

Practice and Place in Twentieth-Century Field Biology: A Comment

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The day is long past when it was necessary to justify place as an analytical category in history of science. Sessions on place are now common in meetings of professional societies; so are thematic groups of papers, like this one, in historical journals. Place is routinely used to enrich historical accounts of varied topics. We routinely borrow concepts of place from disciplines that had developed them earlier and more elaborately: landscape history, historical geography, and, most recently, environmental history. In the thirty-plus years since historians and sociologists of science first deployed the concept – for the particular purpose of demonstrating the local and socially constructed character of all scientific knowledge – it has developed into a diverse, extended family of analytic and narrative practices.

Early versions of these papers were presented in a session at the March 2009 annual meeting of the American Society for Environmental History, in Tallahassee, Florida. At that time we were pleased to discover that while each of our papers had interesting things to say about specific episodes in the history of the field sciences, together they provided a useful and wide-ranging analysis of how scientists in North America have interpreted place since the early twentieth century. We decided that we would pursue their publication as a collection in an appropriate journal. Since then we have, with Paul Farber's encouragement and the helpful advice of several reviewers revised and expanded our papers, seeking to engage in various ways with the themes of place, practice, and scientific knowledge that have attracted substantial interest from historians of science and environmental historians. Robert Kohler also kindly agreed to prepare a comment on our papers, and we are grateful for his thoughtful contribution.

– Stephen Bocking

One does occasionally hear, informally, protestations that place is an unnecessary or even a misleading category. But there is to my knowledge no developed counter-case in print. And, after all, place is an actor's category, as, for example, in "place-based" ecology (Billick and Price, 2010). Place, it is fair to say, is well and properly assimilated into history of science. In the history of the field sciences it is indispensable. So the question, historiographically, is not whether or not, but what next? A spell of critical consolidation is often useful following periods of headlong intellectual expansion and diversification, for sharpening up analysis and pruning away limiting by-products of success. For example, new analytical concepts are typically invented to apply to some issue of the day, and an originating purpose may become an easy fallback, even as more diverse and original purposes arise. Situating science in order to demonstrate its social constructedness is, I think, one such case. The epistemic point is long-since proved, yet the language of "constructing" remains a default for thinking and writing about place, and that may narrow our horizons. Social construction is a universalizing process, liberating knowledge from place and making it what everybody knows or uses. However, knowledge may be widely credited yet remain local and situated, a spray of local variants. Actual places are always particular, and the variety and particularity of local practices are interesting historical subjects in themselves. It is thus a timely moment to sort out the varied uses of place and to think about the particular problems to which each best applies, and within what limits. A little system (but not too much) would be welcome: if not a full taxonomy of place, then at least perhaps a gazetteer.

Useful steps in this direction are being taken, by the geographer Diarmid Finnegan, for example. In a recent essay Finnegan lists four distinct types or sub-categories of place in which scientists operate – sites, regions, territories, and boundaries – though he then hastens to replace "boundaries" with "circulation," a concept better suited to constructivist accounts of how sited knowledge becomes universal by circulating.¹ However, I would retain boundaries as a category; or, better, borders, which are proper dimensional places and not just abstract lines. And for "circulation" – which is not a term of place but of activity – I would substitute "paths," which are, again, actual places and, like borders, sites of dynamic cultural mixing and transformation (On borders see Kohler, 2002a). Things or ideas in circulation mark out and follow paths. A virtue of Finnegan's (slightly emended) categories is

¹ Finnegan, 2008, esp. pp. 370–373. A more comprehensive survey is Livingstone, 2003.

that they embrace both the material and the social or symbolic aspects of place. Another virtue is that each suggests its best specific use: *sites* for microstudies of place and practice; *regions* for insights into how science figures in communal identity; *territories* for issues of contested ownership and control (e.g., scientific disciplines and their geographies); *borders* and *paths* for the dynamics of scientific circulation and change (Finnegan, 2008).

Additional useful categories of place come easily to mind: *zones*, for example (as in Peter Galison's "trading zone"); or *spots* (as in Tom Gieryn's "truth spots"). These terms characterize sites by specific qualities: cultural openness and epistemic privilege, entrepôt and mecca. A less specific but very useful category is *locale*, which implies human occupation and takes us into issues of residence and the connections between doing science and living lives – an emerging and fruitful line of inquiry in history of science (Galison, 1996; Gieryn, 2002; Kohler, 2011). A crowded world – and ours is that – is a world of locales. And let us not forget the "placeless" places that are both here and everywhere, of which cathedrals or laboratories (the cathedrals of high modern civilization) are representative specimens (On placelessness see Kohler, 2002b). An umbrella name for places that are physically dispersed yet culturally contiguous remains to be invented. ("Network" isn't quite right; *Hanse* is historically apt but arcane; and "ecumene" would do nicely if it didn't mean something else already. "Cloud," perhaps?)

But back to matters at hand. Our four essays themselves constitute a mini-taxonomy of place in field science. All take as their subject places in nature that have in different ways become places for doing science. We have the family of Rocky Mountain field stations, some called "labs" but all designed principally for work outdoors in natural conditions (Jeremy Vetter); and the system of field stations established by the University of California specifically for ecological and wildlife science (Peter Alagona). Both sets are "sites" dedicated to scientific work. On a larger (if not quite regional) scale there is The Broughton, a complex terrain of islands and coastal waters at the northern end of Vancouver Island, where the disruptions of industrial salmon farming drew in an assortment of scientists from industry, governments, and academia (Stephen Bocking). And Glacier Bay, Alaska, which after a considerable struggle was made a national monument and, inter alia, a site of long-term ecological study (Gina Rumore). These latter two were not dedicated-use sites but complex locales of diverse and competing human uses. And of the four only Glacier Bay was chosen for its special

topographical and ecological advantages for science. The others were rather ordinary places. Some were chosen precisely because they were ordinary: to give the science produced in them a trans-local universality. Some were simply the places where environmental controversies happened to break out. It may be significant that all four are in the far American West – a region of vast public lands and rapid landscape change.

The four authors exemplify more-or-less familiar modes of historical analysis of how human occupation and uses change natural places: specifically, how places of various sorts become places of science. Jeremy Vetter shows how natural locales became built or semi-built environments as the result of siting (near long-distance transport), adapting local infrastructure (recreation hamlets) to new ends, and improvising wall-less “labs” for plain air measuring and experiment. It is a kind of landscape or environmental history. Gina Rumore’s study is mainly a political history of how a natural locale is (slowly and painfully) accorded the legal identity and status of a natural preserve. The models here are park histories. Peter Alagona likewise focuses on the politics of academic contests over disciplinary, budgetary, and geographical territory. One is reminded of the territorial contests in the histories of professions and disciplines (For example, Abbott, 1988). Support by top administrators with discretionary power proved crucial in Alagona’s case, as it often does in institutional turf wars. Stephen Bocking’s treatment of *The Broughton* is recognizably a study of environmental controversy, but with the emphasis shifted from congressional politics to the on-site thrust-and-parry of rival interests using their favored weapons of scientific method and epistemics. All four authors thus turn familiar genres of history to new and illuminating ends.

These four essays offer much to think about, but I would like to focus on a few ideas that seem to me of general value for historians of science. One point, fairly obvious, is that places are in themselves proper subjects for history of science, much as they are for landscape or environmental history, or historical geography. Though it has been our custom to keep science as our central focus and to ask how elements of context – society, place, economy – shape it, we may also reverse means and ends and ask how doing science in a place reshapes the kind of place it is and redirects its history. Studies of scientific practices and products will likely – and properly – remain our stock in trade; yet the effects of science are far-reaching, and we may also quite properly think and write like environmental historians or historical geographers – as our authors demonstrate.

A second general point is that however a site or locale of science is initially constituted, it seems eventually to become one of more-or-less multiple uses. Field stations or preserves may be established for purely scientific uses, but they accommodate other and more utilitarian uses in order to survive: recreation most commonly, as in mountain field stations and public parks, or economic land and resource management. Alagona notes intriguingly that the University of California's field stations, though initially set up to monitor the ecological process of "agriculture in reverse" (old-field succession) have ended up resembling agricultural stations, but for environmental and wildlife management. Arguably this was the use for which small and ordinary sites were best suited; but the parallel with agricultural science and extension suggests a common cause in a landscape and a political economy of intensive resource use. Similarly, the ecologists of Glacier Bay, who initially studied ecological succession at receding glacial fronts, accommodated to mass tourism to avoid worse things, like clear-cut logging.

The trend to mixed-use sites works the other way as well, from economic to scientific. In *The Broughton*, for example, competition between economic interests gradually turned a place of resource harvest into a site for science. This happens because in modern societies, especially where public agencies and media are involved, contests that are at root political and economic are most effectively waged by indirection as contests of scientific credibility rather than of discretionary judgment or naked power. (Science seems to make nature speak, not individuals or interests.) As Bocking observes, newly created facts are especially weighty in such contests (as in science), and that means on-site, original research. That imperative, together with the difficulty of doing science in the field that meets the standards of credibility of lab science, keeps scientific controversies unresolved and scientists at work and sometimes, as in this case, produces innovative field practices (For a similar dynamic see Rees, 2009). And the richer the base of scientific knowledge of *The Broughton*, the more scientists were attracted to the place, thereby further enriching the base. This dynamic of intensification is how natural and extractive locales become, as well, locales of science. Of course, interest and power may trump all, as Bocking notes; but in *The Broughton* the dynamic of change was the socio-logic of expertise and knowledge.

This dynamic of multiple use has far-reaching implications. The world we now live in is a densely occupied and humanized world – a world of second natures. More and more the most novel and fruitful problems of science are the complex problems of environment and

biosphere. And more and more those sciences must define their subjects to include the second-natural activities and cultural ecologies of human inhabitants. More and more, scientists will be residents and participants in the places and the activities they study. Standards of practice and objectivity derived from the science of detached, single-use sites – like laboratories and workshops – may in future serve less aptly in mainstream science. For those who work where they live, or vice versa, pursuing careers in science – especially field science – may become more an integral part of living lives, as I noted above. Indigeneity may acquire epistemic standing, and universal and local be variously combined.²

We might do well, in fact, to think of field science generally as a type of land use. Our authors, and others, already do so implicitly, so we would need only to pursue the idea more consciously and systematically: to preach what we practice. The advantage of land use as a social category is that it is composite, embracing the ecological, legal, economic, residential, and affective aspects of human occupation. In life these aspects are all mixed up, and composite categories are more useful analytically than dissected single variables. So too in science. Treating field science as a form of land use would keep us in mind that concepts of property law and “highest use,” public versus private ownership, and the intricate logics of regulated resource commons, are ecological principles. The literatures on these subjects are rich, and rewarding for historians of field science (For example, Freyfogle, 2003; Ostrom, 1990; Netting, 1993). It is worth recalling that environmental history began as land-use history. Reading these four essays I kept thinking of Richard White’s history of Whidbey Island, as well as other founding texts (White, 1980). A land-use perspective might also serve as a common language for those (like myself) whose interest is held by the actual practices of field science and those who are more powerfully drawn to environmental politics and policy.

I will conclude with some reflections on the issue of laboratory versus field science: a theme that is central to Vetter’s essay (and to my own work) and important in Bocking’s. Is there a categorical difference? Most seem to think there is; though, as with place, dissent surfaces now and again in reviews and informal discussions. Typically skeptics point to hybrid practices that combine methods of lab and field science as evidence that a categorical difference does not exist. However, this argument rests on a fundamental misunderstanding of what such categories are and how they are properly used.

² The concept of indigenous knowledge has a deep and interesting history. See Cooper, 2007.

Lab and field are not fixed taxonomic categories, like natural species, which are concretely either-or. Rather, they are analytical devices used not to pigeonhole but to locate particular scientific practices with reference to those of lab or field science generally. They are not black-or-white categories but – like all categories of place – composites of methods, values, epistemologies, locations, folkways, and social and historical connections. They are thus most usefully applied to mixed practices (and most field practices are mixed). The presence of lab values or practices in field science, or vice versa, indicates a dynamic process of border interaction. We characterize practices as lab or field or both for the same reason that we characterize the culture of, say, Belgium as French or Dutch or both; or characterize modes of provisioning as foraging or agriculture or both: to get at the dynamics of cultural and ecological interaction and change. The categories help us to think cartographically, in Tom Gieryn's phrase (Gieryn, 1999). And, like place, lab and field are securely actors' categories.

To be sure, field scientists routinely do experiments (of a sort) in nature; and some lab scientists (more rarely) collect and classify (Strasser, 2010, 2011). Practitioners on both sides are now able to move quite easily between lab and field. But it does not follow that the categorical distinction between lab and field is meaningless. Quite the contrary. Border crossing is valued because borders are real and can confine as well as connect. It is pervasive because generations of scientists on both sides of the cultural and ecological divide have labored to fashion places and practices that make border crossing easy and productive. Field camps and stations are sited and built, and appropriate mixed uses are devised. Locales are legally designated for scientific use, and accommodations reached with other, more powerful, users. Economically contested places become, through the give-and-take of rival experts, places of creative lab-field hybridizing. It's all happening in the four essays that follow: read on.

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