BOUNDARY WORK FROM THE SCIENCE WAR ZONE


By Peder Anker

Robert E. Kohler should be a familiar historian to many readers of *Metascience*. His *Lords of the Fly* (Chicago, 1994) brought the study of history of genetics to a new level. It stands as a classic in the growing body of studies on laboratory life. In his new book, Kohler moves outside the realm of the laboratory with an equally interesting history of field research. What is the connection (if any) between pure nature in the lab and pure nature in the field? More specifically, can laboratory techniques be used to research the wild cousin of the laboratory fly with the telling name *Drosphilia pseudoobscura*? Is nature-in-the-wild obscure or just pseudo-obscure to the laboratory worker? The crossings of the invisible boundary between inside and outside – between the laboratory and the field – is the theme of this original and fascinating book.

Kohler’s focus is on the field, or more precisely, on the border zones between the laboratory and the field. Writing a history of lab–field borders in biology from the field point of view makes this book more of a history of ecological than laboratory research. When field and laboratory cultures met, Kohler argues, a common zone emerged under circumstances that permitted transactions across the border. These circumstances were in place due to the higher social standing of laboratory research, which in turn drove the cultural dynamics of field research. Kohler argues that the laboratory practices and material culture of accounting and measuring were powerful forces in realising the emerging ideals of the new science of ecology. Yet the ecologists who took experimental methods to the field faced a host of difficulties when translating laboratory practices. It was a cultural as well as a practical problem. ‘Pure lab’ and ‘pure nature’ did not easily match, but the attempt of joining the two created a distinctive scientific border culture that serves as the focus of the book.
Key names in the narrative include American ecologists such as Charles C. Adams, Frederic E. Clements, Henry C. Cowles, Victor E. Shelford and many others. These ecologists, Kohler argues, often looked with reserved admiration at laboratory results. The first couple of chapters capture the emergence of a border zone between laboratory and field research, and how the balance of influence tilted from the field to laboratory values. It is a fascinating and convincing story of how old-school natural history submerged to ecology thanks to early ecologists’ adaptation of laboratory methodology and ideals. “The cultural geography of borrowing was decidedly asymmetrical”, Kohler notes, in the historical process by which biologists started their “border practice” of taking laboratory culture into the field (pp. 61–62).

One chief proponent of this venture was Clements, who in his influential book *Research Methods in Ecology* (Lincoln, 1905) argued that ecologists should use laboratory instruments in the field. About half of this book is devoted to instruments, and Kohler’s detailed analysis of their importance in crossing the lab–field divide is interesting, timely, and original. Clements managed to establish a standard, whereas those who failed to use field-modified laboratory instruments and methodology “were not ecologists – and thus someone else’s embarrassment”, as Kohler put it in his elegant and engaging style (p. 87).

Chief among methodological references in Kohler’s analysis of the lab–field border is Thomas Gieryn’s *Cultural Boundaries of Science* (Chicago, 1999). This is evident in the title of Kohler’s book, where Gieryn’s term ‘culturescape’ has found its counterpart in Kohler’s ‘labscapes’. Both authors seek an appreciation of the cultural and social boundaries of the ‘scapes’ of science. Gieryn’s book was written in view of the science war that was raging in the late 1990s, and his concern in it is to understand the cultural cartography of science and pseudoscience. How boundaries of science are sought out in complex entanglements with political and cultural forces is the focus of his historical investigations. His modified rationalist view on the sociology of knowledge is an arresting attempt to bridge the opposing sides of the science wars. Kohler is clearly inspired by Gieryn’s work, but his scope of analysis is somewhat narrower, omitting the larger cultural, social, and political forces that also shaped fieldwork. While Gieryn explores the boundaries of science in view of a rich social cartography, Kohler focuses almost exclusively on the lab-field divide. The consequence is an internalist history of ecology as this science emerged in a productive border zone negotiation with its laboratory counterparts.

A consequence of framing history of field research in view of the lab–field boundary is that other key border disputes are being pushed in the
background. Unlike the laboratory, the field is an environment where a host of non-scientific activities such as tourism, sport, agriculture, real-estate development, and other land-uses take place. In reading Kohler’s account one is left to wonder how ecologists drew their borders towards these activities. How did border zone negotiations with these cultures frame ecological research methods? Several research instruments in ecology Kohler discusses, such as the automobile (p. 114) and the Kodak camera (pp. 124–127), did not, as Kohler admits, emerge from laboratory cultures. Gregg Mitman has, for example, pointed out in *Reel Nature* (Cambridge, Mass., 1999) the importance of the border zone between commercial film-makers and ecology in shaping ecological research practice. He shows how the panoramic views of the environment captured by the camera were of key importance in shaping how ecologists worked in the field.

Yet such border negotiations are not part of Kohler’s account, which narrowly defines the “cultural border zone” (p. 50) to that of laboratory culture. “The relentless sprawl of town and suburbs into the inner frontier”, of undisturbed nature, Kohler writes, “made it increasingly difficult for field stations to realize the ideals of the new natural history” (p. 55). There is, however, little discussion of how ecologists drew their boundaries or responded to the phenomena of urban sprawl. There are good reasons to believe that Clements’ famous ecological quadrats (which Kohler discusses at length) reflect not only the transfer of research methods from the laboratory, but also the State of Nebraska’s real-estate policy of laying out the land in quadrats. As anyone visiting Nebraska will learn, much urban and agricultural sprawl of that land is organised in large or small quadrats. This is also the environment in which Clements lived and worked as an ecologist, and it thus reasonable to at least address the question of whether or not his research methods were the result of border zone negotiations with real-estate interests of the land he was researching. The somewhat narrow focus on the lab–field border in biology is helpful in providing the reader with a focused study, but one is left wondering how a complex science like ecology came to fashion its tools and research methods in border zones with cultural realms other than the laboratory. Kohler’s exclusive focus on the lab–field border in biology becomes too narrow to understand the emergence of ecological research methods fully.

A border Kohler does not cross, for example, is the national. He looks almost exclusively at field research in the United States, and the archive work leading up to the book was also conducted in America. This creates a somewhat narrow focus on the soil of the United States. There is of course nothing wrong in giving an account of ecological research in the United States, but it does not follow from this that “the leading figures of
this first generation” of ecologists were Americans (p. 77). There is ample of evidence to the contrary, for example in Stephen Bocking’s *Ecologists and Environmental Politics* (New Haven, 1997). Kohler also adapts the key hallmark of much American historiography – the frontier – to structure his story, arguing that “the analogy with imperial frontiers helps us visualize the cultural geography of border biology” (p. 294). This Amerocentric approach, both in content and narrative, hinders a richer understanding of the lab-field divide, since the border zone to foreign laboratory and field practices hardly comes into consideration.

While operating with a narrow concept of culture limited to that of laboratories, Kohler smooths the argument by adding a chapter about the “troubled lives” of various field researchers. “We need to follow people, as well as tools and practices, into the lab-field border zone”, Kohler rightly points out (p. 175). What follows is a likable account of how the imagined needs among field researchers to behave like white-coat laboratory scientists caused a troublesome masquerade in individual’s choice of work and career. In this chapter Kohler gives a human face to an otherwise internalist account of the lab–field border in biology.

This book opens up new research terrain for the historians of ecology and field research alike. Kohler’s novel methodological approach is refreshing, and his style of writing is (as always) engaging. Kohler does not cross the science–society divide, but nevertheless uses methodology from social historians of science to explore the lab–field divide. In this respect his book represents a piece of boundary work in the science war zone. It also demonstrates how central some internalist questions are in providing a coherent – if still incomplete – account of the transformations in field science.

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