

COMMENTARY

Historical and Critical Physical Geography

REBECCA LAVE,
INDIANA UNIVERSITY

There is a half-century-long habit of calling for closer integration of physical and human geography.¹ Geography's initial hallmark as a field may have been integrated analysis, but that is broadly assumed to no longer be the case. For many in the field this is an intellectual loss. It is also an institutional risk, as the rationale for housing physical and social scientists in the same department erodes when they pursue disconnected intellectual agendas.

Critical physical geography (CPG) is one of several ongoing efforts to bridge that gap (as in work on land-cover change, and on socioecological systems). CPG is based on "careful integrative work that addresses crucial geoscientific questions while taking seriously the power relations, economic systems, and socio-cultural and philosophical presumptions upon which modern society has been built."² To conduct such integrative work, CPG research is based on three core intellectual tenets:

- **Tenet #1: Ecosocial landscapes.** The world around us coconstituted by interacting physical and social forces, from climate and soils to structural inequalities around race, gender, and class. Thus it no longer makes sense (if it ever did) to draw bright lines between social and physical systems. If we want to understand the profoundly ecosocial world we must use ecosocial methods, analyzing the interaction of physical processes and social inequalities at our field sites.
- **Tenet #2: The politics of knowledge production.** The same power relations that shape the ecosocial systems we study also shape the questions we ask about them (or fail to ask), who gets to pose those questions, how we conduct our research, and even our findings themselves.

- **Tenet #3: Working for ecosocial transformation.** Because the knowledge we produce in turn shapes the environments and people we study, we cannot fall back on tropes of objectivity. Our research has unavoidable ecosocial consequences, so our choice is not between being objective or normative, but among different possible normative commitments.

CPG thus differs from much current interdisciplinary environmental analysis in its emphasis on treating physical processes and unequal power relations with equal seriousness, its acknowledgment of the politics of knowledge production, and its normative agenda of using our research to promote ecosocial transformation.

The origins of CPG lie not in an obviously ecosocial landscape—the *de facto* wildlife refuge at the highly contaminated site of the former Rocky Mountain Arsenal³ or the trillions of organisms of the human microbiome—but in an unremarkable conference room in Milwaukee, Wisconsin, in 2010, where Mona Domosh coined the term during a conference panel on geography and science and technology studies (STS). In the Q&A, someone asked if there were any physical geographers who engaged with STS, to which Mona replied from the audience, “You mean a critical physical geographer?” And lo and behold: we had a name! While admittedly provocative, we were hooked by the term CPG’s implicit call for a more critical physical geography, and a more physical critical human geography. Despite the potential for misunderstanding, the term highlighted the kinds of research, pedagogy, and political practices we believe we need in order to actually address our profoundly ecosocial world.

Once it was named, the next step was to build the field, and to encourage others to begin the kind of integrative research that would fall under the critical physical geography umbrella. Thus in 2011, following in the footsteps of generations of scholars who have made important contributions to integrative thinking in geography (including those referenced above, and many others), I began to write a call for work that spanned physical and critical human geography. Very shortly, however, it became clear via an exceedingly long list of “but see” citations that there were already a lot of people doing CPG work. What was needed was not constructing a new field from scratch but introducing all the various people who were already doing such research to each other, and then announcing the field as already arrived. A series of conference ses-

sions, journal articles, special issues, and workshops, followed by the 2018 publication of the *Handbook of Critical Physical Geography*,⁴ have brought visibility to a rapidly growing body of work that combines, in our collective initial definition, critical attention to relations of social power with deep knowledge of biophysical science in the service of social and environmental transformation.

HISTORICAL AND CRITICAL PHYSICAL GEOGRAPHY

With their shared emphasis on building explanations from both physical and social data, historical geography and CPG are clearly fellow travelers with much to learn from each other. The article by Greer et al., for example, raises an important genealogical question with which CPG has only begun to grapple: are CPG and other interdisciplinary initiatives new and if so, in what ways?⁵ The answer to this question requires some distinction between its first two clauses. Interdisciplinarity is clearly not new but, as noted above, it is only part of CPG's overall program. To my mind, the virtue of this question thus lies not in the possibility of an intellectual history of interdisciplinarity in general, but in the potential to bring to light the subset of past interdisciplinary research that shared more of CPG's commitments. I believe HG and CPG both have much to gain from better understanding, in Greer et al.'s words, "the spatialities and temporalities of [critically oriented] interdisciplinarity," and the "kind of role the spaces and places of field-based research played in contributing to the mingling of people and mobilizing of ideas" (65).

While some CPG scholars produce deeply historical scholarship,⁶ others are less focused on the ways in which historical relations shape not only the current environment but also the ways in which we study it. As Greer et al. note, "Geographers today continue to underacknowledge the importance of thinking historically about environmental issues such as global environmental change" (67). Thus CPG clearly has a lot to learn from HG.

METHODOLOGICAL DILEMMAS:

RECONCILING SPATIAL AND TEMPORAL SCALES

The editors' introduction and Lane's commentary do an excellent job of distilling the key points of the papers in this special issue. Rather than

replicate their efforts, I focus here on two cross-cutting methodological issues raised by this set of papers. For as Schoolman et al. ruefully note, “While interdisciplinary work is lauded in the current research environment, . . . seamlessly melding the humanities and sciences remains challenging” (105).

Some of the issues the authors raise, such as the disparate ways in which data are presented in different fields, seem to me very real, but also increasingly easy to navigate as interdisciplinary journals proliferate. Other challenges, such as finding sites where multiple forms of data are available, can only be resolved in practice. Doing historical-critical physical geography research requires a range of data sources; site selection thus must rest on data availability. Several of the authors raise another question, though, that I believe would benefit from further discussion among historical and critical physical geographers: how to reconcile tensions between the geographic and temporal scales of different data sources in a way that allows them to speak to each other, and allows us to draw conclusions.

Several of the papers in this special issue note the tensions between the regional or global *geographic* reach of some forms of data, and the hyperlocal character of others. For Bampton et al., the gap they must bridge is between regional climate data and very small-scale archeological, archival, and sedimentological data. For Maddison-MacFadyen and Csank, the reconciliation across geographic scales expands out from the physical form and social conditions of a single building, Cavendish, to hemispheric patterns of deforestation and enslavement. This disparity in geographic scales is all too common in interdisciplinary research. For those seeking broadly applicable findings, the local scale of many forms of physical and social environmental data can be frustrating. Schoolman et al.’s suggestion of combining multiple local cases to speak to broader trends makes sense and is certainly one way forward.

A second and related issue is how to make disparate *time scales* of evidence speak to each other. Schoolman et al. point out the very different temporal resolutions of paleoecological data vs. archival data: with fossilized pollen a ten-year window represents a fine-grained analysis, whereas with even medieval court cases we typically have exact dates. Further, the authors’ Italian field site has a continuous paleoecological record, but big gaps in the archival record. How, then, to evaluate the extent to which these physical and social data shed light on and support

each other when there is no precise chronological correlation between them? In these circumstances, can we make substantive claims from interdisciplinary research?

Maddison-MacFadyen and Csank are far more sanguine about this question, using triangulation among data sources to make claims without the caution of the Schoolman et al. piece. It would be interesting to know more about why what seems to have been a serious barrier for the authors of the former article was more easily surmountable for the latter set of authors.

MOVING FORWARD

As the articles in this special issue make clear, to move forward with the work of developing H-CPG we need strategies for reconciling differences across temporal and spatial scales. It may be that a proliferation of case studies that resolve these scale issues in practice enable us to collectively produce a set of best practices (echoing Schoolman et al.). I tend to think, though, that these are questions that would benefit from discussion amongst the broader HG and CPG communities, many of whose members have substantive experience bridging one or both of these scale issues. That conversation can only be enriched by the project of identifying and learning from CPG's intellectual progenitors, as in Greer et al. The cases of Cavendish and Broo remind us that the stakes in ecosocial systems are high: extinction, enslavement, abandonment, and the possibility of resilience. Thus we clearly need something like an H-CPG that embraces the transformative character of historical research. In Greer et al.'s closing words: "We need to not only look critically at the past, but simultaneously engage with it" (67).

NOTES

1. For Louise Bracken and Elizabeth Oughton's special issue, see *Area* 41, no. 4 (2009); N. J. Clifford, "The Future of Geography: When the Whole Is Less Than the Sum of Its Parts," *Geoforum* 33, no. 4 (2002): 431–36; Andrew Goudie, "The Integration of Human and Physical Geography," *Transactions of the Institute of British Geographers* 11, no. 4 (1986): 454–58; Stephan Harrison, Doreen Massey, Keith Richards, Francis Magilligan, Nigel Thrift, and Barbara Bender, "Thinking Across the Divide: Perspectives on the Conversations between Physical and Human Geography," *Area* 36, no. 4 (2004): 435–42; Stephan Harrison, Doreen Massey, and

Keith Richards, "Complexity and Emergence (Another Conversation)," *Area* 38, no. 4 (2006): 465–71; For Stephan Harrison, Doreen Massey, and Keith Richard's special issue, see *Geoforum* 39, no. 2 (2008); Doreen Massey, "Space-time, 'Science' and the Relationship between Physical Geography and Human Geography," *Transactions of the Institute of British Geographers* 24, no. 3 (1999): 261–76; John E. Thornes, "A Paradigmatic Shift in Atmospheric Studies?" *Progress in Physical Geography* 5, no. 3 (1981): 429–40.

2. Rebecca Lave, Christine Biermann, and Stuart N. Lane, eds., *The Palgrave Handbook of Critical Physical Geography* (London: Palgrave Macmillan, 2018), 4.

3. Shiloh Krupar, *Hot Spotter's Report: Military Fables of Toxic Waste* (Minneapolis: University of Minnesota Press, 2013).

4. Lave et al., *Palgrave Handbook*.

5. For more discussion on initiatives to foster interdisciplinary work, such as CPG, see Rebecca Lave, "Exploring the Proper Relationship between Physical and Human Geography: Early Work by John E. Thornes and Ron Johnston," *Progress in Physical Geography* 39, no. 5 (2015): 687–90. See also Stuart N. Keith, Christine Biermann, and Rebecca Lave, "Towards a Genealogy of Critical Physical Geography," in Lave et al., *Palgrave Handbook*, 23–48.

6. Diana Davis, *Resurrecting the Granary of Rome: Environmental History and French Colonial Expansion in North Africa* (Athens: Ohio University Press, 2007); Diana Davis, *The Arid Lands: History, Power, Knowledge* (Cambridge, MA: MIT Press, 2016); Chris Duvall, "Ferricrete, Forests, and Temporal Scale in the Production of Colonial Science in Africa," in Mara Goldman, Paul Nadasdy, and Matt Turner, eds., *Knowing Nature: Conversations at the Border of Political Ecology and Science Studies* (Chicago: University of Chicago Press, 2011), 113–27; Chris Duvall, Bilal Butt, and Abigail Neely, "The Trouble with Savanna and Other Environmental Categories, Especially in Africa," in Lave et al., *Palgrave Handbook*, 107–28; Nathan F. Sayre, "The Genesis, History, and Limits of Carrying Capacity," *Annals of the Association of American Geographers* 98, no. 1 (2008): 120–34; Nathan F. Sayre, "The Coyote-Proof Pasture Experiment: How Fences Replaced Predators and Labor on US Rangelands," *Progress in Physical Geography* 39, no. 5 (2015): 576–93; Adam Romero, "Commercializing Chemical Warfare: Citrus, Cyanide, and an Endless War," *Agriculture and Human Values* 33, no. 1 (2016): 3–26; Adam Romero, "From Oil Well to Farm: Industrial Waste, Shell Oil, and the Petrochemical Turn (1927–1947)," *Agricultural History* 90, no. 1 (2016): 70–93.