



Introduction to special issue on critical physical geography

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The relationship (or lack thereof) between physical and human geography is a longstanding discussion within our field. In *PiPG* alone there have been dozens of articles that raise the issue over more than three decades. Some authors call for physical/human synthesis (e.g. Bracken and Oughton's 2009 special issue of *Area*; Clifford, 2002; Harrison et al.'s 2008 special issue of *Geoforum*; Massey, 1999; Thornes, 1981); others are less convinced that deep integration is feasible, or even desirable (e.g. Demeritt, 2009; Johnston, 1983; Johnston, 2012; Thrift, 2002). But even a brief review of the literature makes two points glaringly clear: this discussion has been going on for decades and, given its regular reoccurrence, it would seem we have remarkably little to show for it. A great deal of ink and angst has been expended on the topic of integrating our field, and yet physical and human geography appear to have remained stubbornly, and in some cases hostilely, separate.

Given that long and not notably effective history, why would you bother to read this special issue? Because the articles that follow depart from every paper cited above in one very important way: instead of *calling* for integrated work, they *do it*, demonstrating the scientific and political utility of integrating critical human and physical geography in practice. Individually or in teams, the authors in this special issue work across the divide, combining insights from geomorphology, ecology, and biogeography with approaches from participatory action research,

political ecology, science and technology studies, and environmental history.

While these authors hail from disparate geographic fields, the broad approach they share is *critical physical geography* (Lave, 2014; Lave et al., 2014), a new field that combines

critical attention to relations of social power with deep knowledge of a particular field of biophysical science or technology in the service of social and environmental transformation . . . Its central precept is that we cannot rely on explanations grounded in physical or critical human geography alone because socio-biophysical landscapes are as much the product of unequal power relations, histories of colonialism, and racial and gender disparities as they are of hydrology, ecology, and climate change. Critical physical geography is thus based in the careful integrative work necessary to render this co-production legible. (Lave et al., 2014: 2–3)

The key characteristics of critical physical geography (CPG) are according careful attention to (1) biophysical landscapes and the power relations that have increasingly come to shape them, and (2) the politics of environmental science and the role of biophysical inquiry in promoting social and environmental justice. In combination, these two characteristics

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distinguish CPG from related fields including science and technology studies, land use/land cover change, and political ecology, each of which I address below.

Science and technology studies (STS) has profoundly influenced CPG, grounding its focus on the political economy of knowledge production. While STS takes science as its analytical object, it does not also conduct physical science research. CPG thus departs from STS in its insistence on integrating physical and social science. Land use/land cover change (LU/LC) research is another key influence, as it demonstrates the intellectual and practical utility of integrated physical and human geography research. CPG's emphasis on the politics of knowledge production and on qualitative rather than quantitative social science methodologies, however, make it a distinct and complementary endeavor (but see Munroe et al., 2014, the authors of which have contributed to the development of CPG and are encouraging the LU/LC community to move in similar directions).

A final powerful influence on CPG is political ecology. In their initial formulation of the field, Piers Blaikie, Susanna Hecht, and Michael Watts combined insights from ecology and pedology with agrarian political economy to build a powerful critique of the paradigmatic assumptions of development practice (Blaikie, 1985; Blaikie and Brookfield, 1987; Hecht, 1985; Watts, 1985). This early integrative promise was for the most part short-lived, however, as political ecology has increasingly distanced itself from the environmental sciences and from consideration of the physical characteristics of the landscapes it studies (Walker, 2005, but see Turner, 2015). CPG, by contrast, puts great emphasis on physical processes. A second key difference between political ecology and CPG is that the former was squarely directed at overturning a particular set of explanatory frameworks – Malthusian, Tragedy of the Commons, and “stupid peasant” explanations for environmental degradation – dominant

in development policy and practice. CPG shares that commitment to changing *political* practice, but it also focuses on changing *intellectual* practice through interdisciplinary research, and expanding our attention to the political economy of knowledge production. While CPG departs from STS, LU/LC, and political ecology research, it is both enriched by and very much in conversation with them; the intention is to build out from these existing bodies of work, not to dismiss them.

The articles in this special issue provide a small sample of the rapidly growing body of integrated physical and critical human geography research, which stretches across biogeography (e.g. Biermann, 2014; Duvall, 2014; Grabbatin and Rossi, 2012), geomorphology (e.g. Lane et al., 2013; Urban, 2005; Wilcock et al., 2013), pedology (e.g. Duvall, 2011; Engel-Di Mauro, 2014; Warkentin, 2006), and atmospheric science (e.g. Johnson, 2010, 2015; Thornes and Randalls, 2007). In this issue, Nathan Sayre uncovers the ecological and political economic origins, and thus the deep intellectual limitations, of the core range science precepts of fencing and predator control. Chris Van Dyke explores state/transition models as a methodological tool for combining physical and critical social science data collection and analysis. Whitman, Pain, and Milledge describe the scientific and political advantages of employing a participatory action research approach. Elizabeth Barron and her co-authors use mycology as a springboard to address the politics of knowledge production. Given that a common question about CPG is how to operationalize interdisciplinary research in practice, it is worth noting that each of the four papers demonstrates a different methodological approach to CPG research: historical (Sayre), participatory (Whitman, Pain, and Milledge), performative (Barron et al.), and descriptive (Van Dyke). This special issue thus presents a subset of the broad range of methods currently employed in CPG research.

The issue is rounded out by three additional pieces. Mazen Labban presents a symposium on Salvatore Engel-Di Mauro's recent book, *Ecology, Soils, and the Left* (2014), which brings together commentaries from scholars deeply engaged in integrating physical and critical human geography, including Noel Castree and Tony Stahlins. This is followed by Marc Tadaki's review of the second edition of Inkpen and Wilson's *Science, Philosophy and Physical Geography* (2013). Tadaki argues that Inkpen and Wilson provide a strong reflexive base for critical physical geographic inquiry by offering "a coherent framework for thinking about the specific ways (or practices) through which nature is *constructed* as an object of knowledge and action" (Tadaki, 693). Finally, in a Classics Revisited article, I use exemplary papers by John Thornes (1981) and Ron Johnston (1983) to examine earlier debates over the potential utility of physical/social integration.

The mere existence of CPG research does not prove its value, so I will close by staking a claim for the intellectual and political worth of critical physical geography. Taking a CPG approach expands our intellectual horizons by allowing us to ask and answer different questions. It is today a truism to note that the landscapes we study are powerfully shaped by human forces. The near ubiquity of "the Anthropocene" framework may be grating (not to mention stragigraphically and politically suspect), but it has a crucial implication for our research: we can no longer explain what we see at our field sites by relying only on physical science (Ashmore, 2015; Doyle et al., 2015; Engel-Di Mauro, 2014). Instead of research questions that can be answered by physical science methods alone, we are faced with hybrid problems. Thus to accurately explain the systems we study, we have to ask questions about both the biophysical and social processes that shape them. If we do not change our questions and expand the kinds of data we collect and analyze, our research will lose explanatory power.

The intellectual promise of CPG is complemented by its political promise. In the face of accelerated environmental change, many physical scientists are reconsidering the proper relationship between science and politics. CPG tackles this relationship both internally, in the politics of scientific practice itself, and externally, in the connection (or lack thereof) between scientific findings and policy frameworks.

As STS research reveals, our intellectual practice as scientists is inherently political from the ways in which funding sources influence research topics to the intellectual roots of the concepts we employ, which color the empirical accuracy of our work and shape its policy implications by defining what questions we ask and, just as importantly, what questions we ignore (see Tadaki et al., 2015 for a useful overview). For example, as Sayre so clearly demonstrates in this special issue and in related work (Sayre, 2008), fundamental concepts of range science and environmental management, such as carrying capacity and predator removal, have important roots in unequal colonial and political-economic relations. If we employ these concepts without reflection we reproduce relations of domination and skew our findings.

Further, physical scientists are increasingly grappling with concerns about the profound disconnect between their work and the policy decisions shaping the fate of our planet and its human and non-human inhabitants (Lane, 2014; Tadaki et al., 2015). The separation of physical science from politics has been a core principle of scientific practice over the last 70 years, and yet that separation may no longer serve us as researchers, or even as a species. CPG lays the groundwork for directly politically relevant research by focusing on questions that explicitly address topics of both physical and social significance, and employing research practices that promote environmental and social justice.

Put differently, we and our field sites are already tangled in political, social, and economic relations. It is time to acknowledge those

relations and engage them explicitly. Critical physical geography enables us to do just that.

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References

- Ashmore P (2015) Towards a sociogeomorphology of rivers. *Geomorphology*. Epub ahead of print. DOI: 10.1016/j.geomorph.2015.02.020.
- Biermann C (2014) Not-quite-American chestnuts: engaging poststructural epistemologies in nature-society research. *ACME* 13(4): 599–608.
- Blaikie P (1985) *The Political Economy of Soil Erosion in Developing Countries*. New York: John Wiley & Sons Inc.
- Blaikie P and Brookfield H (1987) *Land Degradation and Society*. London: Methuen.
- Bracken L and Oughton E (2009) Interdisciplinarity within and beyond geography: introduction to special section. *Area* 41(4): 371–373.
- Clifford NJ (2002) The future of geography: when the whole is less than the sum of its parts. *Geoforum* 33(4): 431–436.
- Demeritt D (2009) Geography and the promise of integrative environmental research. *Geoforum* 40: 127–129.
- Doyle M, Singh J, Lave R, et al. (2015) The morphology of streams restored for market and non-market purposes: Insights from a mixed natural-social science approach. *Water Resources Research* 51(7): 5603–5622.
- Duvall C (2011) Ferricrete, forests, and temporal scale in the production of colonial science in Africa. In: Goldman M, Nadasdy P and Turner M (eds) *Knowing Nature: Conversations at the Border of Political Ecology and Science Studies*. Chicago: University of Chicago Press, 113–127.
- Duvall C (2014) *Cannabis*. London: Reaktion Books.
- Engel-Di Mauro S (2014) *Ecology, Soils, and the Left*. New York: Palgrave Macmillan.
- Grabatin B and Rossi J (2012) Political ecology: non-equilibrium science and nature-society research. *Geography Compass* 6(5): 275–289.
- Harrison S, Massey D and Richards K (2008) Conversations across the divide. *Geoforum* 39(2): 549–551.
- Hecht S (1985) Environment, development and politics: capital accumulation and the livestock sector in eastern Amazonia. *World Development* 13(6): 663–684.
- Inkpen R and Wilson G (2013) *Science, Philosophy and Physical Geography*. 2nd ed. London: SAGE.
- Johnson L (2010) The fearful symmetry of Arctic climate change: accumulation by degradation. *Environment and Planning D: Society and Space* 28: 828–847.
- Johnson L (2015) Near futures and perfect hedges in the Gulf of Mexico. In: Appel H, Mason A and Watts M (eds) *Subterranean Estates: Life Worlds of Oil and Gas*. Ithaca, NY: Cornell University Press, 193–210.
- Johnston R (1983) Resource analysis, resource management, and the integration of physical and human geography. *Progress in Physical Geography* 7(1): 127–146.
- Johnston S (2012) Get rid of geography departments. *Geolog* 41(1): 6–7.
- Lane SN (2014) Acting, predicting and intervening in a socio-hydrological world. *Hydrology and Earth System Sciences* 18(3): 927–952.
- Lane SN, November V, Landstroem C, et al. (2013) Explaining rapid transitions in the practice of flood risk management. *Annals of the Association of American Geographers* 103(2): 330–342.
- Lave R (2014) Engaging *within* the academy: a call for critical physical geography. *ACME* 13(4): 508–515.
- Lave R, Wilson MW, Barron E, et al. (2014) Critical physical geography. *The Canadian Geographer* 58(1): 1–10.
- Massey D (1999) Space-time, ‘science’ and the relationship between physical geography and human geography. *Transactions of the Institute of British Geographers* 24(3): 261–276.
- Munroe D, McSweeney K, Olson JL, et al. (2014) Using economic geography to reinvigorate land-change science. *Geoforum* 52(1): 12–21.
- Sayre NF (2008) The genesis, history, and limits of carrying capacity. *Annals of the Association of American Geographers* 98(1): 120–134.
- Tadaki M, Brierley GJ, Dickson M, et al. (2015) Cultivating critical practices in physical geography. *The Geographical Journal* 181(2): 160–171.
- Thornes JE (1981) A paradigmatic shift in atmospheric studies? *Progress in Physical Geography* 5(3): 429–440.
- Thornes JE and Randalls S (2007) Commodifying the atmosphere: ‘Pennies from Heaven’? *Geografiska Annaler: Series A, Physical Geography* 89(4): 273–285.
- Thrift N (2002) The future of geography. *Geoforum* 33(3): 291–298.

- Turner M (2015) Political ecology II: engagements with ecology. *Progress in Human Geography*. Epub ahead of print. DOI: 10.1177/0309132515577025.
- Urban MA (2005) Values and ethical beliefs regarding agricultural drainage in central Illinois, USA. *Society and Natural Resources* 18(2): 647–665.
- Walker P (2005) Political ecology: where is the ecology? *Progress in Human Geography* 29(1): 73–82.
- Warkentin B (ed) (2006) *Footprints in the Soil: People and Ideas in Soil History*. Amsterdam: Elsevier.
- Watts M (1985) Social theory and environmental degradation: the case of Sudano-Sahelian West Africa. In: Gradus Y (ed) *Desert Development: Man and Technology in Sparselands*. Dordrecht: Reidel, 14–32.
- Wilcock D, Brierley GJ and Howitt R (2013) Ethnogeomorphology. *Progress in Physical Geography* 37(5): 573–600.