

**THIS IS THE EXTENDED VERSION OF
A CHAPTER THAT APPEARED IN
*QUESTIONING GEOGRAPHY: FUNDAMENTAL DEBATES***

Coming Apart at the Seams?

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Rather than police the margins of the discipline, let's stretch them. Geography is an open, vibrant and exciting place to be...
(Adam Tickell; *RGS Newsletter*, December 2002)

For most outsiders, an encounter with the discipline of geography may suggest that it studies everything, from global environmental change at one extreme to the minutiae of body-space at the other. It spans the physical, environmental and social sciences, and reaches into the humanities too. Nor might it look much like geography as they understand the term and as it is promoted in other contexts. Closer inspection – a list of the modules on offer in most degree programmes, say – may further suggest a lack of coherence around either core themes or methods. Geographers study and write about a lot of different subjects with few apparent links between many of them. So is there a specific discipline of geography or does it comprise a group of loosely related specialists: is whatever once held might have together dissolving so that geography is now coming apart at the seams?

To address that question, this essay explores the current diversity of geography and what, if anything, holds its practitioners together in an identifiable discipline. Until fairly recently – certainly within my own academic career, now some 40 years long – geographers did proclaim themselves as having a distinctive perspective and substantive focus. During those decades, however, the perspective has fragmented and the focus virtually disappeared. Having traced those changes, the essay finishes by asking whether that matters, whether by its very current existence and structure geography performs a valuable role within universities and their wider society. Is a core (an agreed set of basic concepts) necessary, or is a vibrant periphery without an apparent core viable – both intellectually and politically? Do geographers have to agree on a disciplinary mission statement in order to sustain their separate identity (the political project) as well as their academic coherence (the intellectual project)?

‘Twas ever thus? Geography as a series of subdisciplinary communities

Has geography always been fragmented and incoherent? Not in its early decades, when those who created the discipline – many not trained as geographers themselves – sought to give it a clear rationale and coherence. The language of that coherence still characterises much geographic writing, but more as rhetoric than reality.

Geography emerged as an academic discipline in the late nineteenth and early twentieth centuries as a subject bridging the physical and social sciences by studying the interactions between people and their environments. Demand for university courses came from a number of directions: some geographic subject matter was seen as desirable for students of geology and of economics, for example, and teachers were appointed to the relevant university departments. But the main demand, especially in Europe, came from the need for trained geography school teachers. Geography was seen as an important component of an education that promoted citizenship through national and self-awareness: people learned about themselves through contrasts with others. Knowledge of other lands was also used to promote notions of western superiority, especially when it was linked to imperialism. (On the history of the discipline in several countries, see the essays in Johnston and Claval, 1984, and Dunbar, 2002.)

When established in universities, therefore, geography was promoted as an integrating discipline, bringing together scientific understanding of the natural environment with studies of the use of that resource, as illustrated by patterns of land use and settlement. The core concept which demonstrated this integration was the region, an area of relatively uniformity according to selected phenomena: the earth's surface comprised a mosaic of regions, areas with separate physical and human characteristics (at a variety of scales) and the geographer's task was to define and account for that regional pattern.

To produce regional definitions and descriptions geographers drew material from other disciplines. Increasingly, they became interested in that subject matter and started to study some of those topics as ends in themselves. Geography was then divided into two main long-recognised types of study: systematic geography, which investigated individual aspects of the earth's mosaic, such as climate and land use; and regional geography, which drew the various systematic studies together. The latter remained the core geographical concern according to many of the discipline's leaders: every geographer was expected to specialise on (and teach about) a particular region and the systematic studies were seen as secondary, as means to the end rather than as ends in themselves. Even in 1982, the president of the Association of American Geographers could proclaim that regional geography was 'the highest form of the geographers' art' (Hart, 1982).

This view of the discipline was explicit in an American 'progress report on the present content of geography as at January, 1954' (James and Jones, 1954, p. viii). It comprised 26 chapters (one with two sub-chapters) that, as their titles in Table 1 indicate, were mostly concerned with systematic divisions of the discipline. Nevertheless, these subdivisions were very much subsidiary to a single disciplinary goal (James, 1954, p. 15):

The various kinds of duality which have been popular in the past, such as regional as opposed to topical [or systematic] geography, or physical as opposed to human geography, seem to have obscured the true nature of the discipline. Actually, there is just one kind of geography.

That kind of geography is regional geography (p. 7):

Persons who undertake to carry on geographic studies must specialize in order to develop competence in a portion of the field. Nevertheless, whether they specialize on the physical, biotic or cultural aspects of geography, the analysis of the meaning of likenesses and differences among places involves the use of certain common concepts and methods: basic to the whole field is the regional concept; fundamental to the effective study of geographic phenomena is the method of precise cartographic analysis.

It follows that ‘The map is the fundamental instrument of geographic research’ (James, 1954, p.9).

The second chapter – on ‘The regional concept and the regional method’ – was by far the longest in the book. Its opening statement was that ‘Geographers are in general agreement that regional study is an essential part of their craft’ (Whittlesey, 1954, p. 21) and concluded by claiming that (p. 65):

There appears to be no slackening of devotion to regional study among geographers ... The regional concept has proved its vitality over the centuries: but it has also eluded the grasp of those who pursue it from a point of view too narrowly systematic. ... the need for regional study is more urgent than ever and its prospects are brighter. An ever-welcoming public awaits the results.

The validity of the rhetoric in the last two sentences was doubtful, even when they were written: certainly soon after they were published major changes were initiated which saw the regional concept move to the discipline’s edge and the systematic divisions assume dominant disciplinary roles. The glue at the discipline’s core was dissolved and it began to fragment into specialist semi-independent subdisciplines.

Some forty years after James and Jones’s book, a further overview of American geography contained 35 chapters produced by the Specialty Groups of the Association of American Geographers (Table 2). Systematic subdisciplines in physical and human geography again predominated. More importantly, the editors could provide neither a concise definition nor a clear synoptic view of the discipline (Gaile and Willmott, 1989, p. xxv):

The search for distinctiveness on the basis of simple content, method or philosophy has been unsuccessful because it presupposes that a boundary around the “core” of the discipline exists, and therefore can be articulated. Geography, like History and a few other fields, is not bounded. Such disciplines are set apart by integrative perspectives, themes, or approaches to organization of many interacting processes and phenomena. ... In the case of Geography, ... [it] is the roles that place and its locational attributes play in natural and human processes occurring on the earth’s surface that are at the heart of geographic inquiry and knowledge.

Diversity and divergence had replaced disciplinary cohesion around a core focus over the preceding decades, despite attempts to promote unity through the concepts of place, space and environment. Human geographers had increasingly shifted their attention to the social sciences and humanities whilst physical geographers had built stronger links with environmental scientists – a ‘schism [that] undermines the ability

of geographers to meaningfully contribute to our understanding of nature-society interactions' (p. xxxi). Meanwhile, 'geographers continue to ply their trade abroad and to attempt regional syntheses, albeit in diminished numbers' (p. xl). But the region as the core concept had been subject to violent attacks from which it had failed to recover (for a review, see Johnston, 1997), and the search for alternative synthetic cores (as in Abler et al, 1992) had failed to either convince or deliver.

Academic disciplines and communities

The discussion in the previous section provides the context for appreciating geography's contemporary situation, which has now almost entirely lost its synthetic 'core' of regional geography – despite continued widespread use of the term region. Geography now comprises a wide range of systematic studies which have one or more of environment, place and space as their foundational concepts (or organising themes) but whose external links to other disciplines are sometimes at least as strong as their ties with other fields within their home discipline. As Heather Viles has detailed in chapter 3, the split between physical and human geography has widened in recent years, as physical geographers ally themselves increasingly with other environmental scientists and participate in large projects aimed at elucidating past, present and future environments through mathematical modelling and laboratory analyses of physical, chemical and biological processes allied to large collaborative data-collection programmes. Human geographers, meanwhile, have explored a variety of approaches within the social sciences and the humanities, employing a range of epistemologies, ontologies and methodologies which apparently have little in common with each other, let alone with those deployed by physical geographers. All geographers may identify their central concerns as space, place and the environment (or nature), but their perspectives differ greatly and are seen by many as incommensurate: there are no common themes other than at the most generalised of levels – no core, only periphery!

The human-physical split, and the cleavages within human geography, encapsulate the current situation in the discipline. It is divided into two very substantial, but separate, subdisciplines, each of which is further subdivided into a number of separate fields. Many of these seem to operate quasi-independently within the holding companies provided by university departments of geography.

Appreciation of the nature of research within these subdisciplines and their subsidiary fields can be approached by visualising the discipline as a hierarchy of communities of practitioners. All academic activity takes place within established paradigms, blueprints which define what is undertaken through general agreement regarding both accepted knowledge – that accepted as (at least provisional) understandings and explanations of particular subject matter – and methods of extending that knowledge. Individuals join academic disciplines via socialisation into those paradigms, through undergraduate and postgraduate training during which they learn about the accepted knowledge (the 'facts', or problems that have been solved) and the ways of advancing knowledge (methods for tackling unresolved problems). When they have joined the community – having served an apprenticeship and been accepted into it as somebody who will contribute to further advancement of knowledge – they undertake their own research, which is published and adds to the store of knowledge on which future generations draw.

These communities of scholars are hierarchically arranged. At the top is the discipline with which individuals have affiliated, and with which they both identify and are identified by others: most work in a university department of geography and their training involved getting degrees in geography. Within that large community, however, they will specialise, having decided at some point in their training – almost certainly before they became a postgraduate – to be either a physical or a human geographer and, within each, to associate with a specialist subdiscipline, such as geomorphology or economic geography. That will not have been the end of the choices, however: within their chosen subdiscipline they elected for a particular field of activity – the study of manufacturing or service industries within economic geography, perhaps – and a mode of addressing problems within it. In that area of work there will probably be only a relatively small group of others addressing related problems, a community of cognate researchers (perhaps spread widely over space) interested in what the others are doing, in reading their research findings and sharing their own with them.

These small communities of researchers have been likened to villages by Geertz (1983, p. 157):

...most effective academic communities are not that much larger than most peasant villages and just about as ingrown... From such units, intellectual communities if you will, convergent data can be gathered, for the relations among the inhabitants are typically not merely intellectual, but political, moral, and broadly personal (these days, increasingly, marital) as well. Laboratories and research institutes, scholarly societies, university departments, literary and artistic cliques, intellectual factions, all fit the same pattern: communities of multiply connected individuals in which something you find out about A tells you something about B as well, because, having known each other too long and too well, they are characters in one another's biographies.

Untangling such biographies, individual and collective, is the key to understanding the nature of geography's intellectual development.

For many (even most) geographers, their intra-village research links may extend well beyond the formal boundaries of their academic discipline, and their interactions may be as much (if not more) with scholars affiliated with other disciplines as with their own: most geographers who emphasise space and place in the study of elections, for example, interact more with political scientists, sociologists and statisticians than with geographers working in other specialist fields. Many individual geographers belong to a number of overlapping research communities, participating in a wide range of conferences and other meetings and both reading and contributing to a broad conspectus of research literature. Some operate contemporaneously in more than one community; others move communities as their interests change. The communities themselves may wax and wane as interest in their work grows or declines. And there are continuing inter-community as well as intra-community debates over the best ways forward, on what should be accepted as useful knowledge and how research should be undertaken.

All disciplines are divided into such communities and sub-communities: geography is by no means peculiar in this regard. Where geography is distinct, perhaps, is in the breadth of its subject-matter and the range of very different communities co-existing under the disciplinary umbrella. In part this reflects its origins as a discipline whose subject-matter embraced the natural and human environments and their interactions, and whose core concerns – space, place and environment – can be applied to a plethora of subject matter, all also studied in one or more other disciplines. The potential range of cross-disciplinary contacts for geographers is large and recent decades have seen an increasing number of them being realised while links with their own disciplinary peers have weakened: for many geographers, the focus of their intellectual projects are outside the formal discipline of geography as constituted in the universities, but their political projects – their recruitment of students to sustain their activities – remain centred on departments of geography.

Contemporary fragmentation within geography

The advancement of both science itself and individual careers within disciplinary communities involves the conduct and reporting of research. Knowledge-production is a shared activity: by publishing their findings (and their critiques of others' work) researchers contribute to the validation and extension of knowledge. The chosen media for publication – perhaps after less formal discussions in group meetings, seminars and conference sessions – are predominantly academic journals. Some of them – especially those published by the learned societies that promote disciplines as wholes – are relatively general, attracting papers from a range of specialisms within the discipline and relaying them to wider audiences. But most journals are specialised, aimed at workers within, at best, a few communities only: to reach the potential audience for their findings, researchers publish in journals that those with shared interests regularly consult. Communities have their own journals, so that the discipline's contemporary fragmentation is readily appreciated through investigating its journals.

To illustrate the current variety within geography we can take two journals which review the current state of knowledge within its two major subdisciplines – *Progress in Physical Geography* and *Progress in Human Geography*. Each issue contains a number of 'progress reports' reviewing recent literature in a defined field.

Progress in Human Geography currently (late 2003) carries 27 annual reports, which are listed in the left-hand column of Table 3. The first five cover topics that embrace the entire subdiscipline. The next 17 deal with topical specialisms. They are organised in the table according to 'traditional' divisions into economic, political, cultural, social, historical, urban and rural, several of which are further subdivided: note that there is no overall annual review of economic geography, only of four of its separate fields. Finally, there are annual reports on environmental issues, two general reports on methods (qualitative and quantitative), and separate reports on cartography and GIS.

A further feature of the diversity of contemporary human geography is shown in Table 3 by the wide range of specialist journals associated with these various fields and their subdivisions. The list in the right-hand column is far from comprehensive, but contains most of the major journals in which human geographers publish findings

– outside the more general geography journals discussed above plus journals aimed at wider cross-disciplinary audiences, such as *Environment and Planning A*. Virtually every field within the subdisciplines is associated with at least one specialist journal dealing with it alone – as are several of their separate components. Almost all are both published in and edited from UK geography departments: the main exceptions are *Economic Geography*, *Urban Geography* and *Geographical Analysis*, which are published and edited in the USA.

The progress reports in *Progress in Physical Geography* vary in their composition a little from year to year. Those published in the three years 2000-2002 have been classified in Table 4 into the four traditional categories of geomorphology, climatology, biogeography and the geography of soils, plus methods – although of those, only biogeography gets a report with that term in the title. As with human geography, each major field is further divided – the exception is the little-studied geography of soils. The right-hand column of Table 4 shows some of the associated journals in which different groups of physical geographers regularly publish. Most of the major fields have relatively general journals dedicated to them – the first three listed for geomorphology, for example. There are also many more specialised journals, especially within the general area of geomorphology, where much research now focuses on hydrology, on quaternary environmental change, and on glaciology.

A clear difference between human and physical geography is the general location of the journals they contribute to. Many of those listed for human geography contain geography in the title (Table 3): in most the majority of papers are written by geographers, defined as those currently affiliated to a university department of geography. This does not mean that human geographers do not publish in inter-disciplinary journals, or in those dedicated largely to other disciplines – though examples of the latter are relatively rare save in some specialised areas. But it does mean that human geography is to a considerable extent a relatively closed set of fields and associated communities. This is much less so with physical geography. Few of the journals listed in Table 4 are identified as geography journals, although a number are edited by physical geographers. Unlike their human geographer colleagues, physical geographers are much more likely to publish in inter-disciplinary science journals (many more of them American in origin), where their contributions form only a minority of the contents.

This difference between human and physical geography is further illustrated by Table 5, which lists the 23 most-cited journals by members of geography departments in the UK 2001 Research Assessment Exercise (RAE). This exercise is used to rate all departments on a seven-point scale for the allocation of unhypothecated government research funding.¹ All individuals identified as members of a department's research staff have to identify four publications which illustrate their best work in the preceding five years. Most of the items submitted by geographers (91 per cent) were journal articles, with a total of 3870 listed. (For further details, see Johnston, 2003a.) The journals that were only cited by physical geographers are indicated by an *: very few of them published in the other journals – including the general geography

¹ An eighth point (6*) was added in 2003, without any further evaluation and three of the top-graded departments (5*) in 2001 were promoted to this new level.

journals (*Transactions of the Institute of British Geographers*, *Annals of the Association of American Geographers* and *Geoforum*).

Of the journals cited by physical geographers only one, *Progress in Physical Geography*, is an explicitly geographical journal, although only 67 per cent of the papers that it published in 2001 were authored by geographers (as defined above) as were 60 per cent in 2002. *Earth Surface Processes* was established by an Institute of British Geographers Study Group – the British Geomorphological Research Group – but again geographers authored only 67 per cent of its papers in 2001 (Volume 26). Both journals are in effect multi-disciplinary. The other six are explicitly so, and are journals in which papers from geographers form a minority: in *Hydrological Processes*, for example, only 22 per cent of the papers in Volume 15 (1-6), 2001, were by geographers; in the *International Journal of Remote Sensing* the comparable figure for Volume 22 (1-10), 2001, was 13 per cent of 130 papers; for the *Journal of Hydrology* (Volume 227, 2000) it was 8 per cent of 62; for *Journal of Quaternary Science* (Volume 16, 2001) it was 29 per cent of 64; and for *Quaternary Science Reviews* (Volume 19, 1-6, 2000) it was 19 per cent of 51. (See also the earlier data for six of those journals in Gregory et al, 2002.)

Physical geographers, then, are putting their best work in journals outwith their own discipline, subdiscipline or even field, aiming at audiences of topical specialists within the environmental sciences among whom physical geographers are a minority only. Human geographers, on the other hand, are placing much more of their best material in geography journals, whether those serving the discipline as a whole (within which human geography predominates), those aimed relatively widely within the subdiscipline of human geography (such as the *Environment and Planning* journals), or those aimed at a specific topical field only (such as *Journal of Historical Geography* and *Political Geography*).

Geography is divided into two separate subdisciplines – human and physical – each of which is fragmented into a number of distinct fields. Each of those fields operates to a considerable extent as a separate academic community with its own norms, practices and debates; only occasionally do they come together in wider discussions beyond the initial training stages. In addition, physical and human geographers interact beyond their disciplinary boundaries in somewhat different ways. Thus it might be concluded that the academic discipline of geography is little more than a holding company for researchers who operate in quasi-independent communities, some of which are populated mainly by outsiders.

Why fragment and with what consequences?

The reasons for fragmentation within all academic disciplines are relatively straightforward to discern – and geography is by no means different in being divided into separate intellectual communities. The volume of knowledge is expanding, much more rapidly than the number of academics – in part because of the pressures for productivity and in part because of the major technological and other advances which have not only made some (especially technical) practices much easier but also facilitated questions being addressed that were previously unanswerable. It is impossible for individuals to assimilate that volume of knowledge – or even become generally acquainted with it, as were the polymaths of old: today, they must specialise

in just a section of knowledge if they are to keep on top of the amount published annually. Furthermore, in many fields within the subdisciplines the amount of technical knowledge needed for state-of-the-art research calls for substantial periods of training: even then, in many cases no one individual can master it all (or have the needed technology available) so working in groups with a specialised division of labour becomes the norm. As a consequence, some become specialists in fields that are much wider than geography. This has especially been the case in the last thirty years with both remote sensing and GIS, technologies that facilitate many advances in geographic research, in which geographers have played leading roles in developing applications and for which geography departments provide much of the basic training for potential users. Both fields have their own learned societies, journals and conferences in which geographers are a prominent minority, with many of them identifying themselves professionally with those specialist fields rather than with geography, in whose university departments they work: their intellectual projects spread well beyond their political milieux.

Such reasons for fragmentation are common to virtually all disciplines, certainly in the sciences. There is, however, a further reason for fragmentation within human geography, which it shares with other social sciences though not the environmental sciences. In the latter, there is general agreement regarding the nature of science as knowledge-production: they share a world-view which privileges observation and measurement, and defines additions to knowledge as statements regarding how the world works that can be validated and replicated by comparable experimentation. Although that world view, with its associated epistemology and ontology, is shared by some human geographers, others among their colleagues reject it (see chapter 5). For them, there is no 'reality' independent of the observers: their science involves studying, appreciating (but rarely explaining and never predicting), and relating the actions of knowing subjects. They deploy separate epistemologies and ontologies from those applied by both physical geographers as well as some human geographers – according to Sheppard (1995) the latter are divided into 'spatial analysts' and 'social theorists' – and in general study particular subject matter: cultural geography, for example, is predominantly the preserve of 'social theorists' in Sheppard's terms.

For these additional reasons, geography appears to be an even more fragmented discipline than many others, despite many claims that it has three basic concepts at its core – space, place and environment – and remains one of the few disciplines that provides such a wide range of teaching and initial professional training across the sciences and social sciences. But, it is frequently claimed, there is no core, no integrating foundational concept with the disappearance of the region from that position – and of the map as the predominant geographical 'tool'. Certainly there are attempts at integration: many physical geographers, for example, combine with others in building models of environmental systems, of especial value in assessing contemporary changes and their likely impacts. And the boundaries between fields are porous, at least for some workers. But the overall impression remains: geography is an umbrella organisation with a lot of separate components having relatively little in common with regard to their research agenda, even though they form the parts of generally-offered degree programmes.

What are the consequences of this fragmentation? One major associated problem is a lack of appreciation outside the discipline as to what geographers do, an issue perhaps

more problematic for them than for those in some other disciplines (history or physics, say) because of the general association of geography with a particular subject matter that is now, at best, only on the margins of the academic discipline's concerns. As noted earlier, in the 1950s two terms were key to geographers' definitions of their subject matter and their approach – the region and the map. Although region is still commonly used by geographers, defining and accounting for regions is no longer a dominant activity: knowing what is where may be central to vernacular understandings of geography, but such background information is sometimes of marginal relevance only to fields within the academic discipline. Maps, too, have been marginalised: there is little training in map construction and use in geography degree programmes, and many pieces of geographical writing see no need for cartographic illustration. Map-making skills have moved from the field and drawing-board to the laboratory and keyboard, involving members of a separate profession using remotely-sensed imagery, geographical positioning systems and computers. So too have the production of maps to display patterns of interest to geographers: standard computer packages provide geographers with illustrative material without any deployment of pen and ink. (On the contemporary use of maps in geography – especially human geography – see Dorling, 1998; Martin, 2000; Wheeler, 1998.)

Political and intellectual projects

Given the absence of a core to the discipline and a definition that can embrace the great variety of activities now undertaken under geography's academic umbrella, two potential, interlinked, problems arise. The first concerns political projects, and the second intellectual projects.

Regarding political projects, few academic disciplines can feel entirely secure within the contemporary rapidly changing map of knowledge: there is always the fear that their approaches will be rendered obsolete by developments elsewhere, that their utility (however defined) will recede, and that the demand for student places on undergraduate degrees and postgraduate programmes will decline. The discipline has to be seen – and must therefore portray itself – as 'relevant': the knowledge it produces must add value to the society that pays for it, and students must see the potential (for their careers as well as their roles as citizens) to be derived from obtaining qualifications in it. Geographers, like the members of all other disciplinary communities, must defend their territory and promote their importance.

Such a political project needs an associated intellectual project – or at least it probably has a better chance of success if it has one. To some extent, the existence of geography as an academic discipline with a presence in many universities is a self-sustaining enterprise – as long as students are enrolling, and then getting jobs (whatever the occupations and their relevance to having studied geography) the political project may be relatively unimportant. But complacency is rarely sensible. The discipline has to retain an appearance of vitality and relevance. How does it do that? How does it present an intellectual project that will sustain its political goals?

The answer to this varies from context to context, and can be briefly illustrated by three cases from different countries. In the United Kingdom, geography has been a strong discipline in the country's secondary (high) schools for over a century, with large numbers of students studying it among their subjects in the public examinations

that precede university entrance. For much of the twentieth century, university geography departments could readily fill their places with students who were well-grounded in the discipline (as it was practised then), many of whom went back to the schools as geography teachers after graduation (see Johnston, 2003b). The flow of students remains fairly strong in the early twenty-first century, although few graduates now become school-teachers. But several departments have experienced recruiting difficulties recently and some have been closed. The political project to defend geography in the universities involves defending its presence in the schools. Without such a defence, the discipline may wither in the universities: fewer students means less income and decreased viability for geography departments (Cooke, 2002). This is the situation that has evolved over recent decades in Australia, where few independent departments of geography are now to be found in the universities. Instead, geography has been merged into multi-disciplinary programmes, from which its name may be absent, and a small number of geographers is left with a difficult political task (Holmes, 2002).

If the political project faces no major problems regarding viability, an associated intellectual project may be less crucial. The flowering of so many quasi-independent fields within British geography departments in recent years (especially within human geography) may have been substantially facilitated by the ease of attracting students: academic geographers could follow their research agenda wherever they led them, irrespective of the impact on the discipline's coherence, because there were students ready to follow the lead. But where that is not the case, an intellectual project is necessary.

This has certainly been the situation in the United States where, in contrast to the British experience, geography has been weak in the country's high schools and is absent from a majority of the country's universities. Very few students have any experience of geography beyond basic classes in primary schools, and so don't proceed to university intending to read for a degree in the discipline. University geography departments thus have to attract students through the quality and perceived value of their courses. While the region was at the core of the discipline's scholarship, this was most commonly done by departments offering introductory courses in world regional geography, hoping to convince at least some of the takers to opt for more courses in systematic subjects, and perhaps proceed to graduate school for a full training in the discipline. More recently, the focus of the attractive force has changed. As Hill and LaPrairie (1988, p. 26) put it:

Americans, consummate pragmatists, will judge geography by what it proves it can do to help them improve their lives and their worlds, as they define them. Significant research will be the major criterion of status in academe. Teaching quality will count with students at all levels.

Increasingly, those high quality courses are being offered in technical fields – notably Geographical Information Science – which proffer skills in high demand in the labour market: students come to geography because getting those skills brings labour market advantages, and surveys in the mid-1990s showed that increasingly departments of geography are hiring individuals who can teach them (NAS-NRC, 1997). At the same time, geography is being promoted as a research discipline that deploys those skills in

a wide variety of arenas, including studies of environmental processes and society-nature interactions, plus 'homeland security' (Cutter et al, 2003).

The existence of a political project – defending and advancing the interests of university departments of geography, and thus of geographers – thus stimulates thoughts about an intellectual project as a foundation for the political lobbying: geography needs to prove its relevance in certain arenas. The chosen intellectual project may not be supported by all, of course: there are contests over the technical focus currently deployed in the United States, for example, and the consequent downplaying of other activities, notably those involving 'social theorist' human geographers (Johnston, 2000)

Conclusion: does fragmentation matter?

Contemporary academic disciplines are necessarily fragmented into specialist subdisciplines and fields: without it, scientific progress would be substantially hindered. Fragmentation can create problems, however, since it can readily stimulate centrifugal forces that are much stronger than any countering centripetal forces. Individual academics – in our case, geographers – are drawn to work in small communities, many of which are relatively isolated from other communities within their discipline, and indeed may have more contacts outwith than within their parent discipline. As this happens disciplinary cohesion declines. Individuals identify with it because it was the focus of their training and provides them with a career, but their scholarly interests mean they have more in common with people having other identifications than with members of their own discipline as defined in the academic division of labour.

Whether such fragmentation and centrifugal change is detrimental to a discipline, and whether it is a particular problem for geography and geographers, are moot points. For three physical geographers, such fragmentation within geomorphology has resulted in a very significant change in the nature of work in their field (Smith et al, 2002). The shift from denudation chronologies to process-related studies initiated in the 1960s was intended to provide a sounder basis for appreciating long-term landscape change. Instead, there has been what they term a diaspora as various groups of physical geographers have 'become more closely allied with other professions and increasingly distanced from the mainstream' (p. 414). Indeed, in their view the mainstream is drying up: work deploying process studies as the basis to landscape appreciation has resulted in 'researchers certain that they know the answers, but possibly ignorant of the questions' since they invariably start with the processes they wish to understand rather than the landscape changes they wish to explain. For them:

If geomorphologists ignore their central role in the study and understanding of landscape, there is the danger that for all their short-term appeal, our new clothes might turn out to resemble those of the emperor. Moreover, as we discard our traditional garments, others are quickly coming behind, trying them on and finding that they fit quite well!

Clearly, to them a discipline – or subdiscipline – has to have a central purpose that distinguishes it from others, which for geomorphology should be the explanation of landscape change. Without that central purpose, fragmentation into specialist

subcommunities is likely to lead to, at best, inter-disciplinary competition and, at worst, disciplinary decay: no core means, ultimately, no future because no distinctiveness.

Geography is currently considerably fragmented, therefore, into a discipline that embraces a wide range of disparate intellectual projects which, whatever their separate value, do not apparently cohere around key disciplinary concepts and goals. One of geographers' long-established concepts, the region, has sometimes been defined as a whole that is greater than the sum of its parts, an organic unity that reflects the interacting diversity within places. The region may well have been a useful metaphor for geography itself for some time: it isn't now.

Geography as a fragmented academic discipline lacks a coherent intellectual project. Rather, it is a congeries of disparate projects that share a dwelling but not a home. Furthermore, geography as an academic discipline bears little resemblance to geography as recognised subject matter outside the universities. If the former discipline is healthy and vibrant, this may not be a problematic situation. But if it is under threat, then it needs a political project to defend it – which may call for an intellectual project which rejects some of the fragmentation and seeks to impose and imbue a common purpose.

But should that common purpose mean a coherent core and adherence to a dominant disciplinary project that is more constraining than enabling? Should geographers, as Clayton (1985) advised, restrict their range of activity – ‘do less to do anything better’? Should such retrenchment, as Smith et al (2002) argue, refocus on certain traditional concerns – defined as much as anything by the spatial scale of their investigations? Or should they, as Tickell suggests in the epigram to this chapter, continue to let as many flowers bloom as seeds are fertilised, to continue pressing against (even beyond) the subdisciplinary research frontiers in order to advance knowledge? For the discipline as a whole, if Clayton's advice were followed this could be the prelude not only to interminable and unproductive debates about what is and isn't geography (thereby potentially limiting academic freedom) but also to disciplinary stagnation. For individuals, specialisation is clearly absolutely necessary, and each university department will undoubtedly have to decide to concentrate its human, technical and other resources in order to reap their potential, but within those parameters Tickell's advice is surely the most sensible: researchers should develop skills and pursue research interests that they perceive as best for the advancement of knowledge, and which are recognised as such within wider intellectual communities. If topics like landscape change are ignored by geographers, then if they are important enough scholars will return to and reinvigorate them (and will it matter whether they are geographers?).

Will accepting this path mean the absence of a disciplinary core? Yes, certainly sometimes, and perhaps for most of the time. Some think that the current absence of a clearly-defined, commonly-agreed core is unfortunate with regard to geography's political project.

... increasing diversity and specialization has also been accompanied by increased compartmentalization, fragmentation and division within the subject. The sub-disciplinary spokes, as it were, have multiplied in number at

the same time that the discipline's hub – the core of what makes it a distinctive field of academic inquiry, what gives it, and us, a distinctive identity – has become ever more difficult to discern. To be honest, in some published work the 'geographical' component or perspective is all but non-existent ... there are those who see no problem at all, and who celebrate the blurring of the boundaries between geography and other disciplines. ... But I ... feel the need to defend geography's independence and distinctiveness. (Martin, 2002, p. 389).

Martin does not tell us what that hub of distinctiveness comprises, however.

And yet there will always be elements of a distinctive core. To deploy another geographical metaphor, the practice of geography, like any other discipline, can be likened to a major river. All of the water it carries to the sea comes from defined catchments; in its middle reaches, the separate streams combine in a single channel; and in its lower reaches braiding is common, as different segments pursue their own course, occasionally recombining. For geography, the catchments are the origins of their students, the middle-reach channels are the undergraduate and postgraduate programmes within which new geographers are socialised into the discipline; and the lower-reach braiding reflects the specialist subdisciplines and fields into which researchers migrate – occasionally recombining with those from other channels as their interests converge (for a time at least). Those braided channels form the contemporary intellectual project that continually renews the vitality of the degree programmes (a form of reverse flow unknown to hydrologists?!). The political project for geographers involves sustaining the health of the entire river basin.

Furthermore, most of those programmes impart a common core, if not a central focus which the discredited region used to provide. Anne Buttner (1993) identified four basic metaphors that underpin most geographical work, but which have varied in their relative importance over time and space. These can be expanded into five, as follows:

1. The *world as a mosaic* of patterns and forms, a complex map of myriad small areas with particular characteristics reflecting the interaction of environmental conditions and human activities. Much geographical scholarship involves mapping that mosaic in all its variety and detail and conveying the observed areal differentiation of the earth's surface to a wide audience.
2. The *world as a machine*, comprising a large number of complexly interacting systems in which everything is both cause and effect: identifying and representing those systems is the basis for understanding cause and effect in human and, especially, environmental systems, involving sophisticated methods for collecting and analyzing spatial data.
3. The *world as an organism*, in which the whole is greater than the sum of the parts but which in turn comprises a large number of subsidiary organisms, local complexes – regions?! – with similar characteristics. Researchers have identified these organic elements, places in which the co-presence of various phenomena creates something more than just the sum of their parts – hence the French notion of characteristic *genres de vie* for each *pays*.
4. The *world as a text*, in which the landscape is among the texts interpreted to appreciate its creators' intentions and cultures (an activity also associated with both archaeology and, in different ways, some forms of theology).

5. The *world as an arena*, with places as the contexts within which (possibly unique) events occur: places are the contexts for learning and behavior. Most work undertaken by geographers and most teaching within geography departments illustrates one or more of these metaphors.

Geography, then, does bring particular perspectives to the study of the great diversity of the earth. Its intellectual project involves deploying those metaphors, implicitly if not explicitly, in the advancement of knowledge: most of its practitioners have been trained in those contexts, which in turn informs how they approach their chosen subject matter, in both their teaching and their research. In pursuing that project, the discipline is necessarily fragmented. Individual geographers specialise in those fields that are relevant to the areas of knowledge they wish to advance, and in their research 'talk' mainly to others with similar goals, whatever their disciplinary affiliations. But they bring that specialised knowledge into geography through their teaching, thereby ensuring its vibrancy and relevance to contemporary scientific concerns.

The political project involves selling that intellectual project, in ways that are sensible in the local context – as Americans have seen in recent years with their growing relative emphasis on particular technologies for analysing geographical patterns and processes: they are currently promoting the machine and mosaic metaphors. Intellectual vitality is a (the?) necessary component of a viable academic discipline, and that vitality comes – as Tickell suggests – from pressing outwards at various points on the frontiers of knowledge from a foundation of shared perspectives. That vitality almost of necessity requires fragmentation, as groups choose the directions they want to follow and individuals choose which groups they want to associate with. Thus the fragmentation – which you will find in virtually all contemporary academic disciplines – is the dynamo of academic advancement. The political project involves selling it in the local 'market-place', alerting potential geographers to the goods on offer within the holding companies that are university geography departments and seducing the undecided to sample its wares and choose their own intellectual directions from the many to which they will be introduced. Fragmentation is the path to enlightenment: retreat within bounded territories is the prelude to defeatism and eventual disappearance.

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Table 1. The chapter titles in *American Geography: Inventory and Prospect* (1954)

The field of geography	
The regional concept and the regional method	
Historical geography	The geographic study of population
Settlement geography	Urban geography
Political geography	The geography of resources
The fields of economic geography	
Marketing geography	Recreational geography
Agricultural geography	The geography of mineral production
The geography of manufacturing	Transportation geography
Climatology	Geomorphology
The geographic study of soils	The geographic study of water on the land
The geographic study of the oceans	Plant geography
Animal geography	Medical geography
Physiological climatology	Military geography
Field techniques	The interpretation of air photographs
Geographical cartography	

Table 2. The chapter titles in *Geography in America* (1989)

Foundations of modern American geography	
Geography in American education	
<u>Environmental Processes and Resources</u>	
Biogeography	Climatology
Geomorphology	Energy geography
Water resources	Coastal and marine geography
<u>Historical and Cultural Contributions to Geographic Understanding</u>	
Historical geography	Cultural ecology
Cultural geography	
Environmental perception and behavioral geography	
Geographical research on Native Americans	
<u>Analysis and Management of Societal Growth and Change</u>	
Population geography	Regional development and planning
Industrial geography	Transportation geography
Contemporary agriculture and land use	
The geography of recreation tourism and sport	
<u>Assessment and Management of Hazards and Infirmity</u>	
Hazards research	Medical geography
Aging and the aged	
<u>International Understanding through Regional Synthesis</u>	
Perspectives on Africa in the 1980s	Latin America
Asia	Soviet and East Europe
Study of Canadian Geography	
<u>Emerging Perspectives on Geographic Inquiry</u>	
Political geography	Geography from the Left
The urban problematic	Geographic perspectives on women
<u>Analysis and Display of Geographic Phenomena</u>	
Cartography	Remote Sensing
Mathematical and statistical analysis in human geography	
Geographic Information Systems	

Table 3. The subjects of annual ‘progress reports’ published in *Progress in Human Geography*, and related journal titles

Geography and ethics	<i>Ethics Place and Environment</i>
Geography and gender	<i>Gender, Place and Culture</i>
Geography and public policy	<i>Applied Geography</i>
History and philosophy of geography	<i>Progress in Human Geography</i>
Place and region	
[Economic geography]	<i>Economic Geography</i> <i>Journal of Economic Geography</i>
Geography and development	
Geographies of exchange and circulation	<i>Journal of Transport Geography</i>
Geographies of production	
Geography of retailing	
Political geography	<i>Political Geography</i> <i>Space and Polity</i> <i>Geopolitics</i>
Cultural geography	<i>Cultural Geographies (Ecumene)</i>
Geographies of consumption	<i>Society and Space</i>
Cultural landscapes	
Social geography	<i>Social and Cultural Geography</i>
Leisure and tourism	<i>Tourism Geographies</i>
Geography of welfare and social exclusion	
Geographies of food	
Medical geography	<i>Health and Place</i>
Population geography	<i>International Journal of Population Geography</i>
Historical geography	<i>Journal of Historical Geography</i>
Urban geography	<i>Urban Geography</i>
Rural geography	<i>Journal of Rural Studies</i>
Environmental issues	<i>The Geographical Journal</i> <i>Applied Geography</i>
Cartography	<i>The Cartographic Journal</i> <i>Cartographica</i>
Geographical Information Systems	<i>International Journal of Geographical Information Science</i>
Qualitative methods	
Quantitative methods	<i>Geographical Analysis</i>

Table 4. The subjects of annual ‘progress reports’ published in *Progress in Physical Geography*, and related journal titles

[Geomorphology]	
Arid geomorphology	<i>Earth Surface Processes and Landforms</i>
Fluvial geomorphology	<i>Zeitschrift für Geomorphologie</i>
	<i>Geomorphology</i>
	<i>Journal of Arid Environments</i>
Glaciers	<i>Quaternary Science Reviews</i>
Mid-Holocene sea level change	<i>Holocene</i>
Late Holocene sea level change	<i>Journal of Quaternary Science</i>
	<i>Journal of Glaciology</i>
	<i>Palaeogeography, Palaeoclimatology,</i>
	<i>Palaeoecology</i>
	<i>Arctic and Alpine Research</i>
Hydrology	<i>Journal of Hydrology</i>
	<i>Hydrological Processes</i>
	<i>Water Resources Research</i>
	<i>Regulated Rivers</i>
Mesoscale beach processes	<i>Journal of Coastal Research</i>
[Climatology]	
Micro- and meso-climatology	<i>International Journal of Climatology</i>
Applied climatology	<i>Climate Research</i>
The North Atlantic oscillation	<i>Climatic Change</i>
Global warming	<i>Global Environmental Change</i>
	<i>Boundary Layer Meteorology</i>
	<i>Atmospheric Environment</i>
[Biogeography]	
Biogeography	<i>Journal of Biogeography</i>
Tropical fire ecology	<i>Global Ecology and Biogeography</i>
Molecular biogeography	
Savannas	
Tropical rain forests	
Biodiversity	
[Soils]	
Crusting soils	<i>Catena</i>
	<i>Geoderma</i>
[Methods]	
Geographical Information Science	<i>International Journal of Geographical</i>
	<i>Information Science</i>
	<i>Computers and Geosciences</i>
Remote sensing	<i>International Journal of Remote Sensing</i>
	<i>Remote Sensing of Environment</i>
Dating methods	<i>Quaternary Geochronology</i>

Table 5. The journals with most papers published by geographers in nominations for the RAE 2001 evaluation

Journal	Number of citations
<i>Environment and Planning A</i>	141
<i>Transactions, Institute of British Geographers</i>	102
* <i>Hydrological Processes</i>	90
<i>Environment and Planning D: Society and Space</i>	59
* <i>Earth Surface Processes and Landforms</i>	97
* <i>International Journal of Remote Sensing</i>	51
* <i>Journal of Quaternary Science</i>	57
<i>Regional Studies</i>	46
* <i>Geomorphology</i>	57
<i>Urban Studies</i>	41
* <i>Quaternary Science Reviews</i>	60
<i>Geoforum</i>	41
<i>Journal of Historical Geography</i>	49
<i>Progress in Human Geography</i>	28
<i>Annals of the Association of American Geographers</i>	24
<i>Political Geography</i>	38
* <i>Progress in Physical Geography</i>	33
* <i>Holocene</i>	50
* <i>Journal of Hydrology</i>	33
<i>Economic Geography</i>	20
<i>Geographical Journal</i>	32
<i>Area</i>	44
<i>Applied Geography</i>	34

Journals with a * preceding their title are identified here as nominated almost exclusively by physical geographers