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Progressing physical geography

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Abstract
Now and then certain commentators - usually established ones - venture opinion on the current health and prospects for physical geography (either in its own right, in relation to human geography, or relative to some other field of research). In this editorial I want to consider the way that normative arguments about the future of the field are phrased, seen within wider discussions about geography as a whole (its present challenges and future goals). The education of students, I suggest, has been marginalized in published debate despite providing perhaps the most viable of several possible means by which physical geography might amount to more than the sum of its otherwise vibrant parts. At base I ask: 'What counts as "progress" in physical geography?' and 'By what means might it be achieved?'. The second question can only be answered in light of the first, so I will come to it presently. I write as someone who, while not a physical geographer, is strongly committed to the idea that its component areas - and those comprising human geography - have value in themselves but also (importantly) when taken together.

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Now and then certain commentators – usually established ones – venture opinion on the current health and prospects for physical geography (either in its own right, in relation to human geography, or relative to some other field of research). In this editorial I want to consider the way that normative arguments about the future of the field are phrased, seen within wider discussions about Geography as a whole (its present challenges and future goals). The education of students, I suggest, has been marginalised in published debate despite providing perhaps the most viable of several possible means by which physical geography might amount to more than the sum of its otherwise vibrant parts. At base I ask: 'What counts as 'progress' in physical geography?' and 'By what means might it be achieved?'. The second question can only be answered in light of the first, so I'll come to it presently. I write as someone who, while not a physical geographer, is strongly committed to the idea that its component areas – and those comprising human geography – have value in themselves but also (importantly) when taken together.[1]

To my first question, then. Interpreted one way, this journal's title (like that of its twin, *Progress in Human Geography*) is more a profession of hope than a statement of fact. Even supposing we could all agree on what 'progress' might mean, the object in question is elusive. 'Physical geography', as readers well know, is a label of convenience. It describes an archipelago of specialisms whose diverse practitioners exist in departments of Geography, but also cognate locations too (in schools of ecology, earth science departments, environmental science schools, geoscience departments, and so on). These specialisms (though internally diverse) have far more integrity than the putative physical geographic 'whole' they are said to comprise – hence the scare quotes. This is not to suggest that they exist in splendid isolation from each other; far from it. But a lot of good science, and excellent degree teaching, is done within the existing heterodox arrangements. We thus have lots of physical geographers but, many would argue, little 'physical geography'.[2]

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[1]That commitment arises has been expressed in print on more than one occasion, most recently in Castree *et al*. (2009).

[2]Physical geography's component part are, perhaps, a model case of what Adrian Farnham (2011: 43) calls "disciplines within [a] discipline …". As he puts it, somewhat hyperbolically, in such a case "Great barriers have

Should physical geography continue to progress thus, as what one commentator calls "… a residual category, convenient for lumping together all of the various different sciency-types populating our Geography departments" (Demeritt, 2009: 5)?

Some would say not. Writing thirteen years ago, Olav Slaymaker and Tom Spencer insisted that "If physical geography is to survive as a recognizable entity, a focus on interconnections is long overdue" (1998: 18). More recently, this journal's managing editor has detected opportunities for a less fragmented physical geography as its constituent parts rise to the challenges presented by a range of planetary scale environmental threats and opportunities (Clifford, 2009). Like the authors of *Physical geography and global environmental change*, he expresses a normative view: 'physical geography', while it may currently exist largely in name (less so in substance), can be more than a nominal entity. Nick Clifford suggests that, ironically, it is those outside departments of Geography who are leading the way here. For instance, Earth Systems Science and Sustainability Science are both cross-disciplinary endeavours that, in a particular 21st century form, resurrect physical geography's founding aspirations to examine myriad biogeochemical interactions at, or near, the planet's surface.[3] In this light, it would be odd – not to mention a lost opportunity – if those geomorphologists, biogeographers, hydrologists, climatologists and Quaternary scientists who inhabit Geography departments continued to travel along existing sub-disciplinary pathways (relatively unaffected by others' journeys). They may even build stronger links with human geography colleagues, and the social sciences and humanities more generally, as part of a new drive to examine 'coupled human-environment systems'. They could thus sit within – possibly be at the vanguard of – the sort of complex systems analysis and environmental management advocated by Moran (2011) among others. This would help

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been erected, ditches dug, moats flooded and electric fences constructed … Who needs enemies when you have colleagues?".

[3]See Nick Clifford's entry for 'physical geography' in the 5th edition of the *Dictionary of Human Geography* (Gregory *et al*., 2009) for a potted history of the field – the first entry on the topic in this estimable reference work. Clifford's capsule account shows how 'physical geography' has always either been a fissiparous enterprise or else one placed uneasily between different academic communities (geographers, geologists, climate scientists etc.).

realise some of the potential that Ken Gregory *et al*. (2002) identified a decade ago.

The arguments for a less fissiparous physical geography are of a piece with those made, in print and conference sessions, about human geography and Geography as a whole. In Susan Smith's inviting formulation, Geography should be "… an enterprise of relatedness whose vitality is secured by forging connections and crossing intellectual horizons … [It] forms a hub for these networks … positioned awkwardly, but productively, as an interface for the social, natural and biological sciences … [It's] both an interstitial subject and an impulse to interdisciplinarity" (2005: 389). We've heard these arguments before, of course, though few – including Smith and Clifford – are suggesting that existing sub-disciplinary differences give way to a new dispensation in which 'unity' is the watchword (at least in the conventional sense of the term). The aspiration is not so much an integrated disciplinary whole (which, in any case, is arguably as undesirable as it is infeasible), as what economic geographers Trevor Barnes and Eric Sheppard (2010) call 'engaged pluralism'. Engaged pluralism, as these authors would have it, "navigat[es] … between the Scylla of multiple solitudes and the Charybdis of monism …" (*ibid*. 194). Barnes and Sheppard contrast it with 'flabby pluralism' and 'defensive pluralism', which together fail to take seriously the mutual benefits researchers enjoy when they engage in sustained and rigorous dialogue. Engaged pluralism strengthens the disciplinary weave; it does not eliminate all the holes in the intellectual cloth and nor does it erode intellectual diversity. It is an intra-disciplinary version of what, outside Geography, many researchers aspire to: interdisciplinary engagement and analysis, with all its challenges and possibilities.

If a number of recent publications are to be believed, many geographers – physical and human – aspire to engaged pluralism in both their own 'side' of Geography and in the subject as a whole. Not a few are already practising it, in the process helping to slowly reconfigure the existing sub-disciplinary matrix.[4] Clifford, Smith, Barnes and Sheppard seem to be in good company, resisting the muscular calls for disciplinary wholeness of their professional forebears

[4]A good example of this, taking us back a decade or more, is the way 'new cultural geography' was remade by, and helped to remake, a certain kind of economic geography.

(like David Stoddart [1987]), but advocating change nonetheless.[5] The arguments are usually hopeful, but also tinged with a strong sense of realism: the barriers to intellectual exchange within physical geography (and between it and human geography) are recognised as being significant ones. On what basis can dialogue occur? Well, there are new research questions that demand a range of expertises if robust answers are to be arrived at. As part of a wider promotion of 'inter-', 'cross-', 'trans-' and 'multidisciplinary research', funding organisations have been important drivers here: for instance, the British LWEC (Living With Environmental Change) and RELU (Rural Environment and Land Use) programmes have both given powerful encouragement to engaged pluralism; so too have several European Union research opportunities. To cite a British example again, joint research council PhD scholarships (now alas in short supply) have sought to cultivate 'rounded' researchers who have benefitted from 'cross-training'. Furthermore, there are new philosophical, theoretical and methodological vocabularies and procedures that might engender engagement – for example, complexity theory, several GIScience applications, and agent-based models. Additionally, there are venerable concepts that are sufficiently polysemic and capacious to engender shared discussions and joint investigations – concepts like landscape, space-time and nature. There are also cross-cutting phenomena and processes that render biophysical divisions permeable (like soil moisture dynamics – see Legates *et al*. [2011], in this journal); and there's the classic geographical aspiration to make sense of interacting components in a defined spatial setting (for example, see Dale *et al.* [2010] in this journal discussing wetland management). In short, for those with the appetite, there are opportunities aplenty to make engaged pluralism more than wishful thinking. Out of such engagement new insights, questions, research designs, methods and data-sets may arise, many of which may have valuable real world implications and applications. And, let us not forget, living in 'the Anthropocene' is very likely to involve tackling more complex, frequent and profound challenges arising from human alterations of the non-human world.

[5] The journal *Geoforum* has been an especially rich source of arguments and advocacy for a more joined-up physical and human geography. It has, over the last 6 years, contained special sections on 'conversations across the human-physical divide', on multi-disciplinarity, on 'biocomplexity' and on agent-based models, among other subjects.

Of course, some might justifiably argue that only a relative minority of practitioners will, in the end, seek to make a research virtue out of Geography's otherwise weakly interacting component parts. They may do so in the 'problem solving' mode characteristic of 'Mode 2' research (Gibbons *et al*., 1994) – where teams of researchers combine their expertise to address an issues that requires joined-up analysis. But the chances are that engaged pluralism – within, let alone between, physical and human geography – will be foregone in the interests of continued sub-disciplinary ('Mode 1') research agendas. While these agendas may have a certain engaged pluralism of their own, it is not always the 'harder' engagement that Barnes and Sheppard refer to. After all, such engagement may be time consuming and risky, with no guarantees of a pay-off at the end. And it often seems to require funding incentives to make it happen. Might there be other reasons, and ways, to challenge current sub-disciplinary inertia so that Geography's component parts might produce something productive in their combination? Ron Johnston, in a string of publications (e.g. Johnston, 2004), has suggested that some 'strategic imagineering' is continually called for when presenting Geography to others within and beyond the academy. Though sceptical about the possibilities for large-scale transcendence of Geography's various sub-disciplinary divisions, Johnston insists that it's important for geographers to present a more united front if they want their discipline to be respected and well resourced. He's a pragmatist rather than a cynic. He recognises that Geography has an ongoing 'image problem' (even in the UK where the subject is very well established), one which cannot be addressed effectively if practitioners have no strong narrative about their shared goals and achievements. It helps if one can exemplify narrative claims by pointing to powerful examples of research (and real world influence) that cross-cut topical, methodological and other divisions.

We seem, here, to have two ongoing discussions about how, and to what ends, Geography's many internal divisions might be mitigated. Most of the published discussion focuses on *research*, with Johnston's arguments speaking more to discussions of how research is *represented strategically* beyond the discipline. Clearly, there's an umbilical connection: engaged pluralism in the former domain (where so much emphasis seems to be placed in published reflections on greater 'unity' – or at least exchange – within [or between] physical and

human geography) can be used judiciously in the service of the presentational imperative that Johnston is right to highlight.

This is all fine, as far as it goes. But it seems me that there is a missing third discussion, and I am slightly at a loss to explain the absence. Perhaps it occurs in coffee rooms and faculty meetings; I don't know. This third discussion – unlike those centred on research or Geography's external image – has far more capacity to inspire engaged pluralism among more than a minority of physical and human geographers (separately, and together). It also stands to have a wider social influence – the sort of influence that most research, when published in specialist journals or books, rarely enjoys. I will explain why presently. To get to the point: what role might *pedagogy* – especially at undergraduate, but also at masters level and in doctoral training – play in fostering engaged pluralism? What encouragement does university education provide for those wanting Geography – within and across its two heterogenous 'halves' – to be more than a nominal entity chock-full of non- or weakly-communicating parts? In posing this last question let me acknowledge that not all 'physical geography' teaching occurs within Geography degrees; even so, some of what I argue below may well apply to these other programmes.[6]

Writing in this journal's human geography partner 25 years ago (which I now co-edit), David Pepper (1987) made the case for making the most of Geography's internal divisions and diversity with reference to degree teaching. Few others have done so in print since. For Pepper it was axiomatic that, if the word 'discipline' has more than a nominal meaning, then it was in significant measure because undergraduate education lends it some substance. He did not concern himself with analysing physical geography's component sub-fields, preferring to gloss the differences in order to argue that students should not be permitted to study physical or human geography separately at bachelors level. Pepper's concern was that physical geography could only furnish

[6]Which could be earth science, environmental science, sustainability science or earth system science programmes, for example. Writing in this journal Terence Day (2012) has also paid close attention to the role of teaching in physical geography today.

students with a 'technical' education, one that needed (in his view) to be infused with the humanistic and critical sensibilities of human geography.[7]

Even at the time of writing, Pepper's depiction of physical geography's epistemic character bordered on a caricature. A quarter century on, and research and teaching in the field is arguably more diverse than ever before – hence the calls by Slaymaker, Spencer, Clifford and others for less division. This diversity is pedagogically valuable and should not be glossed: the range of topics, methods, models, theories, data sets, presentational media, analytical scales, laboratory and field practices, and so on cannot be reduced to a supposedly homogenous type of knowledge called 'technical' (that's only preoccupied with means, not ends, goals or values). But, some might say, Pepper's argument nonetheless remains relevant in one key respect. Because the modularisation of bachelors (and masters) degrees has proceeded apace since the mid-1980s, the education that any single Geography student receives is usually the result of choices they have made. While lecturers and professors may carefully design their own separate modules, many departments have become reluctant to construct a curriculum in anything more than a 'light touch' sense for their BSc or BA students. A reason – one surmises – is that the research-level divisions that Slaymaker, Spencer, and Nick Clifford seek to render more permeable are mirrored educationally. Yet – despite common assumptions – modularisation and student choice are not incompatible with robust curriculum planning. Within- and between-module design can accommodate student choice while still translating some sort of conception of how physical (and human) geography's sub-fields productively overlap and interfere with one another.

In physical geography – and human geography too – is enough being done to make full educational use of the remarkably rich intellectual resources available in its constituent sub-fields? Are these resources presented as separate ingredients or combined into considered recipes, including some novel ones? Typically, entry level students get a module or two that explore physical geography in the broadest sense, and there are some excellent

[7]Mike Hulme (2011) has, in a much broader setting, restated this argument: what different forms of knowledge, he asks, do we need to bring into productive dialogue in order to understand, and respond appropriately to, global climate change?

textbooks to support them (e.g. Holden's [2008] edited primer *Physical geography and the environment*). But what happens thereafter? What core compulsory degree modules might a range of physical geographers together design and deliver in more senior years of a degree? How might student option choices in physical geography be altered and the modules made available to them reworked or combined? How might teaching more collectively (and with human geography colleagues) affect the student experience, so too those of us doing the teaching?[8]

These and related questions are pressing ones in English university Geography (where myself and this journal's manager editor ply our trade) because of the reform of undergraduate funding enacted by the current coalition government. In a more 'demand led' higher education system, the 'supply' may have to change in quantity and quality. The English case serves as a reminder that all disciplines – whatever else their practitioners do – exist to shape the wider society by having a formative effect on each new generation of degree students (tomorrow's workers, citizens, public servants and parents, as if we need reminding). That talk of a 'gap' between research and teaching has become common-place tells us much about the demotion of pedagogy in the *modus operandi* of many academics in England and beyond. It may also say something about how parts of 'the research frontier' have become detached from any wider public meaning or relevance. Yet teaching – much more than research – should and could be the domain where members of a university department translate a *shared* vision of their disciplinary endeavours into something concrete. In part, a shared vision surely has to arise from a process of engaged pluralism – not so much in frontline research practices (important though that undoubtedly is), but in utilising existing research expertise and publications so that – amidst all the difference and diversity – exciting, novel, challenging and creative pedagogic combinations are achieved.

[8]Though it's not easy to infer from module handouts, my experience as an external examiner on several degree programmes suggests that 'team teaching' typically comprises different academics giving a lecture, seminar or lab on 'their' subject. The whole – for the students and the faculty – is thus a collection of pre-existing parts. Rarely have I seen evidence of a more innovative, transformative pedagogy that sees staff working together and in such a way that something new emerges through the pedagogic interaction. My own team-teaching experiences at Liverpool University (1995-2000) and Manchester University (2000-) suggest that my external examiner take on team teaching is not unique.

How often do academics ask the question of the effects of teaching on research (rather than assuming teaching is merely a vehicle by which research is communicated)? How might big questions about the 'proper' goals of a geographical education, along with questions about styles of teaching and modes of assessment, influence the way we communicate research as well the choice of research we communicate? 'Engaged pluralism' is not only possible but desirable in curriculum design and delivery; and it stands to involve many, rather than just a few, physical (and human) geographers in any given department. After all, we most of us teach year-in, year-out, and we tell our students that what we teach, how we teach and how we assess all add-up to something that the parts alone cannot achieve. It's worth recalling too that vibrant sub-disciplines and specialist research fields can rarely survive in the long-term absent a steady stream of students who seek a broader education that transcends any one of these sub-disciplinary components.

If I have asked a lot of questions it is because published discussion seems to provide few answers. There are doubtless superb examples of pedagogic practice that speak powerfully to engaged pluralism in physical geography. It would be good to hear more about these, and not just in the pages of the pedagogic journals like the *Journal of Geography in Higher Education*. If the published debates on progress in physical geography focus rather less on research or external image, then perhaps something new and valuable can emerge that will inspire many practitioners. The same can be said of human geography too, as is obvious from everything I have said. It's not about a 'muscular' form of unity between physical geography's diverse professional membership; nor is about 'reunifying' Geography as a whole by proposing implausible schemes to hook-up *en masse* with the human geographers. Instead, it's about using the existing divisions of intellectual labour in considered and innovative ways in answer to the perennial question: 'what should we teach, how, and to what ends?'. To address that question properly, there's a need to triangulate between the stock of research knowledge available, the 'needs' and 'wants' of diverse students, and the available philosophies of education that continue to alert us to the profound importance of pedagogy. University education necessarily involves the re-contextualisation and repurposing of research so that it can be made to matter – in a range of ways (cognitive, moral and aesthetic; intellectual and practical) – to students.

In this way, progress in physical geography – as in the wider discipline of Geography – becomes a three way process involving research and teaching in equal measure, with external image an important linked consideration. This is more than a question of parity of esteem between research and teaching (as if they are worthy but separate pursuits); it's about exploring the creative potentials of pedagogy for the benefit of researchers and students alike.

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