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Commentaries

The human geography of human geography

There is a human geography to geography. Mike Crang's commentary in this journal on the distribution of postgraduates in UK geography departments provides evidence for this assertion (Crang, 2000). Two issues later and Noel Castree asks that we look a little more closely at the practices within our universities (Castree, 2000). In this commentary we attempt this, reinterpret Crang's tables, provide a little more information, and begin to ask: what really shapes the human geography of human geography?

The academic year 1999/2000 has seen more rankings of academia in the United Kingdom than were ever produced in one year before. "[A]udit fever has gripped British Geography in its cold and unforgiving embrace" (Thrift and Walling, 2000, page 96). Both *The Times* and *The Guardian* newspapers had a go at ranking departments; the Higher Education Funding Council for England (HEFCE) produced performance statistics on participation and progression that ranked universities (HEFCE, 1999); and of course we entered the period of census taking for the 2001 Research Assessment Exercise (RAE) with departments each preparing their own offering for ranking (déjà vu: Dorling and Cornford, 1996). However, neither RAE scores nor the newspaper rankings predict Crang's postgraduate numbers well. Intriguingly it is the inverse of the HEFCE figures on undergraduate participation referred to above which best fit the distribution of postgraduates. How can this 'elite' relationship be pictured and what might have caused it?

Figure 1 shows the relationship between Crang's count of the number of Economic and Social Research Council (ESRC) studentships awarded to a geography department (on the *Y* axis) and the HEFCE measure of how 'participatory' the institutions containing the department are (on the *X* axis). The HEFCE measure is of the percentage of children that each university admits from 'low-participation neighbourhoods'. These neighbourhoods were identified by geographers at the University of Liverpool and contain roughly 25% of all 17 year-olds in Britain. Thus none of the 26 institutions shown admits even half this proportion. Three of the four institutions that admit over

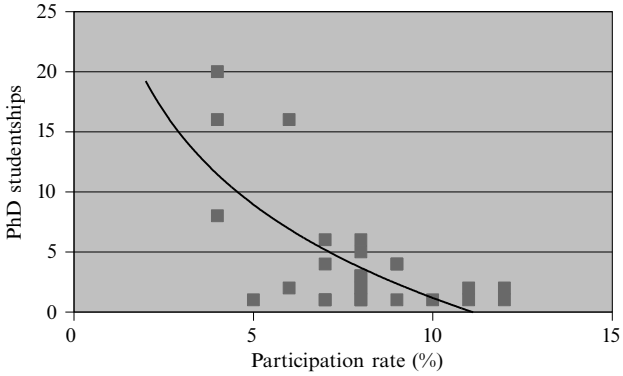

Figure 1. ESRC PhD studentships by undergraduate participation rate in the United Kingdom: 1999/2000. The Open University and Birkbeck University are not given participation measures by HEFCE both because of the progressive nature of their intakes and because they take many mature students; hence the figure includes only 26 institutions receiving ESRC students. Some points overlap.

half of all the ESRC-funded postgraduate students admit the lowest proportions of undergraduates from low-participation neighbourhoods. The fourth, University College London, has the advantage of geography—being located in London within a short distance of many of these areas of low undergraduate participation (but still taking only 6% of its students from them). It is with this observation and graph that our short tale of the human geography of human geography begins.

For our tale what matters is to begin to see the connections between various geographies. The admission of students both at undergraduate and at postgraduate level is strongly tied to the human geography landscape of Britain. When HEFCE produced its measures of participation at the end of 1999, almost all northern institutions did better than their southern counterparts (outside London). In particular, Durham admitted twice as many students from low-participation neighbourhoods compared with Bristol, Cambridge, or Oxford. The major reason for this was that students often dislike travelling great distances from home and the low-participation neighbourhoods themselves are located mainly in the North, Scotland, Wales, and in Inner London (Brown and Batey, 1994). Why, though, should the eventual location of ESRC-funded postgraduate students be so strongly the inverse of this geographical pattern?

The ESRC does not decide who to admit to ESRC-funded postgraduate places. One criticism of Crang's commentary is that he reifies the ESRC. It is geographers who make up the board of examiners who mark the applications. However, three factors need to come together for a student to be admitted: (1) they must apply to a department, (2) the department must encourage those applications, (3) they must be successful in the competition. These three factors are not independent and all tend to lead to a concentration of students into a few (mainly southern) prestigious institutions. The provision of master's courses is one factor, but they are as much part of the distribution we wish to explain as they are an explanation. Why should it be that ESRC PhD students follow the swallows and tend to flow south in the autumn?

It is well known, although undocumented, that many more potential postgraduate students contact 'prestigious' departments in search of a PhD place. They do this because, among other things, the university system encourages the idea of prestige. You gain prestige from going to university and universities actively encourage this process in their publicity material. In particular, the mental maps of overseas postgraduates may be particularly shaped by this. Universities grade students in order of prestige (3rd/2ii/2i/1st) and socialise undergraduates to believe in such hierarchies. In a virtual or vicious circle (which depends on where you are standing) departments are partly ranked by how many PhD students they attract and hence a feedback system reinforces prestige. This may be further reinforced as PhD students themselves (from a minority of departments) become academic staff (in the majority of departments) and can explicitly or implicitly recommend their students to follow their personal trajectories.

Step back for a moment to where this process begins. In the United Kingdom children take the modern-day equivalent of the 11-plus at the age of 17 or 18 (A levels for university entry separate roughly the same proportion for state higher education as the 11-plus selected for state grammar school education a generation ago). From that point on, the majority (80%) who undertook a comprehensive education are taught that some places to study are better than others. By the time they reach their third year of undergraduate study they learn that 'prestigious' employers visit only particular universities to recruit. Furthermore, ties to their home location are weakened by three years' study away. Given these processes it is hardly surprising that applications for postgraduate study become geographically concentrated towards the universities where many of the most 'successful' went at the age of 18 (those from neighbourhoods where A levels achieved are highest) and to universities from where 21 year-olds find it easiest to gain very well paid employment.

One vital fact to consider from the graph above is the higher education institutions which are not there. Most 'post-1992' university geography departments are rarely awarded a single ESRC human geography studentship, are never ranked above 3 in the RAE, and find it extremely difficult to gain external research income. Almost all these universities have a higher undergraduate participation score than any of the 'old' universities which are awarded the postgraduate students or win most of the research grants and contracts. The relationship is clear, and the age of a university is more important than its geographical location in this instance. The relationship is further strengthened in that it is far more efficient and easier for departments who receive many PhD applications to encourage those applicants to apply. They can show them a department where they will be 'at home' with similar applicants to themselves and their efforts in encouragement are usually rewarded with a few successes (whereas efforts elsewhere are often rewarded with no successes as a result mainly of having fewer applicants). Finally, although the data are not publicly available, it is almost certainly the case that a greater proportion of those applications are successful than applications from less 'prestigious' institutions. For one, their potential supervisors have more experience of applying successfully and so should know better how a successful application should read. A similar story can be told of how research income is won.

Just to show that we too can play the ranking game, our table 1 is Crang's table 2 minus his table 1. This table lists non-ESRC studentships. Noticeably in this table there is no clear north – south divide. Why does this pattern of greater equality emerge in non-ESRC funded studentships? Well, it is always hard to knock Oxford and Cambridge from the top of tables (overseas fee-paying postgraduates are one reason for that), whether it is for postgraduate numbers as here, or for having the lowest undergraduate 'participation' rates. Other factors can only be speculated about. Physical geographers and postgraduates may prefer to work where the landscape is a little more interesting

Table 1. Geography departments with more than 10 non-ESRC funded students and 1996 RAE rating (source: Crang, 2000, table 2 less table 1).

University	Number of students	RAE rating
1 Cambridge	66	5*
2 Oxford	48	4
3 Leeds	46	5
4 Aberystwyth	46	4
5 Southampton	41	5
6 King's College London	41	3a
7 Sheffield	40	5
8 Birmingham	34	4
9 Exeter	31	4
10 Newcastle	31	5
11 Edinburgh	30	5*
12 Bristol	29	5*
13 Durham	26	5*
14 Royal Holloway	25	5
15 Nottingham	24	4
16 University College London	23	5*
17 Liverpool	23	4
18 Aberdeen	17	3a
19 Sussex	16	3a
20 Manchester	14	4
21 Lancaster	14	4
22 Queen Mary and Westfield College	14	4

and industrial sponsorship may be easier, or where its acquisition is taken more seriously. Furthermore, particular departments may choose to concentrate more on gaining external research income to fund their students as that offers a better rate of return than does the effort involved in taking part in the ESRC competition. The particular geography of ESRC CASE studentships (not included in Crang's table 1) is skewed towards the departments with the highest research income. Different types of departments and universities adopt different strategies—often those which appear most rational to them. We do not all play exactly the same game.

Finally, a plea over the futility of this game. While the game of ranking is fun, just as for ranking secondary schools, hospitals, or local authorities, it is important to point out that ranking has detrimental effects. What figure 1 indicates is that, because there is so little variation around the trend, a particular institution's position in the ranking is largely determined by factors outside of its control. Should the good geographers of Oxbridge try to alter their undergraduate intake substantially they are likely to find that their universities are somewhat resistant to this and that their geography and history hinder their efforts. Similarly the graph suggests that even the most enthusiastic attempts to encourage students into postgraduate study are likely to alter intake only by a couple of ESRC-funded students for most institutions that take part in 'the game'.

Competition between geography departments is not necessarily going to produce a stronger more interesting discipline. We become introverted; we know all there is to know about other geographers and other departments, but less and less about the state of social science, science, engineering, art, business, and medicine, outside our discipline. Our values (in both senses of the word) as academics are more and more based on the opinions of our peers inside our subject area. Relevance simply within human geography is valued too highly and the latest trends within this very small subject are too happily adopted while we look over our shoulders to check that we are in line with the geography 'gang'. We are in danger of ranking ourselves into oblivion by comparing how we rate against each other rather than with the world outside geography. There is a geography to our geography departments. We, of all researchers, should understand how such things come about and that they are just as much a product of our collective histories as of our making—that much of the hierarchy comes from the positions of the universities we are in, to which we contribute only a small part but which produce a great deal of our reputations—and that we work and research in a country from whose sharp spatial social divisions we—and the human geography of our discipline—are not immune.

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Health-care commissioning, the modern NHS, and geographical information systems

The health reforms of the early 1990s gave UK health authorities a statutory requirement to monitor the health care needs of the populations they served and [together with general practitioner (GP) fundholders] purchase health services from 'provider units' (NHS trusts). This purchaser – provider split (or 'internal market') had important implications for the use of patient information and information technology (IT) services within the NHS (Levitt et al, 1999; Smith, 1990). In a previous editorial Wrigley (1991) reviewed the implications of the 1990 NHS and Community Care Act, which promoted market-based reforms in the health sector, for information requirements. In particular he outlined the importance of accurate, up-to-date, information contained in patient-administration and hospital-information systems and alluded to the potential role of geographical information systems (GIS). He suggests (page 7) that, given the changes in NHS structures, "it is clear that the 1990s are likely to see health-care GIS becoming a major IT tool of the demand or 'purchaser' side of the internal health-care market in the United Kingdom." The purpose of this commentary is to update this prediction in the light of the continued restructuring, and further reorganisation, of the NHS in the late 1990s. Despite the optimistic claims for GIS use, improvements in the quality and spatial coding of data and the billing and contracting pressures identified by Wrigley, we argue that there is little evidence that GIS has taken off as a technology within the 'new NHS'. There has been very little research in the United Kingdom on why this is the case, and we outline, in the final section of this commentary, a number of key issues that need to be addressed to rectify this situation. The next section summarises the relatively few studies that have been conducted to date and is followed by an overview of current NHS information needs.

Previous studies of GIS uptake

Gould (1992) drew attention to the relatively high levels of awareness of GIS amongst English and Welsh health authority directors of public health and information, and IT officers, but highlighted the relatively low-level nature of the operational tasks for which GIS and mapping packages were perceived to be useful. Applications tended to be dominated by the use of desktop mapping packages to highlight, for example, local population health needs. Other applications included the use of GIS in epidemiological studies, targeting resources, hospital demand analysis, and facility planning. However, there was a lack of a real understanding of the distinction between basic desktop mapping and more analytical GIS tasks.

Smith and Jarvis (1998) examine the changes in the use of GIS within the NHS since the early 1990s and predict the potential future impacts of GIS in the health sector. In particular, they suggest that GIS applications should mature from those largely concerned with identifying health needs and supporting service provision to studies involving a more integrated spatial analytical approach. They suggest that the lack of an NHS policy concerning GIS technology had meant that use has tended to be uncoordinated and applications have remained low level and operational in nature. They also found that, although there are informal networks where advice and ideas are exchanged with external agencies and organisations, there are few examples of data exchange related to specific GIS projects. In particular, there was a limited exchange of ideas between the GIS research community and the health sector. They argue that, although research within universities has drawn attention to the advantages of spatial statistics and GIS in areas such as disease mapping and health care planning, they have "not addressed the fundamental GIS needs of the NHS" (page 33).

Day-to-day uses of GIS in the profession may well differ from those of GIS academics engaged in health-related research. Closer integration between the two

groups of users is vital if GIS is to realise its full potential. The advantages of such work at the interface between the health service and academia has been shown in several UK demonstration projects (some of which were initiated under the ESRC Regional Research Laboratory initiative). Examples include the use of GIS in locality planning (Bullen et al, 1996), health needs assessment (Grundy et al, 1995), measuring health inequalities (Higgs et al, 1998), and the derivation of health-care facility-based performance indicators (Birkin et al, 1996). However, academics wanting to find out what GIS is *actually* being used for in health organisations are faced with a daunting task because there is no central source of information. We conclude our commentary by highlighting the need for research that redresses this situation and identifies current (and potential) uses of GIS within the 'new NHS'.

The 'new NHS' and information needs

The publication of the recent white papers *The New NHS* and *Our Healthier Nation* (Department of Health, 1997; 1998) has refocused the operational and strategic objectives of heath authorities and health-care providers. This has led to a three-tier system of health authorities, primary care groups (PCGs),[1] and health-care trusts. GP fundholding and aggressive competition and managerial styles are currently being replaced by partnerships between GPs, health authorities, and other purchasing bodies who commission care for local populations. All these organisations are concerned with: meeting the health needs of local populations, commissioning and providing services that meet these needs, and working together (and also with local authorities) in partnership to develop health-improvement programmes, as well as improving the quality and cost effectiveness of services.

The commissioning of services and resources will require more collaboration and the sharing of databases when undertaking needs assessments (Hausman and Le Grand, 1999). So, for example, many PCGs manage their own budgets for health-care commissioning and need to manage geographically referenced information on the requirements, and use, of health services within their areas. One of the main roles of PCGs is to improve the health status of their patients and to address health inequalities in their localities. Inevitably, this has implications for the nature and extent of data collected and, as Donn predicts, this suggests that PCGs "will be extremely information-hungry organisations" (1999, page 63). *Information for Health* (NHSE, 1998) outlines a new strategy for the next 5 – 10 years which aims to improve the reliability, availability, and dissemination of digital data. Despite the emphasis on improved information provision, management, and analysis there has been no explicit mention of the role of GIS for the 'new NHS' in recent policy documents. This is somewhat surprising given the wealth of academic projects that have demonstrated the potential utility of GIS in a range of application areas [see above and also Gatrell and Senior (1999) for a wider review]. Research is needed to provide an understanding of this apparent discrepancy between GIS usage in the academic and health-care sectors.

GIS in the 'new NHS'—a research agenda

There is an urgent need to gain better knowledge and understanding of the reasons why the NHS has not fully realised the benefits of GIS uptake. Work needs to investigate the implications of recent NHS policy changes on the increased use/need of geographically referenced data and GIS technology through a survey of the levels of GIS uptake in the primary and secondary health-care sector. This should include a review of the nature of GIS applications in the light of recent changes outlined in *The New NHS*, *Our Healthier Nation*, and *Information for Health* (and associated policy

[1] Groups of GP practices serving populations of between 50 000 – 250 000. Government policy suggests that many PCGs will eventually evolve into free-standing primary care trusts.

documents elsewhere in the United Kingdom). Furthermore, we need to obtain a more vigorous understanding of the reasons (for example, technical and organisational barriers) for variations in the use and wider application of GIS. Such research will also need to examine the nature and extent of intradata and interdata exchanges within the NHS given the perceived advantages of GIS as an integrating technology and the overarching aim of encouraging interagency collaboration to improve health and reduce health inequalities. This has obvious parallels with the 'joined-up government' agenda of the present UK government (Cabinet Office, 1999).

Research is needed to showcase the range of tasks for which GIS is currently being utilised. Examples of 'best practice' applications need to be documented and widely 'publicised'. Academic geographers need to be in a position to explore the potential use of other IT developments and initiatives (for example, NHSnet, NHS Direct, and Internet-based GIS) for sharing health data in the 'new NHS'. However, they will need to work with colleagues in other health-related disciplines to achieve this. The Health Special Interest Group of the Association for Geographic Information has organised workshops and conference sessions that have demonstrated the potential for GIS. As a result of the raised awareness of the nature of GIS arising from such laudable initiatives, the capabilities of GIS are now well recognised. Despite this, their use in the health policy sector in the United Kingdom has, in our view, been relatively limited and not fully realised and warrants investigation.

Such interdisciplinary investigation is timely for a number of reasons. First, there have been no widescale studies conducted, to date, which have looked at the implications of more recent organisational changes on spatial data handling and GIS usage. There is an urgent need to update the findings of studies conducted during the early 1990s when there was a different NHS policy regime. Second, despite extensive health-related GIS research in the academic sector, the tasks for which these technologies are being used in the NHS remain low level and operational, and dominated by the need to produce maps. This is in marked contrast to other policy sectors where GIS is being used extensively to address more analytical, and strategic, tasks. Contemporary research evidence is needed to elucidate whether GIS is being underutilised in the health-care sector and, if this is indeed the case, the types of factors that are influencing the nature of GIS takeup in such organisations. Comparisons need to be made with other sectors where the theoretical literature is more advanced [for example, planning practice (Campbell and Masser, 1995)]. Third, new developments such as the World Wide Web, NHSnet, and Internet-based GIS could have major operational benefits for primary and secondary health care. A number of studies from North America have drawn attention to the use of a Web-based system for accessing and analysing spatially referenced health data. However, there appears little evidence, certainly in the published literature, of similar initiatives in the United Kingdom. New technological developments may have major implications for monitoring health outcomes, as well as for commissioning and delivering health care. In our view, health-based GIS in the current policy climate is more relevant than ever, and this, in turn, leads us to call for a fuller consideration of the reasons why Wrigley's (1991) optimistic claims for GIS have arguably never been realised.

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