller and Don Slater's *The Internet: An Ethnographic Approach* also investigates national self-fashioning and the remaking of space through techniques of science and technology. Miller and Slater examine how Trinidadians craft an imagined community (Anderson, 1991) at once tethered to the island nation of Trinidad and distributed in a translocal space that is kept connected by email, chat rooms, websites, and other Internet tools. Their project is in line with Arturo Escobar's insistence that proper ethnographic engagement with cyberspace should tack between space and place, between zones of cyberspace and politics on the ground (1999), something seconded by Christine Hine in her 2000 *Virtual Ethnography*. In this spirit, Miller and Slater argue for attention to the "complex interweaving of online and offline worlds" (p. 82). In a section entitled "Let's not start from there," they criticize much literature to date on cyberspace, observing that authors often imagine virtual life floating free of everyday embodied sociality. They argue that "we need to treat Internet media as continuous with and embedded in other social spaces. . . they happen within mundane social structures and relations that they may transform but that they cannot escape into a self-enclosed cyberian apartness" (p. 5). Miller and Slater hold that Trinidad, a place on the margins of many first world maps, is an appropriate site for their study because "it is a place where we may reasonably ask whether the Internet is going to exacerbate global inequality or in some cases provide a promising developmental strategy" (p. 39). Miller and Slater are also concerned not to take the Internet as a pre-given communicative medium, as a technical formation emanating from Europe and the United States to which Trinidadians must only adapt. They write, "This book is not a case study of localization or about the appropriation of a global form by local cultural concerns. It is not about domesticating a technology. On the contrary, it is largely about how Trinidadians put themselves into this global arena and become part of the form that constitutes it, but do so quite specifically as Trinidadians" (p. 7).

The book is based on five weeks of fieldwork in Trinidad but builds on

eleven years of research on Trinidad by Miller and eighteen months of fieldwork about the Internet by Slater. The land-based fieldwork is grounded in a household survey, detailing the Internet usage of persons from neighborhoods ranging from upper-middle class to squatter settlements. Speaking to the pervasiveness of Internet awareness and usage across such class chasms, Miller and Slater observe that "the Internet does not appear to Trinidadians as exclusionary and divisive; it seems to cut across rather than exacerbate social divisions" (p. 44). Because a dispersed Trinidadian community uses the Internet to knit together community across transnational distance, the book also draws on interviews with diasporic Trinidadians in London and New York and on fifteen months' work online, analyzing websites and participating in Trinidadian chat rooms. The book has a website annex, *ebmonetgold.ac.uk*, which allows the reader to look at Trinidadian websites as well as figures for the book itself. These provide a vivid accompaniment to the analysis in the text.

So how do Trinidadians, an ethnically and religiously diverse people who identify with a nation-state that became independent from the British Empire in 1962, use the Internet? Miller and Slater write "we are concerned with a series of 'alignments' or 'elective affinities' between Internet use and particular facets of what being Trinidadian was supposed to mean" (p. 3). As an opening gambit, they argue that the Trinidadians among whom they worked "saw various Internet media in terms of conventionally Trini forms of sociality such as styles of chat and hanging around" (p. 2) but also used the medium to extend their ideas about Triniteness. Miller and Slater label these two dynamics *expressive realization*, "helping people to deliver on pledges that they have already made to themselves about themselves" (p. 11), and *expansive potential*, in which "people glimpse quite new things to be (or even an escape from what they were)" (p. 13). They write, "living with the Internet is swiftly naturalized as second nature and... 'common sense' shifts accordingly" (p. 14).

What sorts of Trinidadian second natures are expressed or invented online? Miller and Slater take us through various domains of social life, from kin and romantic relations, to the construction of websites that celebrate Trinidadian culture, to new modes of doing business online, to novel formations of religious community.

Miller and Slater tell us how people who identify as Trini—whether in Trinidad or not—use email to cement family connection across the Trinidadian diaspora. They provide an illustration of the transformative effects of this practice when they argue that the Trinidadian category of "cousinhood" is "now viable as a much larger phenomenon, bringing back into the fold relatives that would not otherwise have been included" (p. 60). The Internet thus becomes a tool for stressing or muting particular kinship ties (see also

Helmreich, 2001), which "suggests that... relationships... cannot be assumed to [be] mere creatures of the Internet developed in opposition to or replacement of something else called 'traditional kinship'" (p. 82). Miller and Slater write, too, of new kinds of romantic relationships that materialize over the net. Such dynamics are not surprising, as Sherry Turkle's *Life on the Screen: Identity in the Age of the Internet* showed us back in 1995. But Miller and Slater seek to add more cultural specificity. Aside from some interesting observations about how Trinidadian chat might be misinterpreted by non-Trinis as too racy, there is actually not as much here as there might be. And some summaries of online habits sound, to the outside ear, a tad quick and homogenizing: "Trinidadians do not like people who come on too fast and too strong" (p. 69).

This raises the question of Trinidadian ethnicity and religious diversity. Trinidad is imagined by residents and outsiders as a tremendously diverse nation, host to people with European, African, East Indian, Amerindian, Portuguese, Chinese, Lebanese, and Syrian heritages and connections. As Miller and Slater argue, however, ethnic difference does not seem to be a salient feature of online Triniteness: "ethnicity was generally almost absent from our study in that unless we raised the issue there would be silence: most Trinis did not regard it as a salient division in relation to the Internet" (p. 48). More powerful, they found, was nationalist pride—foregrounded in chat rooms and on websites presenting local concerns to a global audience. In part, they speculate, this was because "nationalism comes across as something of a triumphant resistance to forces such as slavery, colonialism and imperialism" (pp. 114–115). But the reader is left wondering whether, in a country where some 40 percent of people describe themselves as African and another 40 percent describe themselves as Indian, there might not be significant differences worth exploring in depth (and indeed, whether five weeks of fieldwork on the ground can adjudicate this question). While one should not assume that differences in ethnic origin or affiliation predispose persons to particular sorts of affiliations (see Segal, 1993; Munasinghe, 2001), there does seem to be a question of whether all Trinidadian diaspora relations—of "Africans" and "Indians" of various religious affiliation, for example—bear the same relation to the Internet. Are all kinship and romantic relations over the Internet really so easily parsed with the category of Trinidadian? Are there residues of imperial networks that shape how different ethnic groups connect to diaspora?

Miller and Slater offer a wealth of evidence on how websites about Trinidad frequently organize themselves around points of a national pride—such as the 1999 Trinidad-hosted Miss Universe Pageant, used to project an image of Trinidad as a relaxed island home to the calypso and soca-soaked Carnival. Miller and Slater suggest that the proliferation of such websites not

only presents a consistent picture of nationalist consciousness but also builds on a particularly Trinidadian ideal of competitiveness:

Today what is celebrated in entrepreneurialism is an ideal of being able to compete, to hold one's head up, within the global free market. It is the analogy with freedom itself that counts. So, what is espoused is not an economical ideology such as neo-liberalism, but an avenue for Trinidadian national aspirations. Being Trini here means being a successful Trini in the new free-flowing information age symbolically represented by the Internet. (p. 112)

But aside from a discussion of a flame war about whether Miss Trinidad could have been an Indian woman, Miller and Slater offer us very little about whether Trinidadian nationalism and competitiveness might not be entangled with more complex ethnic politics. Yes, much of the nationalist framing of Trini websites may be the result of struggling for power in a postcolonial world, in which the logics of empire have not entirely ended. And Miller and Slater caution that "it would be quite wrong to assess this phenomenon of internet nationalism as though it was merely one more case of some general category of nationalisms" (p. 115). But I was left wondering whether we could hear more about cross-cutting web communities not so easily contained within the national frame. Miller and Slater have in their final chapter a brief but interesting discussion of Trinidadian Indian Hindus forging connection to India and to the Indian diaspora, a discussion that would seem to complicate their argument that ethnicity was not a salient category in Trinidadian Internet use. Hearing more about websites that do not always congeal into "Trinidad" would perhaps have allowed a greater attention to the entanglement of what Appadurai (1996) has called ethnoscaples, mediascaples, technoscaples, finanscaples, and ideoscaples.

An odd moment in the book—and one that might flag the placing to one side of ethnic difference—comes when Miller and Slater compare linked Trinidadian websites to the Kula ring: "As in the classical anthropological case-study of the Kula ring... a website in a network of hyperlinks can expand the 'frame' of its creator by placing them in an expanded circulation of symbolic goods" (p. 20). This seems to mute the ethnographic specificity of the case they are trying to explain. Moreover, when we read the comparison twice more—exchange of hyperlinks is "analogous to the circles of exchange that create the name and fame of those who transact Kula" (p. 79) and "On analogy with the anthropological study of the Kula ring, much of the concern is to expand the fame and name of those who place themselves in this expanded realm" (p. 104)—it begins to seem gratuitous, risking oversimplification of the dynamics in question (see di Leonardo, 1998). The analogy might not even be apt. According to Malinowski (1984 [1922]), Kula happens in a closed circuit, not a network. Moreover, it is an economic

arrangement, not necessarily one that gives participants a sense of a common community.

Miller and Slater do in fact offer us a thoughtful discussion of the economy of the Internet, discussing everything from the local telecommunications company to the structure of web design work in Trinidad and its ties to international business. Miller and Slater place all this in a cultural frame, arguing that Internet business in Trinidad "allies with Trinidadian ideals of entrepreneurialism and free competition, and this is crucial to the way it is being adopted: people see the Internet as overcoming traditional barriers and divisions and try to use it this way" (p. 45). They place this in the context of a powerful national "commitment to personal freedom that is a legacy of slavery and other forms of oppression" (p. 38). Trinidadian programmers see themselves, not as much of the world sees them, as marginal, but as first world technicians capable of competing with people anywhere else. In this way, they view the Internet as a key to what Miller and Slater call expansive realization. Miller and Slater write of how Trinidadians have come to see themselves as capable of doing "high-value-added offshore work for foreign companies" (p. 136):

Internet-based businesses as well as businesses that re-organize themselves around Internet facilities seemed to play directly to a host of Trinidadian competitive advantages that were constantly enumerated by informants. The main advantages that informants consistently stressed lay in superlative "human resources" that could be purchased by foreign companies at relatively low rates. Trinidad could provide an English-speaking labour force that was highly educated and had already developed an impressive skills base not only in technical matters but also in design, marketing and project management. (p. 135)

Because of this competitive advantage, Miller and Slater argue, Trinidadian programmers felt that they could avoid the offshore model of Barbados: "low-skilled and low-waged data-entry" and of India: "high-level software design and coding expertise" at low wages (p. 137). Still, Miller and Slater write that

although we have no doubt that the Internet has opened up many opportunities in terms of both jobs and access to skills with which to increase mobility for all sectors of the population, at the same time it is quite capable of throwing up new and escalating hurdles—necessary social capital (networks and connections), educational capital (ever higher necessary levels of design, programming and e-commerce skills), and financial/economic capital (investments needed to launch Internet-based enterprises) (p. 49).

Here, Miller and Slater might have spent more time discussing the political, economic, and symbolic constitution of the "off-shore" that the Internet facilitates (see Maurer, 1995). The specific location of Trinidad in the Caribbean, a site of many tax havens, is directly relevant to the question Miller

and Slater ask at the outset, "whether the Internet is going to exacerbate global inequality or in some cases provide a promising developmental strategy" (p. 39). As I'm sure they would agree, it depends. We need more detail about the global financescapes this technoscape depends upon.

Miller and Slater close with reflections on religion. Though there is a bit of treatment of Hindu and Muslim online networks, Miller and Slater find Christian websites and online discussion groups most prevalent. They find that some Catholic authorities see the Internet as a useful tool for keeping in touch with a geographically dispersed flock. One priest even suggests that confession might be conducted online. Others feel that the Internet might be a tool for communion with other faithful, even a "divine model of the future of a Church" (p. 25). One quotation reproduced by Miller and Slater offers an analogy between the Internet and ancient Roman roads: "We understand that as it was with Paul, he went along the Roman trade routes, he didn't cut a path through the hills." Another Christian user Miller and Slater encountered said "It was necessary in the progression from Pentecostal to Apostolic Church that God would give humanity the Internet so that they would finally be able to envisage the coming future of global salvation" (p. 189). And still another offered that "All technology comes from God, and so the Internet is something God created using men to actually articulate this particular idea that God wanted to do right now." Horselover Fat, with his overlapping of secular and sacred time, would fit right in here. Although all of the religious riffs on the net are fascinating, they do not tell us quite enough about Trinidad. The framing of the discussion in terms of "religion" makes faith and practice generic across traditions, risking in the bargain the severing of religion off from the constitution of Trinidadian national identity.

On the first page of their book, Miller and Slater write, "we are not simply asking about the 'use' or the 'effects' of a new medium: rather, we are looking at how members of a specific culture attempt to make themselves a(t) home in a transformative communicative environment, how they can find themselves in their environment and at the same time try to mould it in their own image" (p. 1). How well do Miller and Slater succeed in their goal? Fairly well I think, with a few caveats. Miller and Slater's refusal to treat the Internet as a vehicle of cultural imperialism that Trinidadians simply resist and refigure is refreshing. In this vein, their project joins that set out by Gail E. Hawisher and Cynthia L. Selfe in their 2000 edited volume, *Global Literacies and the World-Wide Web*, which examines a variety of Internet engagements as they emerge in settings ranging from the postcolonial South Pacific to the margins of Europe. I did find myself, though, wanting more attention to the political, economic, and linguistic parameters of international online life, dependent as it is on functioning phone lines and often enough, especially for people with little money to modify text programs, on

English. *Global Literacies'* contributors remind us of the material barriers to getting online around the world (McConaghy & Snyder, 2000), of the ways a facility in English is still a powerful determinant of how widely Internet networks can spread, and of how hypertext is far from a culturally universal way of reading (Dragona & Handa, 2000).

Miller and Slater do offer us a nice political economy of the Internet in Trinidad, but take largely for granted that the Internet is constructed the way it is. They write fluidly of cables, modems, and email software as elements of material culture, but do not inquire into the cultural choices sedimented into these technologies (elegantly historicized by Janet Abbate in her 1999 *Inventing the Internet*) or into whether these might be open to redesign (something treated by Ravi Sundaram's 2001 "Recycling Modernity: Pirate Electronic Cultures in India"). They write in close technical detail about the commercial application of website design by Trinidadian companies, but when they put this in the frame of "stages of progress" that "are similar to those proposed in models of e-commerce that are found internationally in business communities" (p. 151), we lose a chance to see the promised account of how Trinidadians "try to mould [the Internet] in their own image" (p. 1). Michael Fischer's (1999) "Wording Cyberspace" provides a nice set of anthropological tools for looking at the imbrication of the material with the semiotic in net life.

Not fully opening up the black box of the networks that support the Internet as a material thing means that Miller and Slater miss an opportunity fully to deliver on a promise to show how the social and the technical are mutually constitutive. They offer that "This is not a book about the Internet as a technology that is then appropriated by another thing called society" (p. 8). They join company with Abu El-Haj here in referring to Bruno Latour (1993), who has made strong arguments that what counts as science and what counts as society is an outcome rather than a condition of their interaction. I'm not sure, however, that by taking much of the material and semiotic stuff of the Internet as given, Miller and Slater haven't ended up giving us a tale of appropriation. Indeed, early in the book they write explicitly of the Internet being "appropriated" (p. 13).

As a contribution to the anthropology of technoscience, however, this book offers valuable starting points for thinking about the enlistment of the Internet into the formation of national and transnational space (one element left out here that might warrant future investigation is the use of the Internet in making *state-space* [Jerry Everard's 2000 *Virtual States* is one place to begin]). Miller and Slater might go further, too, in examining why the Internet is imagined as a "space" at all. There are cultural histories on this topic that make rather grand claims (e.g., Hills, 1999); it would be instructive to learn more about whether the Trinidadian users discussed in

this book leveraged nationalism only to augment or refigure an already existing spatial metaphor. In other words, while this study provides a wealth of fascinating ethnographic vignettes, we need more about how "space" is made from things not previously so constituted. Miller and Slater might also have attended more closely to how Internet worlds refigure social time—the "In Time" segment of Fischer's "Worlding Cyberspace" could be very helpful. In sum, however, this is a rich source for ethnographic information on the making of new worlds through the technoscape of the Internet. Talk of the making of space-time is, perhaps, an appropriate point from which to leap into a discussion of the work of Peter Redfield.

FACTS FROM OTTER SPACE

Some 600 miles southeast of Trinidad lies French Guiana, the center of gravity for Redfield's *Space in the Tropics*, a gorgeously written meditation on colonial and postcolonial science, space, and time in an out-of-the-way place. Redfield examines two moments in French Guiana's history: the nineteenth century construction of a French penal colony along the rivers and coasts of this (at the time) colonial territory and the twentieth century location of a launch site for the European Space Agency's French-administered rocket, Ariane, in Kourou, a city near French Guiana's Cayenne, the capital of what is now an "overseas department" of France. Redfield draws the parabola of his comparison of penal colony and space center thusly: "On the one hand lies the colonial fall of thousands of men into the heat of tropical purgatory, and on the other the triumphant rise of a rocket into a cold and calculating heaven" (p. xiv). Redfield's narrative charts the continuities and discontinuities that have changed French Guiana from an imperial colonial outpost into a node in a modern global network. In transformation on the path "from convicts to rockets in French Guiana," from the era of empire to the age of globalization, have also been relations between technology and governance, nature and culture, and the local and global.

In *VALIS*, Horselover Fat has an epiphany as he watches television. A split-second superimposition of a supermarket ad and a children's cartoon produces a cipher which awakens him to the possibility that he is actually living under Roman imperial rule. Hence, "The Empire never ended." In *Space in the Tropics*, Redfield reports that the two poles of his research came together one day when he was watching an Ariane launch on television in Cayenne and discovered that an American drama about the penal colony, *Papillon*, was being aired at the very same time. Switching back and forth between channels, he reflects on how French Guiana's history as a site of social experiment tells on its present. "[T]he Globe carries a stamp

of Empire" (p. 253). Configurations of international space, of "wilderness," of race, and of science and technique persist from one epoch to another, even as they also twist, turn, and torque into new conformations. As Bill Maurer suggests in his critique of Michael Hardt and Antonio Negri's *Empire* (n.d.), new forms of power are not usefully interpreted as mere updates of previous imperial formations. The bilateral symmetry of past and present will not get us far in charting the swerves of science and society. We must attend to what Hayden White (1978) has called the "tropics of discourse."

If Abu El-Haj's analysis was grounded in a grammatical metaphor, then Redfield's shows the pull of the figure of the trope, arrived at through the topic of the tropics. Redfield writes that "we must remember that our construction of the 'tropics'—for all that the region may occupy the midriff of the globe—positions it at the side of human affairs" (p. 223). Redfield's tropics are not only an ecological domain, but also "a zone of uncertainty circling the middle of the globe" (p. 2) and, what is more, a site from which we might glimpse "the edges of our own lives, and those of the lives around us" (p. xv). In *Tropics of Discourse*, Hayden White writes that troping is "both a movement from one notion of the way things are related to another notion, and a connection between things so that they can be expressed in a language that takes account of the possibility of their being otherwise" (1978, p. 2). The tropics described by Redfield exactly illustrate such movement and connective possibility. For architects of the penal colony, French Guiana was just the right place to transport prisoners; far enough away from France to get people out of view, close enough for efficient transportation. For the framers of the space center, the department of Guyane was also just right; far enough from densely inhabited land and unstable political regimes, close enough to the equator for the inexpensive launch of geosynchronous telecommunications satellites. In the space and time between penology and rocket science, there were collateral shifts in the concept of nature. French Guiana moved from being a tropical hell unsuited for civilized white people to a tropical paradise where first world people could get in touch with nature.

Though the book ranges eloquently across a diverse collection of topics—from theories of race among penologists, to the Dreyfus affair (Dreyfus spent four and a half years in exile on French Guiana's Devil's Island), to recent ecotourism—I'd like here to focus on Redfield's analysis of the space center because I think his is the very best anthropological analysis we've yet seen of the cultural construction of outer space (see also Maruyama, Harkins, & American Anthropological Association, 1975; Finney & Jones, 1985; Foulkes, 1994; Zabusky, 1995; Finney, 1999; Powell & Brown, 2001; Smith, 2001). Through lively ethnography and judicious use of expertly chosen compasses from literature—notably Defoe's *Robinson Crusoe* and Clarke's 2001—

Redfield offers us for outer space what Miller and Slater do not offer us for cyberspace: an account of its making *as* space.

Why look at a space center in South America rather than in the metropole of the United States or Europe? Because, Redfield reminds us, space programs are global and a view from the margins, the edges, affords perspective on the networks of labor, inequality, and imagination that sustain such enterprises. The methodological concomitant of such an analysis is, not surprisingly, ethnographic motion. While Redfield is largely located in French Guiana, following the dynamics in which he is interested takes him elsewhere as well—e.g., to France—and it takes him places he cannot go—e.g., the past—accessible only as history. Thus the book “does not seek to be an ethnography *per se* in the sense of maintaining a constant anchor in a singular and present life-world of a particular bounded human community. Instead it adopts an ethnographic sensibility” (p. 17). Redfield writes, “Anthropology’s inheritance includes the freedom to define parameters of relevance, to ask impossible questions and to provide partial answers” (p. 16). He persuasively argues that French Guiana is good to think with for the anthropology of science and space.

And the “space” of the book’s title is of course multiple. Redfield writes that “Two senses of the term concern us: one involving the realm of rockets and satellites and the other involving the geometry of human experience” (p. 20). Also implicated are the spaces of empire, of exile, of colony, and of the cosmos. Redfield juxtaposes these spaces because “modern categories of nature and technology can only be understood in relation to each other, and, further . . . neither can be adequately understood without recourse to spatial terms” (p. 23). Like Miller and Slater, Redfield looks at global dynamics through the lens of a locality that is itself always under construction.

But what of that rather recent category, “outer space?” How did it come into existence and what does it mean? Redfield writes,

“Outer space” describes something undeniably distant from local place, a vastness stretching impossibly far from the familiar globe. To imagine this “beyond” as frontier is to invite its exploration yet also simultaneously to reposition the surface already known. Once the heavens fill with human activity, the ground below them shifts in meaning, drawing together into a globe. (p. 115)

But before the ground can so shift, it must itself to be transformed into the launching pad for the creation of the outer, exterior place. In a two-chapter section entitled “Modern Sky,” which includes the bulk of Redfield’s analysis of the space center, we learn that French Guiana was selected as the site for the European consortium’s satellite-launching rocket for reasons growing from technical, cultural, and political facts on the ground.

Redfield carefully and quite brilliantly shows how technical reasons open up into social priorities. Consider: One key way satellites can facilitate communication across the globe is to orbit geosynchronously, that is, in synch with the earth, staying always over the same spot; aggregates of satellites can serve as relay stations around the sphere of the world. Spacefaring politics thus look to locations close to the equator, as these afford the easiest way of getting satellites into geosynchronous orbit: “To maintain constant contact with a defined region on the globe a satellite must travel in synch with the midriff of the planet. Hence the equator, projected outward into space, becomes a key to communication” (p. 122). When the French Space Agency looked in 1962 for launch sites, places in the tropics seemed the most logical place to search. A variety were considered (including Trinidad), but French Guyana was ultimately settled upon. Redfield writes that the selection reveals “a mixture of logics: an application of the desired geographic criteria (physical and social), as well as a bias against any political landscape threatening movement, and a preference for sites within the French sphere of influence, former colonies and continuing territories” (p. 127). It was no coincidence that French Guyana was the same site where once sat the penal colony: for “when one is seeking to leave the globe, wasteland becomes valuable, and underdevelopment can appear a virtue” (p. 125). The search for sites to get off-planet made use of existing territorializations.

But space science also changed such landed politics, doing so through a reorganization of the sky itself. Redfield writes that “The widespread adoption of the artificial satellite presents us with an active, distinctly ‘modern’ sky. The reorientation of the earth in the Space Age is not solely a matter of cosmic contemplation or symbolic rivalry: there are significant technical consequences as well, for science, politics, and economics” (p. 123). Redfield writes that “space technology closed the sky again, bounded it from above and sealed it whole” (p. 123). From the ground, “Amid uniform landscapes conjured from steel and concrete, coordinates of time and space become simultaneously universal and ephemeral” (p. 111). Uploading Gupta and Ferguson’s words to cosmic context, “space itself becomes a kind of neutral grid” (1992, p. 7). Redfield’s argument here nicely dovetails with Paul Edwards’ in *The Closed World* (1996), in which Edwards argues that strategies of monitoring the world through computer simulation during the Cold War and the space race also gathered the world onto a contained modernist grid.

Outer space and the tropics acquire resonance in this new echo chamber. Redfield offers this from Donna Haraway: “Space and the tropics are both utopian topical figures in Western imaginations, and their opposed properties dialectically signify origins and ends for the creature whose mun-

dane life is outside both: civilized man. Space and the tropics are 'allotropic'; i.e., they are 'elsewhere,' the place to which the traveler goes to find something dangerous and sacred" (1989, p. 137). Like Miriam Kahn's "Tahiti Interrupted: Ancestral Land, Tourist Postcard, and Nuclear Test Site" (2001), which examines another intersection of science and tropics, Redfield's analysis adds a historical, irretrievably earthly account of how space, science, and the tropics shape one another: "[T]he Guiana Space center indeed lived up to its slogan becoming 'Europe's Spaceport,' a center of high technology near the equator" (p. 115). It also adds a compelling ethnography. Redfield emerges as a full character in this narrative—sometimes alert and alive to every connection, sometimes tired and stretched thin, sometimes deadily serious, sometimes tipsily incisive, always very much aware of his own cultural coordinates—in a way that Abu El-Haj and Miller and Slater do not. Redfield vividly shows how the utopian topic of space features in the lives of people he meets on local tours, at the space center, on the road. At one point, he meets an exuberant French businessman who evangelizes about the "new religion" of space, and of how the French have always "colonized with religion" (pp. 151–152). Redfield shows us how, for this man anyway, past, present, and future overlap, translucent.

"[Y]et space is transparent and obfuscating all at once. Even as rockets and satellites represent clear and limited objects, the vast alignments of technologies behind them are nominally acknowledged but effectively hidden" (p. 158). Redfield is careful not to lose sight of how the technoscientific formulation of "outer space" changed life in French Guiana. Once the space center was built, it transformed the relation between the French metropole and people already residing in French Guiana. Scientists from Europe and other spacefaring polities emigrated, and for them the jungle has become a site for ecotourism. The local left interprets the space center as continuation of colonial imposition. Residence patterns, labor relations, and ethnic politics have been reorganized, and in ways that reach into international relations. As Redfield says, the space center "will never—should never—exist wholly within Guyane. The support systems upon which it depends, from material production to trained staff and clientele, extend elsewhere on the globe, weaving most thickly in the technology centers of Europe. . . . On a crucial, institutional level, the work of the cosmos is irreducibly cosmopolitan" (p. 147). And so "the space center furiously renews the symbolic landscape around it, continually struggling to redefine both present and past through the future" (p. 166). We might compare this to Abu El-Haj's case, in which we could say that archaeology "furiously renews the symbolic landscape around it, continually struggling to redefine both present and future through the past."

Toward the end of *Science in the Tropics* (p. 247), Redfield reminds us

of Bruno Latour's famous call in *We Have Never Been Modern* (1993) to "bring anthropology home from the tropics"—that is, to press anthropologists to look ethnographically at the Western contexts that have produced the questions of anthropology. Redfield notes that "To include the Crusoes of the world in anthropology, we must not lose sight of the exterior of their islands or the work of their hands in an accounting of their words and thoughts. This is especially clear when looking at the tropics and the structures they left behind" (p. 247). For Redfield, then, anthropology must also *stay* in the tropics, keep on troping, to understand the networked relations of science and technology. It is not a question of coming home, as if "we" knew where that was. And neither is it a question of turning anthropology on its head, shifting its poles, for "Not all directions were equal in colonial systems, and in the aftermath of empire, residual masses continue to exert attractions" (p. 258). The equator divides unequally.

Because both Abu El-Haj and Redfield are concerned with the lingering and continuing forces of empire and colonialism, both demonstrate how scientific knowledge transforms over time, not in obedience to any essential urge toward progress, but in alignment with shifting social and political contexts. The half-life of empire is measured not as a steady decay, but in a finer resolution, as a stochastic event. If in *Beamtimes and Lifetimes*, Sharon Traweek (1988) inaugurated anthropological attention to the calibration of the time of science to the time of the social, Abu El-Haj and Redfield place such calibrations more firmly into the historical frames of nations, colonies, and postcolonies. Their anthropologies of space and science thus offer new tools for an anthropology of time (see, e.g., Appadurai, 1981; Herzfeld, 1991; Gupta, 1994; Greenhouse, 1996; Fabian, 2002), for understanding how science as culture diversely produces the "neutral grid" of time. Abu El-Haj, Miller and Slater, and Redfield all join in showing us how an anthropology of technoscience can sit at the heart of anthropological concerns about the making and remaking of people, places, and objects. In the spaces and times made by science and society, everything is always under construction. In this empire of words and things, territorialization, deterritorialization, and reterritorialization never end.

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Encounters and Enclosures: Archaeological Approaches to Social Identities in the Past and Present

David Frankel

Stark, Miriam T. (Ed.). *The Archaeology of Social Boundaries*. Washington: Smithsonian Institution Press, 1998. xx + 364 pp. including references and index. \$50.00 hardcover.

Graves-Brown, Paul, Sian Jones, and Clive Gamble (Eds.). *Cultural Identity and Archaeology: The Construction of European Communities*. London: Routledge, 1996. xx + 304 pp. including index. \$95.00 hardcover.

These two collections may seem to be worlds apart. One self-consciously explores the nature of archaeology and its role in modern constructions of "Europe." The other has no qualms about archaeology as a discipline; its scientific and social values are taken for granted. What they do have in common, however, is a concern with issues of identity. At the heart of these two books is the concept of the "archaeological culture."

These patterned distributions and clusters of material culture traits, whether real or created by selection and emphasis, remain the building

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