

Research Article

Introduction. Situated Nature: Field Collecting and Local Knowledge in the Nineteenth Century

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The naturalist's field is often taken as a romanticized place of awe and wonder or a side activity to scientific work. This special issue seeks to establish the field as neither the origin nor the end of knowledge production. By *situating nature*, we seek to escape a romanticized conception of fieldwork and argue that the field is not a simple backdrop to knowledge production, nor one step in an idealized scientific protocol. Rather, the field is a space co-produced from entangled interactions between society and environment. Paying specific attention to field practices of collecting opens a critical view of narratives of idealized hardship of exploration in distant terrains. By reconnecting the history of natural history to the contingencies and agencies of fieldwork, we contribute to the contextualization of the production of knowledge about nature. Working towards better political and social definitions and delineations of the field is essential to addressing these gaps in the narrative, particularly in the long nineteenth century when nationalist, imperial and colonial rationales infused field practices.

The question of the field is also that of the conditions of amassing collections. At a time of environmental crisis, when museums and collections are set up as protective temples of biodiversity, it seems crucial to question the conditions of the making of their collections and to place them in their contexts and histories. Bringing to light the political and social implications of collecting and collections, we argue, encourages serious reflection on the non-neutrality of museums and collections.

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Natural history collections derive from a secular tradition of assembling cultural and natural objects for possession and contemplation. By the end of the eighteenth century, samples of nature became the core elements of collections which aimed to uncover the laws of the natural world through what John Pickstone has called "museological science," placing them on the shelves of cabinets and galleries.¹ Designed to enable observation², a key method of natural history, collections were built using elaborate accumulation

¹ Pickstone, "Museological Science?"

² Daston and Galison, *Objectivity*; Daston, "The Empire of Observation, 1600–1800."

strategies to gather as many specimens as possible, then organized according to methods of classification and labelling.³ In this quest for a universal, all-encompassing display of nature, practices of collecting represented a fundamental cross-section of the production of knowledge about nature.⁴

Throughout the nineteenth century, natural history museums became the place of the analysis, organization, and appropriation of nature, through the development of practices of taxonomy and systematics and the emergence of specialist disciplines, such as comparative anatomy, that gradually transformed natural objects into scientific specimens. As these epistemic operations took place inside museum walls, whether in their storage cupboards and laboratories or inside the galleries or on the director's working desk, nature seemed to be what lay outside, untouched, and uncategorized. Nature was the field naturalists needed as a resource to expand their collections and thereby, their knowledge of nature.⁵

The Unquestioned Nature of Fieldwork

Although fieldwork has been common place in the history of naturalist knowledge, the field as an object of study has remained largely unquestioned. Almost always the field appears through a prism oscillating between either positive, romanticized narratives or the disregarded, subaltern place of work. In C. Hart Merriam's 1893 ideal of the naturalist as one with "enthusiasm for the outdoor world, (with) his eyes, ears, and nose attuned to the pungency of field and hedgerow,"⁶ the field designates not the place but the moment of the encounter between the eye of the observer and the observed nature. This is the moment when the naturalist self would be constructed. In this understanding, too, the field referred to the nature lying outside of the museum, a passive playground for naturalists, a place devoid of any form of agency. The sciences have placed the field as a preliminary stage to the intellectual and theoretical work considered to happen exclusively in the constructed neutrality of the laboratory. Although recent scholarship has complexified this artificial categorization between fieldwork and laboratory work, it has primarily sought to understand how fieldwork formed part of scientific methodologies, making it an extension of the laboratory. This perspective has ignored a series of practices which escaped scientific categories and has maintained hierarchies between forms of knowledge.

The naturalist's field is often taken as a romanticized place of awe and wonder or a side activity to scientific work. By *situating nature*, we seek to avoid a conception of fieldwork as "a form of romanticized escapism from the real business of the world."⁷ We argue that the field is not a simple backdrop to knowledge production, nor just a preliminary phase in an idealized scientific protocol. Rather, the field is a space co-produced from entangled interactions between society and environment.

Paying specific attention to field practices of collecting enables a critical view of narratives of the idealized hardship of exploration through distant terrains. By reconnecting the history of natural history to the contingencies and agencies of fieldwork, we seek to contribute to the contextualization of the production of knowledge about nature. The question of the field is also that of the conditions of making collections. At a time of environmental crisis, when natural history museums and collections are set up as protective temples of biodiversity, it seems crucial to question the conditions of the making of their collections and to place them back into their contexts and histories. Bringing to light the political and social implications of collecting and collections, we argue, nourishes a necessary reflection on the non-neutrality of museums and collections.

To tackle this challenge, the case studies gathered here provide a reading of knowledge production inspired by the "mobility turn."⁸ Taking some distance from the ambiguous vocabulary of circulation, we instead use this approach to argue for a focus on location that includes the history of the contexts and networks that built up collections, paying attention to the "discontinuous and unequal histories" behind the uses of local labor and local knowledge.⁹ The authors in this special issue have taken interest in a range of underexplored sites of natural collecting. Despite the plurality of geographical situations, this selection of studies gives

³ Daubenton, *Encyclopédie méthodique*, i–x; Rusque, "Le dialogue des objets," 45.

⁴ Elsner and Cardinal, *Cultures of Collecting*; Pickstone, *Ways of Knowing*.

⁵ On the history of museums, a select list of reference includes Sheets-Pyenson, *Cathedrals of Science*; Pomian, *Collectors and Curiosities*; Olmi, *L'inventario del mondo*; Findlen, *Possessing Nature*; Yanni, *Nature's Museums*; Alberti, *Nature and Culture*; Lacour, *La République naturaliste*; Pomian, *Le musée, une histoire mondiale*.

⁶ Merriam, "Biology in Our Colleges"; cited in Johnson, "The Natural Historian," 91. For an overview of the history of natural history, see Farber, *Finding Order in Nature*.

⁷ Massey, *Space, Place, and Gender*, 151.

⁸ Driver, Nesbitt, and Cornish, *Mobile Museums*.

⁹ *Ibid.*, 7.

pride of place to the ordinary business of collecting. This means that collecting is taken “from below,” from the materialities and practices of the everyday, rather than wearing out these histories by trying to fit them into master narratives of a “colonial machine.”¹⁰ Against this approach, actors of fieldwork stand at the center of the histories gathered in this issue, and together with them, the diversity of their experiences and voices. They are men and women whose collecting practices intersect with subsistence (Garrido), negotiated career paths (Lukić, Madruga), or the fashioning of a scientific persona (Dubald, Finney, Green, Serra). Field collectors were neither amateurs nor museum professionals, but rather miners, schoolteachers, officers, herbalists, public workers, or pharmacists. The plurality of their voices demonstrates that the scope of knowledge about nature cannot be reduced to the expertise of professional “naturalists.” The “amateur/professional rift fallacy” is of less interest than the constellation of practices that were politically and socially embedded in the process of nation- and empire-building in the nineteenth century.¹¹ The construction of fieldwork as a primary and neutral site, long left unproblematic, of the production of knowledge about nature does not withstand the cases examined in this issue.¹² They illuminate how the field was assembled by the actors exploring, surveying, and traversing it.¹³ Conversely, they also show how the field produced a diversity of actors interacting with natural resources. Collecting nature was not neutral and placing this ordinary practice in its context is crucial to revealing the entanglements of fieldwork with social, political, and economic stakes.

Looking for the Place of the Field

This special issue echoes the academic conversation started in 1996 by Kohler and Kuklick in the pivotal “Science in the field” issue of the history of science journal *Osiris*.¹⁴ That publication marked a turning point in the discussion of the practices associated with the field in scientific production. It signaled a renewed approach to the “unruly” nature of outdoor environments, the common ground of the various papers which examined different scientific disciplines. This publication formulated and provided a basis to step away from classical representations of modern science as exclusively produced within controlled and sanitized spaces, such as the laboratory. However, the cases of field sciences treated in that issue still operated within the framework of institutionalized scientific disciplines and left little room for what was then considered non-scientific knowledge. The March 2022 issue of *Isis* featured a Focus section reasserting the field as a “privileged site of knowledge production” which also confirmed the importance of contextualizing the field sciences within the material and structural transformations of the mid-twentieth century.¹⁵ Despite the proliferation of studies of the history of knowledge about nature, the specificities of fieldwork in the context of the nineteenth century have left an open space for our special issue, which compiles diverse case studies in distinct social and political backgrounds, showing how writing the history of fieldwork helps create new narratives and escape hierarchies of knowledges.

The history of knowledge about nature has been primarily examined within the history of the natural sciences. What the correct place for the field and fieldwork ought to be within this discipline was often considered through the lens of *longue-durée* chronologies and left somewhat imprecise.¹⁶ In this way, the field in the nineteenth century has seemed axiomatic to histories of natural history and has often been taken for granted. However, as laboratory sciences developed and increased in complexity and labor differentiation, so did the ways in which the field shaped the processes of knowledge-building.

Simultaneously, the laboratory was redefined as the primary knowledge production site, where interpretation and discovery happened, and the only reputed place from which new results could be communicated.¹⁷ The institutionalization and professionalization of the sciences in the nineteenth century was, in many ways, defined by the establishment of laboratories, observatories, and museums as the architectural and instrumental apparatus of theory and analysis, also because those sites were the privileged places where data, objects, and collections were stored, managed, and exhibited.¹⁸

¹⁰ McClellan and Regourd, *The Colonial Machine*.

¹¹ The expression is cited from Alberti, “Amateurs and Professionals,” 116.

¹² MacGregor, *Naturalists in the Field*.

¹³ Lefebvre, *The Production of Space*.

¹⁴ Kuklick and Kohler, “Science in the Field.”

¹⁵ Brinitzer and Benson, “What Is a Field?” 109.

¹⁶ Kuklick and Kohler, “Science in the Field”; Curry et al., *Worlds of Natural History*; Juhé-Beaulaton and Leblan, *Le spécimen et le collecteur*.

¹⁷ Benson, “From Museum Research.”

¹⁸ Allen, “The Early Professionals”; Pickstone, *Ways of Knowing*, chaps. 4–5; Fox, *The Savant and the State*.

Acknowledging the changing scientific context, Kohler and de Bont identified forms of continuity between collecting practices and field experiences through the study of “labsapes” or “stations in the field” in the late nineteenth and early twentieth centuries. They also revealed how the scientific gaze sought to control the terrain, and to neutralize it with specific protocols and architectures.¹⁹ At odds with the idea of a straightforward shift in the epistemic cultures, Pickstone, followed by Strasser, showed how practices of collecting, across scientific disciplines, but especially in relation to increasing knowledge of nature, formed a long-lasting common denominator to knowledge production. This produced overlapping continuities of “museological” and “analytical” *ways of knowing*, centered on collecting and fieldwork, which remained essential to scientific knowledge production throughout the century.²⁰ “Ways of knowing” have illuminated the persistent role of field collecting, but hardly grappled with the who, the where and the how of field collecting. Even when the presence of the field was suggested, the focus was kept on the end station of explorations, that is the indoor institutions. Put in comparison with modern biology methodologies and protocols, too often has nineteenth-century fieldwork appeared as the remnants of “old,” early modern practices.²¹ In other words, as the place of extraction of the specimen, of tacit knowledge not yet formalized, the role of the field was subordinated to the ensuing necessary validation operations in adequate premises.²² One should certainly be wary of the loud discourses of nineteenth-century scholars themselves, who would willingly discredit provincial, non-professional practices in non-standardized environments as insufficiently precise.²³

Studies of global “knowledge in transit”²⁴ have therefore transformed our understanding of the field by un-delineating the classical definition of the field as the gentleman’s countryside and valuable site for herborization. Instead, they have provided an open-ended approach to the field, whether in terms of geography or phase of knowledge production and intensity, leading the field to appear as a continuum within the circulations of knowledge, rather than a designated place. The images of continuous transit, and their conveyed notion of horizontality, pose the problem of addressing the salient political and social contexts of the collecting operations in the field. Field practices, and more particularly those associated with travelling, nation-building, empires and colonial extractivism, were part of the hierarchical logics of spaces and societies that have shaped both the terrain and the collecting process.

While the above paragraphs may indicate that the abundance of studies on diverse types of possible sites of fieldwork eventually “un-placed” the field, most of this scholarship was nevertheless produced with the common agenda of placing science, to address the non-neutrality of epistemic production. Following the suggestion of historical geographers Livingstone and Withers, the spatial turn provided a crucial methodology in order to *place* knowledge production and thereby shatter classical analytical frames of knowledge production and how they themselves further conveyed hierarchies.²⁵ The geography of sciences mapped by this scholarship included museums, laboratories, herbaria, as well as the less common country-house, borderlands or the public house.²⁶ The field appeared, once again, underdefined, often left as self-evident. This school of thought has, nevertheless, influenced the understanding of the field from a methodological perspective and is related to the “localist turn.”²⁷ Looking at the plurality of practices helps us to move beyond the idea of national styles of knowledge, to show how the places of knowledge production should be approached.

Working towards better political and social definitions and delineations of the field is essential to addressing these gaps in the narrative, especially in the nineteenth century when nationalist, imperial and colonial rationales were infused into field practices. In this context, empires and nation-building did also become opportunities for naturalists through the funding of provincial or long-distance collecting campaigns and expeditions.²⁸ Naturalist knowledge production may not be separated from this context.

¹⁹ Kohler, *Landscapes & Labsapes*; De Bont, *Stations in the Field*.

²⁰ Pickstone, *Ways of Knowing*; Strasser, “Collecting Nature.”

²¹ Pickstone, *Ways of Knowing*, 122.

²² Daston, “Type Specimens.”

²³ Endersby, *Imperial Nature*, 15–20; see also Benson, “From Museum Research.”

²⁴ Secord, “Knowledge in Transit.”

²⁵ Livingstone, “Situated Messiness”; Livingstone, *Putting Science in its Place*; Livingstone and Withers, *Geographies of Nineteenth-Century Science*. About the spatial turn in general, see Finnegan, “The Spatial Turn”; Warf and Arias, *The Spatial Turn*; Withers, “Place and the ‘Spatial Turn’”; Rupke, “Afterword.”

²⁶ Livingstone and Withers, *Geographies of Nineteenth-Century Science*; Secord, “Science in the Pub.”

²⁷ Shapin, “The View from Nowhere.”

²⁸ Bourguet et al., *L’invention scientifique de la Méditerranée*; Das and Lowe, “Nature Read in Black and White”; Kirchberger and Bennett, *Environments of Empire*.

Knowledge of Nature as Local and Embodied Practices

The initial prompt for this special issue began with the realization of how dominant a certain type of Anglophone literature on nineteenth-century natural history had remained, one based largely on case studies of powerful, centralizing European institutions and white male figures. Confronted with the fact that established categories such as “amateur” or “gentleman naturalist” were of little use when applied to case studies outside of Victorian Britain, we set out to underline how nineteenth-century museum-based practices and collection-based epistemologies were dependent on circumstances being negotiated and defined outside of the idealized museum walls.²⁹ We suggest stepping away from well-known names such as Darwin and Owen, or Buffon and Lamarck, and instead broadening the scope with the help of researchers who are studying smaller-scale institutions and looking at natural history from differently situated and provincialized approaches and in alternative contexts, as well as paying attention to what happened outside of the controlling museum walls. We want to engage with the situated procedures “outside” to demonstrate that collection catalogues and scientific publications are a function of how specimens were procured and extracted from nature.

As we engage with the contextualization of past practices of knowledge, it seems fair that we, too, situate ourselves. The case studies collected in this special issue engage with the diverse and contrasting epistemologies behind the construction of natural history during the long nineteenth century. The call for papers, released in the spring of 2020 to expand the original team of authors, received notable attention despite the challenging work conditions associated with the worldwide Covid-19 pandemic. It is an honor to have assembled a team of mostly early career scholars, almost all of us women, and almost all non-native English speakers. Together, we are stepping outside of the mainstream, highlighting historical materials and archives in four different continents, and mobilizing archives and materials produced in at least seven different languages. Moreover, the diversity of perspectives employed allows us to claim a broader and more inclusive historiographical discussion, written from a variety of institutions that host research in the history of sciences, and not only from our offices in universities and in museums. Writing may well also have taken place, as the pandemic has acutely revealed, in our homes and domestic spaces.

The study of natural history reveals itself to be, still, a vivid space for discussion: the various articles interweave different topics with several common threads, and we hope that by being collected in the same space, they can be read together, enhancing the discussion of the forms and manners of the simultaneous construction of nature and locality. After decades of studies on the history of natural history and knowledge of nature, historians continue to struggle with imperial mechanisms, bureaucratic rationales, and the ambiguities of knowledge production, as James Secord highlights in the afterword. The approach of this issue lies in scrutinizing individual cases of collectors, collections, or collecting processes, understood in terms of their relationship to field collecting. The articles offer perspectives from the field as a heuristic category for uncovering the history of knowledge about nature.

The handling of natural specimens, caught at the local scale, reveals the peculiarity of natural-historical knowledge in that it results from particular forms of fastidious expertise and embodied performance. Field collecting actors often expressed their feelings regarding the frail materiality of their captures, whether they were captured dead or alive; or regarding the difficulty of accessing a mountain flower; the cost of assembling crates full of minerals and weighing several tons; or the very delicate practice of entomology. The last decades have seen a notable enrichment of the history of naturalist knowledge by historians of natural history and of the environment, showing the diversity and complexity of the issues involved in the acts of hunting and extracting, preparing and conserving, as well as in the logistics behind the circulation of specimens.³⁰ The conservation and comparative analysis of specimens required technical abilities embodied in the trained and professional field naturalist or in the collaborating gatherer expert in local

²⁹ Dubald, “Capital Nature”; Madruga, “Taxonomy and Empire.”

³⁰ Schiebinger, *Plants and Empire*; Boumediene, *La colonisation du savoir*; Gissibl, *The Nature of German Imperialism*; Delbourgo, *Collecting the World*; Juhé-Beaulaton and Leblan, *Le spécimen et le collecteur*; Arzel and Foliard, “Tristes trophées”; Brixius, “From Ethnobotany to Emancipation”; Ashby and Machin, “Legacies of Colonial Violence”; Gelsthorpe, “Decolonising Manchester Museum.” For an overview, see Curry et al., *Worlds of Natural History*. A recent approach highlighting the role of logistics, display, hunting and environmental thinking in the making of zoological specimens can be found at <https://animalsasobjects.org/>, edited by Ina Heumann and Tahani Nadim in the framework of the “Animals as Objects. Zoological Gardens and Natural History Museum in Berlin, 1810 to 2020” research project (2018–2021).

resources.³¹ A crucial aspect was the trained eye and the learned gaze, which could distinguish the tree from the forest, the particular from the whole. A focus on the micro-scale of naturalist practices, and on the diversification and improvement of instrumentation and the technologies that naturalists used, such as travel herborization boxes, aquariums, nets, various types of traps, and hunting gear and weapons, allows scholars to engage more with the material characteristics of the labor of collecting. In doing so, approaches from the practical turn and the historical anthropology of knowledge can be used to guide the study of gestures, instruments, interactions, and artefacts. Both provide historiographical tools with which to study intellectual production as deeply rooted in interactions with the objects that conditioned the production of knowledge.

The history of natural history collections is in fact deeply connected with personal lives and agendas. Studying the provenance of collections should not be about geographical origin as much as embodied practices. In this sense, our special issue provides epistemological tools to contextualize natural history collections, in the wake of renewed attention to decolonial studies in relation to the history of collections.³² Religious and ethnographic artefacts are the usual targets of debates over the “decolonization” of museums and collections. The articles gathered here show how natural history collections are also records of unbalanced power relations and the imperial apparatus, most apparent when the focus is set on the history of the field and fieldwork. Amassing scientific specimens in the field was a matter of extracting natural resources and denying alternative relationships between people and their surroundings, and in that sense can be viewed as a further example of the “slow violence” perpetrated during capitalist, imperialist, and extractivistic collecting practices.³³ We argue that the current reflexive effort towards restitutions and provenance studies of colonial looting in western institutions should also be the concern of natural history museums. This reflexive effort should allow us to integrate new sources and new analytical frameworks to the study of collections and prompt a complexification of their provenance. The study of collections is crucial to making sense of how knowledge production participated in the elaboration of imperial hierarchies, in the appropriation of territory, and in the changing representation of what nature is.

Voices from the Field and the Plurality of Knowledges

The wealth of archival materials and material sources covered by the papers that follow is key to the methodological directions proposed by this special issue. Catalogs, notebooks, slips of paper, personal diaries, bureaucratic, military, and colonial archives, scientific books, herbarium sheets, field tools, drawings, and specimens in drawers contain the material evidence of field practices. A history of the processes of knowledge production in natural history needs to rely on the materiality of field collecting, not just because objects would materialize collecting practices, but also because objects shaped and mediated non-dominant epistemologies. This archival diversity, seen at the level of the individual papers but also at the scale of the entire issue, allows us to pursue an archaeology of the natural collecting sites, and to reveal a complex stratigraphy of places of collecting, rather than a fragmented space of separate case studies.³⁴

The first three articles of the issue revisit the connections between fieldwork and bureaucratic frameworks in the context of nation-building. These are explored in the cases of Jovan Žujović, who oversaw the geological survey in Serbia, showcasing a little-known history of mineralogical knowledge at the periphery of Europe; across the Atlantic, that of Claude Gay, a French naturalist caught in the middle of an agreement with the Paris Museum, who studied the new Chilean republic as it engaged in state-building efforts through the means of knowledge of nature; and that of Frédéric Cailliaud, the director of the Nantes Natural History Museum and public agent, who led the study of the French Lower Loire’s subsoil. The nineteenth-century construction of national spaces relied significantly on scientific institutions to stitch together national narratives about bounded sites, presented and constructed as naturally so. While the institutionalization of natural sciences saw the development of a narrative inclined to define the field against the inside of the museum, these texts cast light on the peculiar set of intertwined interests at play *locally* and in the field. All three cases cast light on how, at first, fieldwork and the field were inseparable from administrative rationale, but not subject to it.

³¹ Raj, “When Human Travellers Become Instruments”; Bourguet, Licoppe, and Sibum, *Instruments, Travel, and Science*; Fleetwood, *Science on the Roof of the World*.

³² Sarr and Savoy, “Restitution du patrimoine culturel africain”; Das and Lowe, “Nature Read in Black and White.”

³³ Nixon, *Slow Violence*; Gómez-Barris, *The Extractive Zone*.

³⁴ Torre, “La produzione storica dei luoghi.”

Garrido's and Green's articles examine remarkable stories of women's collecting. They show how collecting practices shaped postures, and how fields were in turn emotional spaces. Garrido's paper underlines the connection of the field to notions of subsistence in the mountainous landscape of the Pyrenees. The existence of entire families was rooted in the passing of trade routes, routines, and recipes from mother to daughter. The article reveals a recurrent, but also exclusive field, that of those who are initiated. Meanwhile, Green's account of the work of Margaret Fontaine gives rich insight into an individualized experience of fieldwork. We follow Fontaine as she tries to emerge as a disinterested scientist, to fit with professional expectations and to assert her proficient collecting abilities. Both these studies deeply challenge the traditionally masculine relationship with the field, as a way of surpassing oneself.³⁵

The final group of essays discusses negotiations within the colonial political space, as the field suggests itself as a specific arena for the negotiation of the place and authority of local knowledge. Finney's and Madruga's papers discuss tensions between the definition of identities and of institutions in the search for authority and highlight the role of individual agendas intrinsic to the study of the provenance of scientific collections. Finney presents an instance of the resilience of local knowledge, where personal agendas had to navigate the limits between knowledge and legend. Describing a cohort of colonial suppliers, Madruga's paper tells of the entanglement and co-construction of specimens, individuals, and locality, which contributed to the scientific knowledge of the Portuguese African colonial holdings produced in Lisbon.

The papers in this issue cover a myriad of *situations*. They represent the many voices of the field. Natural knowledge was produced in different sites, using diverse embodied practices, places, institutions, actors, and hierarchies, and was embedded in situations where economic and administrative rationales, scientific protocols, and dreams of nations and empires were part and parcel of the knowledge-making process, in fields which were therefore mainly contextual and relational, and which resulted from situated interactions.³⁶

This special issue is not a collection of articles placed side by side: it forms a constellation of explored sites and localities. These fields are like "meeting places," that is places seen as "particular moments in networks of social relations and understanding."³⁷ In this approach to locality, Doreen Massey underlines how places are not isolated, but should be perceived in relation to one another, where knowledge and understandings co-exist at different scales which concomitantly make them specific to certain places and globally interconnected.³⁸

In other words, by investigating the specific moment of field collecting, this issue reveals how single cases, whether peripheral or provincialized, may be used to counteract the idea that since they are specific, they cannot be theorized or generalized from. At odds with the idea that model-figures or institutions should provide strict analytical frameworks against which "other" initiatives are negatively defined – like the field against the laboratory – this issue welcomes the plurality of local knowledge in how it connects with individual or collective frailty and messiness. This is, we claim, a way forward towards re-centering the gaze on the roles of non-urban and indigenous knowledge(s), by reclaiming the peripheries and provincializing metropolitan notions of natural knowledge.

Knowledge of nature is co-produced by natural and social environments and by knowledge about natural sites. These articles show how field collecting was entangled with hierarchies, identities, social capital and political purposes. In other words, knowledge of nature is contingent upon political rationales and social structures, at the same time as it contributes to their construction. In this issue, we use the local not as a refuge, but as a tool with which to explore the entanglements within knowledge-making, to dismantle narratives of "sanitized"³⁹ natural places. By connecting modernity, nation, and empire to the question of natural knowledge production, we offer a more layered definition of the nineteenth-century field. Rather than an open-ended "natural space," the field was the product of controlling purposes over nature and people, and it was shaped by a constellation of social experiences and trajectories.⁴⁰ We show, too, the non-universality of nature and how collecting operations reveal nature as a political and social product and a complex set of threads of "collaborations and combinations."⁴¹

³⁵ Haraway, "Teddy Bear Patriarchy"; Venayre, *La gloire de l'aventure*.

³⁶ Appadurai, *Modernity at Large*, 178.

³⁷ Massey, *Space, Place, and Gender*, 154–55.

³⁸ *Ibid.*, 154–55.

³⁹ The term was borrowed from Massey, 147.

⁴⁰ The idea of consciousness in place-making comes from Certeau, cited in Appadurai, *Modernity at Large*, 183.

⁴¹ Haraway, *Staying with the Trouble*, 4.

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References

- Alberti, Samuel J. M. M. “Amateurs and Professionals in One County: Biology and Natural History in Late Victorian Yorkshire.” *Journal of the History of Biology* 34, no. 1 (2001): 115–47. DOI: <http://www.jstor.org/stable/4331636>.
- Alberti, Samuel J. M. M. *Nature and Culture: Objects, Disciplines, and the Manchester Museum*. Manchester: Manchester University Press, 2009.
- Allen, David Elliston. “The Early Professionals in British Natural History.” In *The Naturalist in Britain: A Social History*, n/d. Princeton: Princeton University Press, 1976.
- Appadurai, Arjun. *Modernity at Large: Cultural Dimensions of Globalization*. Minneapolis, MN: University of Minnesota Press, 1996.
- Arzel, Lancelot, and Daniel Foliard. “Tristes trophées: Objets et restes humains dans les conquêtes coloniales (XIX^e–début XX^e siècles).” *Monde(s)* 17, no. 1 (July 10, 2020): 9–31. DOI: <https://doi.org/10.3917/mond1.201.0009>.
- Ashby, Jack, and Rebecca Machin. “Legacies of Colonial Violence in Natural History Collections.” *Journal of Natural Science Collections* 8 (2021): 44–54. <http://www.natsca.org/article/2631>.
- Benson, Keith R. “From Museum Research to Laboratory Research: The Transformation of Natural History into Academic Biology.” In *The American Development of Biology*, edited by Ronald Rainger, Jane Maienschein, and Keith R. Benson, 49–83. New Brunswick, NJ and London: Rutgers University Press, 1991.
- Boumediene, Samir. *La colonisation du savoir. Une histoire des plantes médicinales du «Nouveau Monde» (1492–1750)*. Vaulx-en-Velin: Les Éditions des Mondes à Faire, 2016.
- Bourguet, Marie-Noëlle, Bernard Lepetit, Daniel Nordman, et al., eds. *L'invention scientifique de la Méditerranée: Égypte, Morée, Algérie*. 77. Paris: Éditions EHESS, 1998.
- Bourguet, Marie-Noëlle, Christian Licoppe, and Heinz Otto Sibum, eds. *Instruments, Travel and Science: Itineraries of Precision from the Seventeenth to the Twentieth Century*. London: Routledge, 2002.
- Brintzer, Cameron, and Etienne Benson. “Introduction: What Is a Field? Transformations in Fields, Fieldwork, and Field Sciences since the Mid-Twentieth Century.” *Isis* 113, no. 1 (March 2022): 108–13. DOI: <https://doi.org/10.1086/718147>.
- Brixius, Dorit. “From Ethnobotany to Emancipation: Slaves, Plant Knowledge, and Gardens on Eighteenth-Century Isle de France.” *History of Science* 58, no. 1 (2020): 51–75. DOI: <https://doi.org/10.1177/0073275319835431>.
- Curry, Helen A., Nicholas Jardine, James A. Secord, and Emma C. Spary, eds. *Worlds of Natural History*. Cambridge, UK and New York: Cambridge University Press, 2018.

- Das, Subhadra, and Miranda Lowe. "Nature Read in Black and White: Decolonial Approaches to Interpreting Natural History Collections." *Journal of Natural Science Collections* no. 6 (2018): 4–14. <http://www.natsca.org/article/2509>.
- Daston, Lorraine. "The Empire of Observation, 1600–1800." In *Histories of Scientific Observation*, edited by Lorraine Daston and Elizabeth Lunbeck, 81–113. Chicago, IL and London: The University of Chicago Press, 2011.
- Daston, Lorraine. "Type Specimens and Scientific Memory." *Critical Inquiry* 31, no. 1 (2004): 153–82. DOI: <https://doi.org/10.1086/427306>.
- Daston, Lorraine J., and Peter L. Galison. *Objectivity*. New York: Zone Books, 2007.
- Daubenton, Louis-Jean-Marie. *Encyclopédie méthodique*. 3 vols. Paris: chez Panckoucke, 1782.
- De Bont, Raf. *Stations in the Field: A History of Place-Based Animal Research, 1870–1930*. Chicago, IL: The University of Chicago Press, 2014.
- Delbourgo, James. *Collecting the World: The Life and Curiosity of Hans Sloane*. London: Allen Lane, 2017.
- Driver, Felix, Mark Nesbitt, and Caroline Cornish. *Mobile Museums. Collections in circulation*. London: UCL Press, 2021.
- Dubald, Déborah. "Capital Nature. A History of French Municipal Museums of Natural History, 1795–1870." PhD diss., European University Institute, 2019. DOI: <https://doi.org/10.2870/52155>.
- Elsner, John, and Roger Cardinal. *Cultures of Collecting*. London: Reaktion Books, 1993.
- Endersby, Jim. *Imperial Nature: Joseph Hooker and the Practices of Victorian Science*. Chicago, IL: The University of Chicago Press, 2008.
- Farber, Paul Lawrence. *Finding Order in Nature: The Naturalist Tradition from Linnaeus to E.O. Wilson*. Baltimore, MD and London: Johns Hopkins University Press, 2000.
- Findlen, Paula. *Possessing Nature: Museums, Collecting, and Scientific Culture in Early Modern Italy*. Berkeley, CA: University of California Press, 1996.
- Finnegan, Diarmid A. "The Spatial Turn: Geographical Approaches in the History of Science." *Journal of the History of Biology* 41, no. 2 (2008): 369–88. DOI: <https://doi.org/10.1007/s10739-007-9136-6>.
- Fleetwood, Lachlan. *Science on the Roof of the World: Empire and the Remaking of the Himalaya*. Science in History. Cambridge, UK and New York: Cambridge University Press, 2022.
- Fox, Robert. *The Savant and the State: Science and Cultural Politics in Nineteenth-Century France*. Baltimore, MD: Johns Hopkins University Press, 2012.
- Gelsthorpe, David. "Decolonising Manchester Museum's Mineral Collection – a Call to Action." *Journal of Natural Science Collections* 9 (2021): 12–28. <http://www.natsca.org/article/2682>.
- Gissibl, Bernhard. *The Nature of German Imperialism. Conservation and the Politics of Wildlife in Colonial East Africa*. The Environment in History: International Perspectives 9. New York and Oxford: Berghahn Books, 2016.
- Gómez-Barris, Macarena. *The Extractive Zone: Social Ecologies and Decolonial Perspectives*. Durham, NC: Duke University Press, 2017.
- Haraway, Donna. "Teddy Bear Patriarchy: Taxidermy in the Garden of Eden, New York City, 1908–1936." *Social Text*, no. 11 (1984): 20–64. DOI: <https://doi.org/10.2307/466593>.
- Haraway, Donna. *Staying with the Trouble. Making Kin in the Chthulucene*. Durham, NC: Duke University Press, 2016.
- Heumann, Ina, and Tahani Nadim, eds. "Animals as Objects. Zoological Gardens and Natural History Museum in Berlin, 1810 to 2020." <https://animalsasobjects.org/> (accessed 19 Oct 2022).
- Johnson, Kristin. "The Natural Historian." In *A Companion to the History of Science*, edited by Bernard Lightman, 84–96. Chichester and Malden, MA: Wiley Blackwell, 2016. DOI: <https://doi.org/10.1002/9781118620762.ch1>.
- Juhé-Beaulaton, Dominique, and Vincent Leblan, eds. *Le spécimen et le collecteur: savoirs naturalistes, pouvoirs et altérités (XVIII^e–XX^e siècles)*. Paris: Publications Scientifiques du Muséum, 2018. DOI: <https://doi.org/10.4000/books.mnhn.4266>.
- Kirchberger, Ulrike, and Brett M. Bennett, eds. *Environments of Empire: Networks and Agents of Ecological Change*. Flows, Migrations, and Exchanges. Chapel Hill, NC: The University of North Carolina Press, 2020.
- Kohler, Robert E. *Landscapes & Labscapes: Exploring the Lab-Field Border in Biology*. Chicago, IL: The University of Chicago Press, 2002.
- Kuklick, Henrika, and Robert E. Kohler. "Science in the Field – Introduction." *Osiris* 11 (1996): 1–14. DOI: <http://www.jstor.org/stable/301924>.

- Lacour, Pierre-Yves. *La République naturaliste: Collections d'histoire naturelle et Révolution française (1789–1804)*. Paris: Publications Scientifiques du Muséum, 2014. DOI: <https://doi.org/10.4000/books.mnhn.5319>.
- Lefebvre, Henri. *The Production of Space*. Translated by Donald Nicholson-Smith. Oxford and Cambridge, MA: Blackwell, 1991.
- Livingstone, David N. "In Defence of Situated Messiness: Geographical Knowledge and the History of Science." *GeoJournal* 26, no. 2 (1992): 228–229. DOI: <https://doi.org/10.1007/BF00241227>.
- Livingstone, David N. *Putting Science in Its Place: Geographies of Scientific Knowledge*. Chicago, IL: The University of Chicago Press, 2003.
- Livingstone, David N., and Charles W. J. Withers, eds. *Geographies of Nineteenth-Century Science*. Chicago, IL: The University of Chicago Press, 2011.
- MacGregor, Arthur, ed. *Naturalists in the Field. Collecting, Recording and Preserving the Natural World from the Fifteenth to the Twenty-First Century*. Leiden and Boston, MA: Brill, 2018. DOI: https://doi.org/10.1163/9789004323841_001.
- Madruga, Catarina. "Taxonomy and Empire. Zoogeographical Research on Portuguese Africa, 1862–1881." PhD diss., Universidade de Lisboa, 2020. <http://hdl.handle.net/10451/44155>.
- Massey, Doreen B. *Space, Place, and Gender*. Minneapolis, MN: University of Minnesota Press, 2009.
- McClellan, James Edward, and François Regourd. *The Colonial Machine: French Science and Overseas Expansion in the Old Regime*. Turnhout: Brepols, 2011.
- Merriam, C. Hart. "Biology in Our Colleges: A Plea for a Broader and More Liberal Biology." *Science* ns-21, no. 543 (1893): 352–55. DOI: <https://doi.org/10.1126/science.ns-21.543.352.b>.
- Nixon, Rob. *Slow Violence and the Environmentalism of the Poor*. Cambridge, MA and London: Harvard University Press, 2013.
- Olmi, Giuseppe. *L'inventario del mondo: Catalogazione della natura e luoghi del sapere nella prima età moderna*. Bologna: La Società editrice Il Mulino, 1992.
- Pickstone, John V. "Museological Science? The Place of the Analytical/Comparative in Nineteenth-Century Science, Technology and Medicine." *History of Science* 32, no. 2 (1994): 111–38. DOI: <https://doi.org/10.1177/007327539403200201>.
- Pickstone, John V. *Ways of Knowing: A New History of Science, Technology, and Medicine*. Chicago, IL: The University of Chicago Press, 2001.
- Pomian, Krzysztof. *Collectors and Curiosities: Paris and Venice 1500–1800*. Cambridge, MA: Polity Press, 1990.
- Pomian, Krzysztof. *Le musée, une histoire mondiale. Du trésor au musée*. Vol. 1. Paris: Gallimard, 2020.
- Pomian, Krzysztof. *Le musée, une histoire mondiale. L'ancrage européen 1789–1850*. Vol. 2. Paris: Gallimard, 2021.
- Raj, Kapil. "When Human Travellers Become Instruments: The Indo-British Exploration of Central Asia in the Nineteenth Century." In *Instruments, Travel and Science: Itineraries of Precision from the Seventeenth to the Twentieth Century*, edited by Marie-Noëlle Bourguet, Heinz Otto Sibum, and Christian Licoppe, 156–88. London: Routledge, 2002. DOI: <https://doi.org/10.4324/9780203219010>.
- Rupke, Nicolaas. "Afterword: Putting the Geography of Science in its Place." In *Geographies of Nineteenth-Century Science*, edited by David N. Livingstone and Charles W. J. Withers, 439–53. Chicago, IL: The Chicago University Press, 2011.
- Rusque, Dorothée. "Le dialogue des objets: fabrique et circulation des savoirs naturalistes : le cas des collections de Jean Hermann (1738–1800)." PhD diss., Université de Strasbourg, 2018. <https://tel.archives-ouvertes.fr/tel-03091999>.
- Sarr, Felwine, and Bénédicte Savoy. "Rapport sur la restitution du patrimoine culturel africain. Vers une nouvelle éthique relationnelle." Paris: Ministère de la Culture, 2018.
- Schiebinger, Londa L. *Plants and Empire: Colonial Bioprospecting in the Atlantic World*. Cambridge, MA and London: Harvard University Press, 2004.
- Secord, Anne. "Science in the Pub: Artisan Botanists in Early Nineteenth-Century Lancashire." *History of Science* 32, no. 3 (1994): 269–315. DOI: <https://doi.org/10.1177/007327539403200302>.
- Secord, James A. "Knowledge in Transit." *Isis* 95, no. 4 (2004): 654–72. DOI: <https://doi.org/10.1086/430657>.
- Shapin, Steven. "Placing the View from Nowhere: Historical and Sociological Problems in the Location of Science." *Transactions of the Institute of British Geographers* 23, no. 1 (1998): 5–12. <http://www.jstor.org/stable/623153>.

- Sheets-Pyenson, Susan. *Cathedrals of Science: The Development of Colonial Natural History Museums during the Late Nineteenth Century*. Kingston, ON: McGill-Queen's University Press, 1988.
- Strasser, Bruno J. "Collecting Nature: Practices, Styles, and Narratives." *Osiris* 27, no. 1 (2012): 303–40. DOI: <https://doi.org/10.1086/667832>.
- Torre, Angelo. "La produzione storica dei luoghi." *Quaderni storici* 37, no. 2 (2002): 443–76. DOI: <https://doi.org/10.1408/7441>.
- Venayre, Sylvain. *La gloire de l'aventure: genèse d'une mystique moderne: 1850–1940*. Paris: Aubier, 2002.
- Warf, Barney, and Santa Arias. *The Spatial Turn: Interdisciplinary Perspectives*. Abingdon: Routledge, 2009.
- Withers, Charles W. J. "Place and the 'Spatial Turn' in Geography and in History." *Journal of the History of Ideas* 70, no. 4 (2009): 637–58. DOI: <https://doi.org/10.1353/jhi.0.0054>.
- Yanni, Carla. *Nature's Museums: Victorian Science and the Architecture of Display*. Hudson, NY: Princeton Architectural Press, 2005.

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