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Changing a Discipline in Universities and a Subject in Schools: British Geography in the 1950s-1970s.¹

Geography slowly established itself as an academic discipline within British universities in the late nineteenth and early twentieth centuries. The subject was increasingly being taught in the country's secondary schools and its teachers there believed its, and their, status would be enhanced if it was also present as a separate discipline in the main universities – notably Cambridge and Oxford; this was achieved through the lobbying efforts of, and financial support from, the Royal Geographical Society (RGS).² The first honours degree was however introduced at the University of Liverpool in 1917 and the first chair was established at University College London in 1903, although there was no honours degree there until 1919; a chair in geography and anthropology was created at Aberystwyth in 1918, the same year as the introduction of its honours degree. By the late 1940s there was a Department of Geography in virtually every British university and university college.³ The small numbers of geographers appointed to teach there struggled to gain an equality of esteem with other disciplines in both the sciences and the humanities, however, and with few exceptions their broad teaching responsibilities meant that many did not establish substantial research records and reputations.

The discipline's nature in most of those departments then was based on the views of one of its pioneers, (later Sir) Halford Mackinder, who had degrees in biology and history. He founded the School of Geography at the University of Oxford and later became a university administrator, a politician and a statesman; his geopolitical views dominated much foreign policy thinking in the early twentieth century.⁴ In an 1887 essay he argued that whereas many disciplines, not least physiology, trace the influence of forces, including those involving the interaction of man with his environment, geography traces spatial variability: 'I propose therefore to define geography as the science whose main function is to trace the interaction of man in society and so much of his environment as varies locally'.⁵ He argued that what is now called human geography but was then termed political

¹ I am grateful to David Burtenshaw, Kelvyn Jones and Nigel Thrift for information and comments on a draft of this essay and to two anonymous reviewers for valuable suggestions.

² See David R. Stoddart, 'The RGS and the Foundation of Geography at Cambridge', *The Geographical Journal*, 141, no. 2 (1975): 216-239; D. Ian Scargill, 'The RGS and the Foundations of Geography at Oxford', *The Geographical Journal*, 142, no. 4 (1976): 438-461; Eric Pawson, 'Oxbridge Geographies', in Rob Kitchin and Nigel Thrift (eds.) *International Encyclopedia of Human Geography* (New York: Elsevier, 2009), 56-62; Ron Johnston 'The Institutionalisation of Geography as an Academic Discipline', in Ron Johnston and Michael Williams (eds.) *A Century of British Geography* (Oxford: Oxford University Press for the British Academy, 2003), 45-90.

³ Terry R. Slater, 'Redbrick Academic Geography', *The Geographical Journal*, 154, no. 2 (1988): 169-180.

⁴ William H. Parker, *Mackinder: Geography as an Aid to Statecraft* (Oxford: The Clarendon Press, 1982); Brian W. Blouet, *Halford Mackinder: a Biography* (College Station, TX: Texas A&M University, 1987); Gerry Kearns, *Geopolitics and Empire: the Legacy of Halford Mackinder* (New York: Oxford University Press, 2009). Also very influential at Oxford, over a longer period, was Mackinder's first appointee there, Andrew J. Herbertson: more than 800 geography teachers attended the five summer schools he ran there and he published numerous school textbooks with his wife, Dorothy – see Leslie J. Jay, 'Andrew John Herbertson, 1865-1915' in T. Walter Freeman and Pierre Pinchemel (eds.), *Geographers: Biobibliographical Studies Volume 3* (London: Mansell, 1979), 85-92.

⁵ Halford J. Mackinder, 'On the Scope and Methods of Geography', *Proceedings, Royal Geographical Society and Monthly Record of Geography*, 9 (1887): 141-174.

geography rested on environmental foundations – it is ‘built upon and subsequent to physical geography’. Geographers, therefore, studied variations in the physical environment – its landforms, climates, soils, fauna and flora – within which variations in human occupance occurred. The result of those interactions between environment and human usage is a mosaic of regions, areas – at various scales – distinguished by their particular combinations of environment and community. His survey of the discipline’s scope and methods suggested that it provided a broad prospectus of science and culture rather than a relatively narrow specialism.

This general conspectus of the discipline was widely adopted across all of the country’s geography departments during the twentieth century’s inter-war period.⁶ There were some variations – an emphasis on environmental determinism in some cases, for example, on cultural variations in others – but the core of the discipline was widely recognised as regional geography. Through the separate study of the physical environment and its human occupance geographers defined and described regions as areas relatively uniform in their characteristics and distinguished as such from their neighbours. This approach dominated the curricula and syllabi of not only the university departments but also those of the schools, especially the grammar and public schools that provided the universities with their undergraduates, many of whom became school teachers post-graduation. The links between the two were strong, cemented by the Geographical Association, founded in 1893 – with Mackinder as one of the leaders – to promote geographical education.⁷

The Second World War saw many established geographers contribute their expertise to the military effort – as, for example, in the production of the Admiralty Handbooks.⁸ On their return to academic life many of them, plus their students, became increasingly dis-satisfied with their discipline’s nature – with what one referred to as ‘the present jumble of regional literature’ and another as ‘the banal factual boxes erected by the old men’.⁹ Influenced by changes in the related scientific and, increasingly, social scientific disciplines whose literature they accessed, and by major changes in the role of the state as a planner and facilitator of human welfare, they sought an alternative focus for their discipline, one that would gain it equality of status within the academy and enable its participation in that planning. This essay explores that search and the major transition it brought about, not only in the country’s universities but also in its schools.

Foundations: changing a university discipline

Much of the early stimulus for these shifts came from within physical geography, from those academics who – although most complied to a greater or lesser extent with the view that the discipline’s ultimate goal was regional delimitation and definition – focused much of their research attention, increasingly important to career trajectories, on understanding the physical environment.¹⁰ Most honours degree syllabuses included compulsory courses on aspects of that

⁶ ‘... geography is concerned with regional distribution’ – Percy R. Crowe, ‘On Progress in Geography’, *Scottish Geographical Magazine*, 54, no. 1 (1938): 7. See Sidney W. Wooldridge and W. Gordon East, *The Spirit and Purpose of Geography* (London: Hutchinson, 1958).

⁷ William G. V. Balchin, *The Geographical Association: the First Hundred Years, 1893-1993* (Sheffield: The Geographical Association, 1993).

⁸ Hugh D. Clout and Cyril Gosme, ‘The Naval Intelligence Handbooks: a Monument to Geographical Writing’, *Progress in Human Geography*, 27, no. 2 (2003): 153-173.

⁹ Peter Haggett, *Locational Analysis in Human Geography* (London: Edward Arnold, 1965), 185; Peter R. Gould, ‘Geography, 1957-1977: the Augean Period’, *Annals of the Association of American Geographers*, 69, no. 1 (1979), 139-151.

¹⁰ In the 1950s a group of academic geographers (who had entered the profession after war service) established and self-published a, short-lived, new journal – *Geographical Studies* – because they were concerned at the limited range of outlets for research paper publication that was hampering their career prospects: see Charles A. Fisher, ‘Editorial: the Third Generation’, *Geographical Studies*, 1, no. 1 (1954): 1-3;

environment – on landforms and climates, plants and soils – with a growing number of optional, more advanced courses in the later years. Among those sub-disciplines by far the largest, and probably the most popular, was geomorphology – the study of landforms; indeed, many pioneer geographers were trained as geologists and some geography departments emerged out of geology departments.

Previous centuries had seen many changes in ‘understanding’ of the earth’s environments,¹¹ but by the first half of the twentieth century the dominant geomorphological paradigm adopted by physical geographers focused on the long-term evolution of landscapes, set within a model of their evolution enunciated and promoted widely by an American geologist-geographer, William Morris Davis.¹² That comprised an ideal sequence of initial uplift of a landmass which was then subject to the erosive forces of wind, water and ice which slowly reduced that surface to a level plain, with intermediate stages marked by particular types of landform, as in river valley terraces. Research largely involved field mapping of those landforms from which the area’s position in the ideal-typical sequence could be deduced. The nature of the forces operating was almost entirely assumed, without any direct observation and measurement. The cycle of erosion was assumed to exist – with some deviations in particular circumstances – and the goal was to fit the observed landscapes into that model. Similar practices characterised the other physical geography sub-disciplines: vegetation assemblages were assumed to evolve towards a climax construction in models with teleological overtones, for example.¹³ And in climatology the main goal was to map key indicators, such as mean temperatures, from which regionalisations could be determined, with little attention to how those climatic variations were created – there was little meteorology.

Dissatisfaction with these models and their use focused on the absence of any appreciation of what Mackinder had called the ‘causative forces’: they provided no answers to the question ‘why?’ And while there was some interest in long-term landscape change increasingly attention focused on how the causative forces were currently operating – on processes. This required measurement. There was a tradition of climatic measurements being undertaken although most work relied on published data from meteorological offices and similar institutions. Climatologists had experience of analysing such data sets, although there was little sophistication in much of their work – as illustrated by a pioneering paper by Crowe (1933) and subsequent applications of his suggested methodology, which was itself set within the traditional regional description paradigm.¹⁴

The main change in the nature of physical geography since the Second World War was a move in focus away from form and towards process, away from a long-term evolutionary approach towards the study of contemporary processes involving the adoption of scientific methods for observing,

Robert W. Steel, *The Institute of British Geographers: the First Fifty Years* (London: Institute of British Geographers, 1983), pp.35-37.

¹¹ On which see Clarence J. Glacken, *Traces on the Rhodian Shore: Nature and Culture in Western Thought from Ancient Times to the End of the Eighteenth Century* (Berkeley, CA: University of California Press, 1967); Richard J. Chorley, Anthony J. Dunn and Robert P. Beckinsale *The History of the Study of Landforms, Volume 1: Geomorphology before Davis* (London: Methuen, 1964); Robert P. Beckinsale and Richard J. Chorley, *The History of the Study of Landforms or the Development of Geomorphology, Volume 3: Historical and Regional Geomorphology 1890-1950* (London: Routledge, 1991); Barbara A. Kennedy, *Inventing the Earth: Ideas on Landscape Development since 1740* (Oxford: Blackwell, 2006).

¹² Richard J. Chorley, Robert P. Beckinsale and Anthony J. Dunn, *The History of the Study of Landforms, Volume 2: the Life and Work of William Morris Davis* (London: Methuen, 1973).

¹³ See, for example, Terence R. Vale, ‘From Clements and Davis to Gould and Botkin: Ideas of Progress in Physical Geography’, in Robert D. Sack (ed.) *Progress: Geographical Essays* (Baltimore, MD: The Johns Hopkins University Press, 2002), 1-21.

¹⁴ Percy R. Crowe, ‘The Analysis of Rainfall Probability: a Graphical Method and its Application to European Data’, *Scottish Geographical Magazine*, 49, no. 1 (1933), 73-91.

quantifying and modelling contemporary processes, deploying a positivist scientific method, increasingly within a systems theoretical framework;¹⁵ this stimulated the production of very different student textbooks introducing the new approaches.¹⁶ Several separate specialisms and sub-specialisms were created, with many physical geographers orienting their careers, including their publication strategies,¹⁷ towards related environmental sciences rather than other components of the geographical discipline. Although much of the initial emphasis was on contemporary processes the findings of these studies were increasingly used in the examination of past environments and this came increasingly to the fore with the growing concern over environmental change and especially climate change, giving a particular boost to climatology sub-disciplines and the reconstruction of past climates as a background to placing the current situation in context.

In human geography a small and dispersed economics literature that focused on patterns of economic activity and their causative forces attracted the attention of some human geographers – such as Haggett, who encountered August Lösch's *The Economics of Location* in Heffer's bookshop in Cambridge and was stimulated to test some of its arguments;¹⁸ he was one of a cohort of students tutored by Gus Caesar at St Catharine's College there who were attracted to and sought to apply various locational theories.¹⁹ To them, as was the case with contemporaries at a small number of departments in the United States, some of them with UK undergraduate degrees, evaluating those models meant adopting what became known as the 'scientific method', testing hypotheses through quantitative analysis. Further, because those hypotheses were largely drawn from economics, and economic models were based on the efficiency of resource use, the expectation was that the locational patterns would display spatial logics – such as a decline in land values and associated changes in land use away from urban centres.

Human geographers attracted to this alternative approach were thus involved in stimulating what became known as a 'quantitative and theoretical revolution' that embraced changes in: the disciplinary philosophy – from naïve empiricism to positivism, from an ideographic to a nomothetic orientation;²⁰ in the focus – from the description of unique regions to the search for spatial order; and in the methods – from 'mere description' to quantitative rigour and precision. The arguments were brought together in Haggett's *Locational Analysis in Human Geography*, based on a series of lectures and associated practical classes that summarised and illustrated a large literature, much of it from outside geography, on various models of a spatial structure.²¹ His conceptual structure comprised movements along networks that connected nodes (settlements) which were organised into hierarchies, with surfaces filling the intermediate areas – and introduced the philosophy of

¹⁵ Kenneth Gregory, 'Physical Geography and Geography as an Environmental Science' in Johnston and Williams, *A Century of British Geography*, 93-136; Kenneth Gregory, *The Changing Nature of Physical Geography* (London: Arnold, 2000); Timothy P. Burt (ed.) *The History of the Study of Landforms or the Development of Geomorphology, Volume 4: Quaternary and Recent Processes and Forms (1890-1965) and the Mid-Century Revolutions* (London: The Geological Society, 2008).

¹⁶ One of the first, written for a wide audience, was George H. Dury, *The Face of the Earth* (Harmondsworth: Penguin, 1959).

¹⁷ Ron Johnston, 'Geography: a different sort of discipline?', *Transactions of the Institute of British Geographers*, NS28, no. 1 (2003):133-141.

¹⁸ August Lösch, *The Economics of Location* (New Haven, CT: Princeton University Press, 1954).

¹⁹ Richard J. Chorley, 'Haggett's Cambridge: 1957-1977', in Andrew D. Cliff, Peter R. Gould, Anthony G. Hoare and Nigel J. Thrift (eds.) *Diffusing Geography* (Oxford: Blackwell, 1995), 355-374; Michael Chisholm and Gerald Manners (eds.) *Spatial Policy Problems of the British Economy* (London: Cambridge University Press, 1973).

²⁰ Ron Johnston and James D. Sidaway, *Geography and Geographers: Anglo-American Human Geography Since 1945. Seventh Edition* (London: Routledge, 2016).

²¹ Peter Haggett, 'The Local Shape of Revolution: Reflections on Quantitative Geography at Cambridge in the 1950s and 1960s', *Geographical Analysis*, 40, no. 4 (2008): 336-352, records that the initial series of eight lectures in 1959 was given on Saturday mornings.

model formulation and statistical analysis. A later volume by one of the first graduates of this new approach set out the philosophy in great detail.²²

Parallel to these developments at Cambridge²³ – later extended to Bristol after Haggett moved there in 1966 – was separate activity at the University of Liverpool. Stanley Gregory had served in the Fleet Air Arm's Meteorological Service immediately after the war and then studied geography at King's College London during which he attended inter-collegiate courses in climatology given by Percy Crowe, whose pioneering 1933 paper was the first by a British geographer to promote statistical analysis, as against the use of statistics, in climatological research. On graduation, Gregory was appointed to the staff at the University of Liverpool, where he gained a PhD for a thesis on 'Studies in Pure and Applied Climatology' several of which applied adaptations of Crowe's suggested methods to the study of rainfall and temperature patterns.²⁴ More importantly, alongside that research activity Gregory taught statistical methods as part of the practical work associated with his climatology courses. His department head and other colleagues encouraged him to develop this material into a practical course on statistical methods that would be taken by all students (not only providing them with the ability to appreciate research literature that deployed statistical procedures but also to get experience with methods that they might apply themselves in research for their undergraduate – and possible then postgraduate – dissertations and theses). This course was introduced in 1957 – with some opposition from students that it 'wasn't geography' – with one of the department's human geographers auditing it to indicate its relevance to many parts of the discipline beyond climatology in particular and physical geography more generally. The material was the basis for Gregory's *Statistical Methods and the Geographer*, the first book on such methods by a geographer for geographers: it went through four editions, the last published in 1978.²⁵

The approaches fostered at Cambridge and the methods introduced at Liverpool were soon introduced to many other British departments as their graduates were appointed to teaching positions there,²⁶ with some universities also employing British graduates who had gone to the United States for postgraduate training. Although there was some opposition to what became known as a 'new geography' among senior members of the profession, nevertheless most departments realised that they should introduce this material to their students. In a survey of papers published during the 1960s that deployed quantitative techniques in the country's leading academic journal – *Transactions of the Institute of British Geographers* – Whitehand found that over half of all departments had provided at least one author or co-author of such work. He also analysed final year honours degree papers from all departments to identify the percentage of questions that could be classified as 'new geography', finding that many of those departments with high scores had staff who had moved there from either Cambridge or Bristol; a later data set showed rapid growth in the

²² David Harvey, *Explanation in Geography* (London: Edward Arnold, 1969).

²³ The developments at Cambridge were not paralleled at Oxford. Pawson, 'Oxbridge Geographies' (p.58), notes that 'The history of Oxford geography after World War II is not writ large like that of Cambridge. Its faculty mostly lacked the imaginative geographers that Cambridge fostered into legend during the next 30 years' and the appointment of a new head in 1968 was of somebody – Jean Gottmann – who, despite his standing within the discipline, 'nonetheless lacked connections with the proponents of the new geographies diffusing from' the Cambridge-Bristol axis (p.60).

²⁴ Ron Johnston, 'Stanley Gregory, 1926-2016', in Elizabeth A. Baigent and André Reyes Novaes (eds.) *Geographers: Biobibliographical Studies Volume 37* (London: Bloomsbury, 2018), 69-104.

²⁵ Stanley Gregory, *Statistical Methods and the Geographer* (London: Longman, 1963).

²⁶ Haggett, 'The Local Shape of Revolution'; Jeremy W. R. Whitehand, 'Innovation Diffusion in an Academic Discipline: the Case of the 'New Geography'', *Area*, 2, no. 3 (1970): 19-30. Ron Johnston and E. Verity Brack, 'Appointment and Promotion in the Academic Labour Market: a Preliminary Survey of British University Departments of Geography, 1933-1982', *Transactions of the Institute of British Geographers*, NS8, no. 1 (1983): 100-111.

percentage of such questions.²⁷ Paralleling those analyses, Robson reported the results of two surveys – in 1964 and 1969 – of the amount of undergraduate teaching of statistical methods undertaken. At the former date there was a range of 0-80 hours per annum with a mean of 20.7; five years later the range was 22-230 and the mean 86.3; in 1964 27 departments had a total of 44 staff involved in such teaching, and in 1969 122 staff were involved in 28 departments.²⁸

Further institutional support for the changes was provided through the creation of a body designed, as Gregory put it, to perform two functions ‘of equal importance – encouraging and facilitating research developments, and educating as much of the profession as possible (staff and students) to try to avoid too gross a dichotomy between the “quantifiers” and the “rest”’.²⁹ In the early 1960s the Institute of British Geographers (IBG) had encouraged the creation of Study Groups in which staff and postgraduates with cognate interests could meet, both in special sessions at the Institute’s annual conference and in their own separate meetings, to promote their interests.³⁰ In 1964 Barry Garner, a Nottingham graduate who had recently been appointed to the University of Leeds after completing a PhD at Northwestern University, convened a meeting of 34 interested (physical and human) geographers who agreed to establish a Statistical Methods Study Group. Gregory was the first chair, and on his advice the Group did not immediately affiliate with the IBG: he was an elected member of its Council and felt that to do so would be the ‘kiss of death’ because of opposition to quantitative work from some senior members. Affiliation took place in 1968 and the group – now named the Quantitative Methods Study Group – became extremely active through conferences and publications: it launched its own series (*Concepts and Techniques in Quantitative Geography: CATMOG*) of booklets – short texts designed ‘to fill a teaching need in the field of quantitative methods in undergraduate geography courses’, of which 59 were published.³¹ By 1983 it was the second-largest of the Institute’s groups, with 318 members.³²

By the late 1970s, therefore, geographical practices had been substantially changed. There were remnants of the traditional regional geography courses in most department curricula and some sub-disciplines – such as historical geography – were less affected by the changes than others. But overall there were major differences in philosophy, focus and methods. Physical geographers increasingly focused their attention on contemporary processes, human geographers on spatial patterns and their origins: both deployed model-building and hypothesis-testing procedures as means to theory development, and adopted an increasingly sophisticated range of mathematical and, especially, statistical methods – aided by the advances in computing infrastructure – to analyse data.

The extent of those changes can be assessed through comparison of the sequence of quadrennial reports produced between 1960 and 2000 for the British National Committee for Geography to be presented at the International Geographical Congresses and published in the *Geographical Journal*. Quantitative methods are not mentioned in either the 1960 report or the wide-ranging 1964 report prepared for the Congress held in London that year.³³ In the 1972 report the authors – perhaps

²⁷ Jeremy W. R. Whitehand, ‘In-Words Outwards: the Diffusion of the ‘New Geography’, 1968-1970’, *Area*, 3, no. 3 (1971): 158-163.

²⁸ Brian T. Robson, ‘The Teaching of Quantitative Techniques’, *Area*, 2, no. 1 (1970): 58-59.

²⁹ Stanley Gregory, ‘Quantitative Geography: the British Experience and the Role of the Institute’, *Transactions of the Institute of British Geographers* NS8, no. 1 (1983): 85.

³⁰ Steel, *The Institute of British Geographers*.

³¹ They are now freely available on the web: <http://www.qmrg.org.uk/catmog/index.html>.

³² Richard J. C. Muntun and Andrew S. Goudie, ‘Geography in the United Kingdom, 1980-1984’, *The Geographical Journal*, 150, no. 1 (1984), 27-47.

³³ Kenneth C. Edwards and Gerald R. Crone, ‘Geography in Great Britain 1956-60’, *The Geographical Journal*, 126, no. 4 (1960), 427-441; Gerald R. Crone, ‘British Geography in the Twentieth Century’, *The Geographical Journal*, 130, no. 2 (1964), 197-220.

reflecting the ‘kiss of death’ referred to by Gregory – noted ‘the move away from regional geography in many departments ... certainly many geographers now seem more concerned with process than with place – and sometimes, it would seem, more with statistical manipulation than with environmental reality’.³⁴ By 1976, the report’s first section was headed ‘The absorption and development of numeracy’, and it was followed by one on ‘New philosophies’.³⁵ From then on, those methods – plus the associated philosophies and empirical focus – received no special attention: they now formed an established component of the discipline, and although within human geography they were challenged by the introduction of alternative philosophies that established position was sustained although, as the final report in the series records,³⁶ somewhat isolated within the discipline (especially human geography) and with a decline in the amount of compulsory teaching of quantitative methods to both undergraduates and postgraduates.

Building their status within universities was only part of the exercise undertaken by geographers in those post-war decades. As research took a higher profile for individual career development and in the rating – and financing – of departments, so the discipline needed external recognition. For physical geographers this meant achieving status with the Natural Environment Research Council (NERC); individuals such as Kenneth Hare and Keith Clayton gained early recognition that allowed geographers to win competitive research grants and postgraduate studentships;³⁷ although physical geography was never accorded separate committee status within the Council’s structure many geographers, through their individual standing as researchers, have been appointed to its various committees and boards and their colleagues have received substantial support from that source. Initially, human geographers did not gain the same access.³⁸ When the Social Science Research Council (SSRC) was established in 1965 human geography was excluded. One senior geographer – Robert Steel – took a personal initiative and approached the chair to argue the discipline’s cause and he was asked to convene a group to make the case for its inclusion. This work was undertaken by Michael Chisholm (then a lecturer at the University of Bristol) and his detailed case – although not accepted by all members of the then annual meeting of geography department heads when presented to them prior to its submission to SSRC – was accepted by the SSRC and a Human Geography and Planning Committee was created in 1967, with Chisholm as chair; since then human geographers have played substantial roles in that Council’s and its successor Economic and Social Research Council’s work.³⁹ (Chisholm extended his report in two short books⁴⁰ and in a further research volume invited by the SSRC the editors argued that the real change in human geography

³⁴ Robert W. Steel and J. Wreford Watson, ‘Geography in the United Kingdom 1968-1972’, *The Geographical Journal*, 142, no. 2 (1972), 141.

³⁵ Ronald U. Cooke and Brian T. Robson, ‘Geography in the United Kingdom, 1972-76’, *The Geographical Journal*, 146, no. 1 (1976), 81-100.

³⁶ Nigel J. Thrift and Desmond E. Walling, ‘Geography in the United Kingdom 1996-2000’, *The Geographical Journal*, 166, no. 1 (2000), 96-124.

³⁷ John E. Hay, ‘F. Kenneth Hare, 1919-2002’, in Patrick H. Armstrong and Geoffrey J. Martin (eds.), *Geographers: Biobibliographical Studies, Volume 25* (London: Bloomsbury, 2006), 93-108; John E. Andrews, ‘Clayton, Keith Martin (1928-2013)’, *Oxford Dictionary of National Biography*, <https://doi.org/10.1093/ref:odnb/106222>, accessed 11 April, 2018.

³⁸ Johnston, ‘The Institutionalisation of Geography’, 71.

³⁹ Michael Chisholm, ‘Human Geography Joins the Social Science Research Council: Personal Recollections’, *Area*, 33, no. 4 (2001): 428-430; Ron Johnston, ‘Institutions and Disciplinary Fortunes: Two Moments in the History of UK Geography in the 1960s – II: Human Geography and the Social Science Research Council’, *Progress in Human Geography*, 28, no. 2 (2004), 187-203.

⁴⁰ Michael Chisholm, *Research in Human Geography* (London: Heinemann, 1971); Michael Chisholm, *Human Geography: Evolution or Revolution* (Harmondsworth: Penguin Books, 1975).

associated with quantification was what Chisholm earlier referred to as ‘a substantial tightening up in logical rigour’.⁴¹)

Building downwards: taking the ‘new geography’ into the schools

For much of the twentieth century there were strong links between university geographers and the school teaching profession – many of them conducted through the national and local sections of the Geographical Association, founded in 1893 to promote geographical education at all levels.⁴² Many university academics played major roles as Association officers, both regionally and nationally. They also participated in the work of the various Examination Boards which organised the national examinations taken by students at the ages of 16 and 18 – called ‘O’ and ‘A’ levels in the 1960s; performance in the ‘A’ level examinations was for most the means of entry onto a university degree course. Reflecting those links, and the original pressure for geography’s presence in the universities to provide trained school teachers, there was close correspondence in their approach to the discipline. Since the great majority of students enrolling for geography degrees at British universities (then and now) studied geography at ‘A’ level, syllabuses for the latter were to a large extent introductory to their degree studies. As such, when geography in the universities changed there was pressure – both there and in the schools⁴³ – for it to change in the schools as well.

Cambridge and Liverpool were again both involved in stimulating the latter changes. At Cambridge, Haggett and Chorley were invited by the University’s Extra-Mural Board – through one of its then staff, Ray Pahl, a Cambridge geography graduate and later a distinguished sociologist – to offer summer schools for school teachers on new developments in the discipline. Starting in 1963, a sequence of five was held over successive summers, with a total of 135 teachers attending sessions provided by 37 different lecturers (a second series, without contributions from Chorley and Haggett, was held between 1973 and 1978).⁴⁴ As well as the stimulus these courses provided for the attendees they also led to the publication of two edited volumes of essays providing overviews of disciplinary developments in both physical and human geography, most of which stressed the substantial material being developed across the discipline rather than quantitative methods, the latter being seen as a means to a larger end.⁴⁵ Those books, especially the second which was reprinted in three separate parts, became important university texts at the time.⁴⁶

⁴¹ Michael Chisholm and Brian Rodgers (eds.) *Studies in Human Geography* (London: Heinemann, 1973); Chisholm, *Research in Human Geography*, 2.

⁴² Balchin, *The Geographical Association*.

⁴³ That pressure was particularly a strong in the selective (grammar) schools and the ‘new geography’ syllabuses were more popular with teachers there, who had relatively larger sixth-form classes studying for ‘A’-levels, than in comprehensive schools.

⁴⁴ Haggett, ‘The Local Shape of Revolution’; Peter Haggett, ‘Madingley: Half-Century Reflections on a Geography Experiment’, *Geography*, 100, no. 1 (2015): 5-11. Rex Walford, *Geography in British Schools 1850-2000* (London: Woburn Press, 2001), 160, reproduces the programme for the 1966 course.

⁴⁵ Richard J. Chorley and Peter Haggett (eds.) *Frontiers in Geographical Teaching* (London: Methuen, 1965); Richard J. Chorley and Peter Haggett (eds.) *Models in Geography* (London: Methuen, 1967).

⁴⁶ Although, as Madrell has shown (Avril Madrell, *Complex Locations: Women’s Geographical Work in the UK 1850-1970* (Oxford: Wiley-Blackwell, 2009)), women geographers played substantial roles in the development of geography in the first half of the twentieth century, few were prominent in the early years of the ‘quantitative and theoretical revolution’ – at either university or school level. Only one of the chapters in the first book emerging from the Madingley summer schools (*Frontiers in Geographical Teaching*) had a female author as did only two in the second (*Frontiers in Geographical Teaching*); only one of the early textbooks was co-authored by a woman (John P. Cole and Cuchlaine A. M. King, *Quantitative Geography: Techniques and Theories in Geography* (London: John Wiley, 1968)).

To one geographer-educationalist, who attended one of the later Madingley courses, they initiated a 'marvellously exhilarating voyage' away from the traditional regional geography which then dominated in schools that 'provided a neat Cook's Tour of the continents in a five-year course but seemed to lack intellectual challenge and adventure. Could this [new] geography really be one to make pupils learn to think?'.⁴⁷ The Madingley courses were held during a period of change in educational philosophy to which the teachers attracted by the 'new geography' were also exposed: 'Problem solving, hypothesis testing, games, simulations and enquiries replaced the somewhat dutiful note-taking and memorising which had come to be associated with the regional geography era'.⁴⁸ Walford himself was one of the early enthusiasts and promoters; in *Games in Geography* he presented the case for model-based teaching and introduced a series of games whereby students could be motivated into a deeper understanding of the real world through transferrable skills than he believed was achieved by the type of teaching methods traditionally deployed.⁴⁹ Others developed comparable teaching materials and were encouraged by publishers to make them more widely available. Such was the success of two of those books that their authors were appointed to HM Inspectorate of Schools when only in their early 30s,⁵⁰ thereby given the opportunity to promote the new methods and orientation widely throughout the school system, as illustrated by a 1972 Department of Education pamphlet on *New Thinking in School Geography*; the wide range of material published in that short period – both formal and 'underground' – is discussed by Walford.⁵¹ Although much of the initial emphasis was on changing curricula for 'A'-level courses, the 'revolution' was carried right down through the school system. At the University of Nottingham, for example, where the Department of Geography was an early 'convert',⁵² John Cole, concerned about his son's primary education, combined with a teacher (the father of one of his undergraduates) to produce a series of booklets aimed at pupils aged 7-11, containing worksheets designed to develop graphic skills in the presentation of data.⁵³

Such was the success of the Madingley courses and the excitement that participants spread to their colleagues that informal organizations emerged to promote the changes further. The largest of these was the London Schools Geographical Group, which attracted four hundred teachers to its first one-day conference in 1966. Others combined through various organisations and funding bodies to develop new projects leading to curriculum change.⁵⁴ And the national organization for geography teachers – the Geographical Association – became involved. A number of individuals, not least Stan

⁴⁷ Rex Walford, 'Geography's Odyssey: the Journey So Far', *Geography*, 86, no. 4 (2001): 311.

⁴⁸ Walford, 'Geography's Odyssey', 313.

⁴⁹ Rex Walford, *Games in Geography* (London: Longman, 1969); Rex Walford, 'A Quarter-Century of Games and Simulation in Geography', *Simulation and Gaming*, 26, no. 2 (1995): 236-248.

⁵⁰ John Everson and Brian P. Fitzgerald, *Settlement Patterns* (London: Longman, 1969); John Everson and Brian P. Fitzgerald, *Inside the City* (London: Longman, 1973). Walford, *Geography in British Schools*, 163, writes of the first of those books that 'it did not look like any other geography textbook in existence ... it threw out bold ideas and stimulating class exercises in equal measure. The book was a key influence on rising stars and a focus for much discussion [which like the Chorley and Haggett Madingley volumes] ... owed little to previous publications in geography, save a handful of obscure journal articles – in this sense the books were the product of a genuine revolution in thinking rather than the usual evolution'.

⁵¹ Rex Walford, 'On the Frontier with the New Model Army: Geography Publishing from the 1960s to the 1990s', *Geography*, 74, no. 4 (1989): 308-320.

⁵² Several produced textbooks in the field: Cole and King, *Quantitative Geography*; David S. Ebdon, *Statistics in Geography; a Practical Approach* (Oxford: Blackwell, 1978); Paul M. Mather, *Computers in Geography: a Practical Approach* (Oxford: Blackwell, 1976); Robert Hammond and Patrick S. McCullagh, who worked at nearby Trent Polytechnic, produced *Quantitative Techniques in Geography: an Introduction* (Oxford: The Clarendon Press, 1974).

⁵³ John P. Cole and Nicholas P. Benyon, *New Ways in Geography. Books 1-4* (Oxford: Blackwell, 1968); see also Walford, 'On the Frontier with the New Model Army', 312.

⁵⁴ Walford, *Geography in British Schools 1850-2000*.

Gregory (the Liverpool connection again), pressed the Association's rather reluctant secretary, Alice Garnett,⁵⁵ to, as the Association's historian put it, 'bring back the "revolutionaries" into the fold' because the quantitative revolution was perceived by some in the 'establishment' to pose a considerable danger to the discipline's unity of purpose.⁵⁶ A Committee on the Role of Models and Quantitative Techniques in Geographical Teaching was established in 1967 with Gregory as the chair: after he succeeded Garnett as GA Secretary the chair moved to Chorley, thus cementing the Cambridge and Liverpool 'revolutionary poles', and then later to a 'Madingley graduate', Fitzgerald. (Walford termed this 'successfully infiltrating' the organisation.⁵⁷) The Committee's brief was much wider than quantitative methods alone and its goal was clearly to win wide acceptance of the changes being promoted. A survey of teachers revealed divisions within the profession, but Gregory argued forcefully that 'geography has reached its own particular Rubicon. To refuse to cross it could cut us off from contemporary scientific thought for many decades to come. To make the positive move to re-fashion geography into a subject fit for the twenty-first century ... is both a challenge to the adventurous and a duty for all geographers who care for their subject'⁵⁸ – adding that it was incumbent on those (apparently 'still' a majority) who did not believe in the 'models and quantification' approach to bring forward an alternative scenario 'to guide the future evolution of our subject along yet more fruitful and stimulating lines'.

The 'resistance' that Gregory referred to was illustrated by views such as those expressed by Thomas: 'recent changes in the methodology of university geography primarily reflect a desire for more effective geographical research rather than a desire for more effective geographical teaching. Accordingly, it does not automatically follow that innovations which have been incorporated into university geography should necessarily be incorporated into geography at school level, as the basic concern of the latter must be the education of the child rather than the further development of geography as an academic discipline';⁵⁹ Garnett made a similar case asking 'Has the apparent loss of interest amongst the less mature young school leavers resulted from teaching that has been too academic? At this level ought we ever to base our teaching on the establishment of principles and theory and models rather than on "real" geography?'.⁶⁰ Another survey, parallel to that reported on by Gregory, found that the major problem in developing the 'new geography' in schools lay not with the students but rather with some teachers: 'the children...appeared to take things in their stride' but 'many teachers are simply unhappy, particularly with the quantitative side of the subject'⁶¹ – more so, almost certainly, as it was applied within human rather than physical geography. Others noted the varying responses among teachers: Walford saw the 'new geography' as 'heady to some, undrinkable brew to others';⁶² Boardman and McPartland reported that many teachers 'strongly resisted what they considered to be an attempt by ambitious young geographers to upset established practice. Others were genuinely concerned that the introduction of theoretical models and quantitative techniques would nullify the attempts to bring reality into the teaching of geography';⁶³ and to Goodson the 'new geography' represented 'an attack by one group of

⁵⁵ Alice Garnett, 'Teaching Geography: Some Reflections', *Geography* 54, no. 4 (1969): 385-400.

⁵⁶ Balchin, *The Geographical Association*, 53; Ivor Goodson, *The Making of a Curriculum: Collected Essays* (Brighton: The Falmer Press, 1988).

⁵⁷ Walford, *Geography in British Schools 1850-2000*, 161.

⁵⁸ Stanley Gregory, 'Models and Quantitative Techniques in Teaching – Attitudes, Opinions and Prejudices', *Geography* 54, no. 1 (1969): 5-10.

⁵⁹ Peter R. Thomas, 'Education and the New Geography', *Geography* 55, no. 3 (1970): 277-278.

⁶⁰ Garnett, 'Teaching Geography: Some Reflections', 395.

⁶¹ Peter A. Hore, 'A Teacher Looks at the New Geography', in R. Walford (ed.) *New Directions in Geography Teaching* (London: Longman, 1973), 137.

⁶² Rex Walford, 'Models, Simulations and Games', in R. Walford (ed.), *New Directions in Geography Teaching* (London: Longman, 1973), 95.

⁶³ David J. Boardman and Michael McPartland, 'A Hundred Years of Geography Teaching: From Regions to Models, 1944-1969', *Teaching Geography*, 18, no. 2 (1993): 68.

geographers on other groups well established in schools – the regional and field geographers'.⁶⁴ In some secondary schools such conflict was apparently resolved by deploying three separate approaches: sample studies in the lower school; a regional approach for students taking 'O'-levels (later GCSEs) at ages 14-16; and a quantitative approach for 'A'-level students preparing for university entrance.⁶⁵

The GA Committee was very active for a number of years, promoting the changes through a range of activities including support for a substantial number of local groups (which for a time were called 'cells') that provided mutual assistance in the development of teaching materials, including computer software. More formal courses were also provided, with assistance from the IBG's Quantitative Methods Study Group: one of them developed into a regular series of conferences with resultant publications that carried the 'revolution' forward.⁶⁶ Universities introduced new courses to meet the demand for teachers trained in the 'new geography'; the University of Southampton Department of Geography, for example, established a Master's degree in Geography and Education in 1977 and several of its initial cohort of eight students soon became HMIs.⁶⁷

One further step was needed. However enthusiastic some teachers were about changes to the curriculum they were considerably constrained in what they could do by the syllabuses of the major examination boards, since one of their major tasks was preparing post-16 students for success in the A-level examinations as the preliminary to a University education. This required getting the various examination boards to prepare new syllabuses (Garnett recorded the 'dominant control ... that examination boards exert on the ultimate work of the teaching profession (and even on the pattern of textbook writing)'⁶⁸). In 1969, for example, Gregory became one of the University of Sheffield's representatives on the Northern Universities Joint Matriculation Board, whose 'O'- and 'A'-level examinations were taken by students at a large number of schools, especially in the north of England, and in 1970 he succeeded to the chair of its geography subject committee which over the next five years developed a new 'A'-level syllabus and examination papers format in both physical and human geography, including the important practical paper, along the lines that the GA committee was pressing for. Other projects and examination boards followed,⁶⁹ and the GA committee was wound up in the late 1970s, having very largely fulfilled its objects. Some concerns remained, however. The changes to school syllabuses had in part been pressed for in order to ensure that students proceeding to read for geography degrees had some basic numerical competence as well as, especially for those wanting to specialise in physical geography, a background in the relevant sciences, and in his 1978 Presidential Address to the Geographical Association Gregory expressed concerns whether this was being achieved – noting that 'I find it difficult to envisage a curriculum and syllabus that will satisfy the intellectual and educational needs (as distinct from mere administrative or political convenience) of both a general sixth form and a university entrance training at one and the same time'.⁷⁰ The issues raised a few years earlier by

⁶⁴ Ivor Goodson, *School Subjects and Curriculum Change* (Lewes: Falmer, 1987), 79.

⁶⁵ William E. Marsden, *Geography 11-16: Rekindling Good Practice* (London: David Fulton, 1995), 36-37.

⁶⁶ Rex Walford (ed.), *New Directions in Geography Teaching* (London: Longman, 1973); Rex Walford (ed.), *Signposts for Geography Teaching* (London: Longman, 1981); Rex Walford (ed.), *Viewpoints on Geography Teaching* (London: Longman, 1991).

⁶⁷ Kelvyn Jones (pers. comm.).

⁶⁸ Garnett, 'Teaching Geography: Some Reflections', 399. See also a recent symposium on university and school textbooks: James D. Sidaway and Tim Hall, 'Geography Textbooks, Pedagogy and Disciplinary Traditions', *Area*, 50, no. 1 (2018): 34-42.

⁶⁹ See, for example, John Rolfe et al. (eds.) *The Oxford Geography Project: Teachers' Handbook (second revised edition)* (Oxford: Oxford University Press, 1980). Walford, 'On the Frontier with the New Model Army', 313, reports that the 'Oxford and Cambridge A-level geography syllabus ... had been shrewdly reorganised [in the mid-1960s] when Peter Haggett was Chief Examiner. Thus successful innovators operated the levers of power'.

⁷⁰ Stanley Gregory, 'The Role of Physical Geography in the Curriculum', *Geography* 63, no. 3 (1978): 263.

Thomas had not been resolved and the role of geography in the later years at secondary schools – as part of a general education or as the first stage in a specialist study – remained contentious.

But change had been achieved. Over little more than two decades the nature – philosophy, content, and methods – of geography courses in British universities and schools had been very radically altered. Many were involved in this, but the origins came from just a few centres and the arguments developed by key individuals and transmitted to others through a variety of media were central to that achievement. By 1980, geography as practised across the British educational system was largely unrecognisable from how it was constituted in 1950 – even, in most universities and schools, in 1960.

And subsequently

Geography in British universities is very different at the end of the second decade of the twenty-first century than it was in 1980, but the changes that have occurred are not fully reflected in the school syllabuses, for a number of reasons. In physical geography, the focus on processes rather than forms remains, in a series of sub-disciplines that have moved closer to other natural sciences with greater technical sophistication. In human geography, no sooner was the ‘quantitative revolution’ apparently successful than counter-revolutions were launched that rejected the positivist philosophy underpinning the search for spatial order through quantitative methods and promoted a wide range of alternative practices – some termed radical, some humanistic, some postmodern or poststructural – all of which rejected quantification and the search for law-like generalisations.⁷¹ The sub-discipline now comprises a *mélange* of specialisms among which there is much mutual misunderstanding, misrepresentation and avoidance⁷² associated with disciplinary politics involving contests for resources and position within departmental offerings.⁷³ Approaches deploying quantitative methods declined in relative importance among human geographers and in some universities were substantially downgraded, but the last decade has seen them flourish again – more so in some departments than others – stimulated in part by national concerns about the paucity of social science graduates with quantitative skills⁷⁴ and substantially enhanced by technological developments involved in the use of geographical information systems for the collection, collation, visualisation (including with maps) and analysis of data.

That blossoming of approaches to and practices within geography over recent decades – exemplified graphically by Haggett and as ‘intellectual exfoliation’ by Walford and Haggett⁷⁵ – has not until very recently fully penetrated school syllabuses for a number of reasons. The first is a growing distancing between the two communities. Fewer university academics now participate in the work of the GA, although a number have played leading roles, including as its president:⁷⁶ it is now an organisation

⁷¹ Johnston and Sidaway, *Geography and Geographers*.

⁷² Ron Johnston, Richard Harris, Kelvyn Jones, David Manley, Clive E. Sabel and Wen-Fei W. Wang, ‘Mutual Misunderstanding and Avoidance, Misrepresentations and Disciplinary Politics: Spatial Science and Quantitative Analysis in (United Kingdom) Geographical Curricula’, *Dialogues in Human Geography* 4, no. 1 (2014): 3-25.

⁷³ Ron Johnston, ‘The Politics of Changing Human Geography’s Agenda: Textbooks and the Representation of Increasing Diversity’, *Transactions of the Institute of British Geographers*, NS31, no. 3 (2006): 286-303.

⁷⁴ British Academy, *Count Us In: Quantitative Skills for a New Generation* (London: The British Academy, 2016). Nuffield Foundation, *Q-Step*, <http://www.nuffieldfoundation.org/q-step>.

⁷⁵ Haggett, ‘Madingley’: Rex Walford and Peter Haggett, ‘Geography and Geographical Education: Some Speculations for the Twenty-First Century’, *Geography*, 80, no. 1 (1995): 11.

⁷⁶ See Andrew Goudie, ‘Schools and Universities: the Great Divide’, *Geography*, 78, no. 4 (1993): 338-339; Noel Castree, Duncan Fuller and David Lambert, ‘Geography Without Borders’, *Transactions of the Institute of British Geographers*, NS32, no. 2 (2007): 129-132.

focused very much on teaching in schools⁷⁷ – as exemplified by the contents of its three journals, *Geography*, *Teaching Geography* and *Primary Geography*.⁷⁸ And few academics now participate in the work of the examination boards. In large part this undoubtedly reflects changes in the nature of universities over recent decades, especially the increased focus on research as the basis for both individual advancement and institutional status: academics lack the time to devote to activities which gained substantial attention from many of their predecessors, while the increasingly specialist nature of their research and teaching interests makes connections with school syllabuses difficult. But the changes that began to dominate in academic human geography from the 1970s on – variously termed radical, humanistic, post-modern etc. – were taken up by some teachers and developed to a considerable extent independently of what was happening in the academic sphere.⁷⁹ Alongside this in the 1980s some teachers staged a ‘counter-revolution’ to the curriculum developments of the 1970s: the JMB, for example, introduced an alternative ‘A-level’ syllabus that recast the human geography elements by focusing on economic and urban development with two examination papers, one involving the study of either the EEC or USA and Canada, and the other Central and South America, or Africa, or South Asia. The disciplinary unity around the ‘new geography’ was fracturing in the school subject just as it was in the academic discipline.⁸⁰

Walford and Haggett suggested that ‘university geography has at times played too large a role in shaping the geography curriculum at school level’ and ‘welcome the new confidence that school geography shows’,⁸¹ but ‘words like “decoupling” and “chasm” are routinely used to describe the gulf that has opened up between the two sectors’. This gulf, it is suggested, means that ‘There is a prevailing (and largely accurate) perception of a contrast between a vibrant, trendy subject at university and a static, stuffy subject in schools’,⁸² with teachers increasingly frustrated that they cannot draw on material from their undergraduate years when preparing materials.

Along with changes in universities, changes in schools – largely externally imposed – have also impacted on the dissolving links. From 1988 a government-inspired national curriculum has been imposed upon state schools, and much effort has been expended by the Geographical Association and the Royal Geographical Society (RGS: with which the IBG merged in 1996) at ensuring geography’s place within that structure as well as contesting the content it is required to teach; the latter has involved political involvement, not always sympathetic.⁸³ (The Secretary of State for

⁷⁷ See Bill Marsden, ‘On Taking the Geography Out of Geographical Education’, *Geography*, 82, no. 3 (1997): 241-252, noting his claim (p.247) that ‘The quantitative revolution itself reflected a distancing from the real world of differentiated place study’.

⁷⁸ Its main journal, *Geography*, is still edited by academics, however: the current collective (March 2018) comprises three professors of geography and one of geography education and its advisory panel of thirteen includes eleven academics. A separate journal focused on geography teaching at universities – *Journal of Geography in Higher Education* – was founded in 1977: <https://www.tandfonline.com/loi/cjgh20>.

⁷⁹ Walford, *Geography in British Schools*, Chap. 9.

⁸⁰ I am grateful to Hilary Nicholls of AQA (the Assessments and Qualifications Alliance) for providing me with material from the JMB’s archives with which to illustrate this change. On the case for regional geography within the subject curriculum see Alex Standish, ‘The Place of Regional Geography’ in Mark Jones and David Lambert (eds.), *Debates in Geography Education (second edition)* (London: Routledge, 2018), 62-74.

⁸¹ Walford and Haggett, ‘Geography and Geographical Education’, 5; Kevin Stannard, ‘Earth to Academia: On the Need to Reconnect University and School Geography’, *Area*, 35, no. 3 (2003): 317.

⁸² Stannard, ‘Earth to Academia’, 318: see also Alan Marriott, ‘A Seamless Geography from 5 to 22?’, *Teaching Geography*, 26, no. 1 (2001): 36-37.

⁸³ Eleanor M. Rawling, *Changing the Subject: the Impact of National Policy on School Geography 1980-2000* (Sheffield: The Geographical Association, 2001); and Walford, *Geography in British Schools*, Chaps. 11-12. For the precursor debates over the geography curriculum see Sir Keith Joseph, ‘Geography in the School Curriculum’, *Geography*, 70, no. 4 (1985): 290-297; Rex Walford, ‘Sir Keith Speaks to the GA: a Report’, *Teaching Geography*, 11, no. 1 (1985):20-23; Patrick Bailey and Tony Binns, ‘A Case for Geography: a Response

Education at the time, Kenneth Baker, pressed for geography's inclusion in the national curriculum, whose separate identity he feared was being lost within environmental studies. He wanted its traditional values to be sustained, starting with students 'learning where Birmingham was in relation to London and Edinburgh.⁸⁴) While that major shift was taking place, detailed reform of curricula and syllabuses in the light of changes at universities perhaps not surprisingly had a relatively low priority.⁸⁵ Quantitative methods remained part of the portfolio and strong efforts have been made, through the RGS, to promote both their use and increased numeracy skills,⁸⁶ but, as the pre-2013 'A'-level syllabus content examples shown by Harris et al. illustrate, the material was very dated.⁸⁷ They also show a much improved skill set in a 2013 proposal from the Department for Education which indicates considerable updating. Indeed, geography was one of the subjects chosen for consideration by the A-Level Content Advisory Board (ALCAB), established, through the Russell Group of universities, to advise government and Ofqual on the content of selected A-level syllabuses. The 12-member panel that considered the geography syllabus included nine university academics; its 'reference group' of 22 included a further 14.⁸⁸ Its first key recommendation was that:

*A and AS level content should enable learners to be inspired by their geographical understanding of the world they live in and to engage critically with real world issues and real world locations through the application of geographical knowledge, theory and concepts.*⁸⁹

Its suggested content incorporated contemporary material from both physical and human geography – including their interlinking in topics such as climate change – as well as a wide range of skills, including quantitative.⁹⁰

In conclusion

to Sir Keith Joseph', *Geography*, 72, no. 4 (1987): 327-331; Patrick Bailey and Tony Binns (eds.) *A Case for Geography* (Sheffield: The Geographical Association, 1987).

⁸⁴ Kenneth Baker, *The Turbulent Years* (London: Faber & Faber, 1993): 193. On the continuing conflict over geography's place, and its content, within the national curriculum, see David Lambert, 'Reviewing the Case for Geography, and the 'Knowledge Turn' in the English National Curriculum', *The Curriculum Journal*, 22, no. 2 (2011): 243-264; David Lambert, 'Collecting Our Thoughts: School Geography in Retrospect and Prospect', *Geography*, 98, no. 1 (2013): 10-17; David Lambert and John Hopkin, 'A Possibilist Analysis of the Geography National Curriculum in England', *International Research in Geography and Environmental Education*, 23, no. 1 (2014): 64-78; and David Lambert and John Morgan, 'Corrupting the Curriculum? The Case of Geography', *London Review of Education*, 7, no. 2 (2009): 147-157.

⁸⁵ A major exception to this was the 16-19 project that emanated from the University of London Institute of Education, whose proposed syllabus proved extremely popular and many of its concepts formed the basis for syllabus changes by various examination boards such as the Welsh Joint Education Committee; see Schools Council, *Geography 16-19: Contribution of a Curriculum Project to 16-19 Education* (London: Longman, 1987).

⁸⁶ Richard Harris, 'From Data to Knowledge: Teaching Data Skills in Geography', *Geography*, 103, no. 1 (2018): 12-18.

⁸⁷ Richard Harris, Nicholas Tate, Catherine Souch, Alex Singleton, Scott Orford, Christopher Keylock, Claire Jarvis and Christopher Brunsdon, 'Geographers Count: a Report on Quantitative Methods in Geography', *Enhancing Learning in the Social Sciences*, 6, no. 2 (2014): 43-58; David Redfern and Malcolm Skinner, *AS/A-Level Geography: Investigative & Research Skills & Techniques* (Abingdon: Philip Allan Updates, 2008).

⁸⁸ Many of these academic geographers had little or no experience of geography as taught in schools (other than their own as students) and there was criticism that they were too concerned to ensure that their own specialisms were present in a revised A-level syllabus, so re-creating the continuity between school and university curricula that characterised the changes associated with the 'quantitative revolution'. The Geography Panel listed in the ALCAB report contained only one school teacher – from a Cambridge Sixth Form College – and the Reference Panel contained only two with school affiliations: The A Level Content Advisory Board, *Report of the ALCAB Panel on Geography*, available at: <https://alcab.org.uk/> - accessed 7 March 2018.

⁸⁹ ALCAB website: <https://alcab.org.uk/> p.2 - accessed 7 March 2018.

⁹⁰ In contrast to this renewed interest among academic geographers on the content of 'A'-level geography there has been very little shown in the numerous revisions to GCSE syllabuses.

The ALCAB report indicates that after a gap of several decades British university geographers were becoming more involved again in debates over what should be taught to school students, within a curriculum designed to contribute to their general education as well as a primer for those wanting to read for a geography degree.⁹¹ That involvement was not, and was very unlikely to presage, a repeat of the close links between the two educational sectors in the 1960s-1970s when changing practices in universities had a substantial impact – through the work of a small number of enthusiasts for the cause – on what was done at schools; although even then, as illustrated here, while the general move was stimulated by the academics how the changes were implemented was very much developed by school teachers assisted by HMIs.

Whatever the relative role of the two groups, the outcome then was a major change in a discipline that incorporated all components of the national educational system, from primary schools through to postgraduate work at universities. Geography became a university discipline in the late nineteenth and early twentieth centuries because of demands from the schools for teachers with degrees in the discipline, and the role created for it within the academic division of labour strongly reflected the material that a majority of graduates would then teach in those schools. In the 1950s and 1960s a new generation of academics responded to a variety of stimuli – including some from colleagues in North America – to press for and achieve major changes in the discipline’s philosophy, focus and practices. They then, in part at least for their own reasons – they wanted the schools to deliver undergraduates prepared to participate in that ‘new geography’ – pressed for comparable changes in what were taught at and examined for schools: and again, assisted by an enthusiastic body of, mainly younger, teachers, they succeeded. Demands from the schools had stimulated the university provision, and in turn the universities were now demanding that the schools changed to meet their perceived ‘needs’. It was perhaps a unique moment in the history of geography within the British educational system – involving a unity of purpose which has since substantially dissipated.

Rawling, following Stengel,⁹² identified three possible relationships between school subjects and their related academic disciplines:

1. The two form a continuous sequence, with the subject offering a lower level or simpler version of the discipline;
2. The two are discontinuous, taking very different forms because of the influences on their formation; and
3. The two share common aims and broad principles but develop differently because of different pressures.

The discipline may precede the subject in its development, or the situation may be reversed (which is how Goodson interpreted the position in 1987⁹³), or they may interact dialectically. The analysis here indicates that the first of those three relationships characterised the pre-1960s situation in British geography, with much of the drive, as Goodson suggests, coming from the subject; in the 1960s-1970s it was the same relationship but with the discipline taking the lead – albeit with the changes enthusiastically taken up by elements within the subject; and from then on the relationship has had some of the characteristics of both of the other two. At times the second has probably

⁹¹ Examples of current syllabuses and examination papers can be accessed, for example, at the websites of: the Assessments and Qualifications Authority, AQA, which introduced a new A-level syllabus in 2016 – <http://www.aqa.org.uk/subjects/geography/as-and-a-level/geography-2030>; and the Welsh Joint Education Committee – <http://www.wjec.co.uk/qualifications/geography/r-geography-gce-asa-from-2016/#qualSearch>; see also David Burtenshaw, *WJEC/Eduqas AS/A-Level Geography Student Guide 1: Changing Places* (London: Hodder, 2016).

⁹² Barbara Stengel, ‘Academic Discipline and School Subject: Contestable Curricular Concepts’, *Journal of Curriculum Studies*, 29, no. 5 (1997): 26-278.

⁹³ Goodson, *School Subjects and Curriculum Change*.

dominated, but the last decade has seen a shift towards the third – although exploring that shift in detail is beyond the scope of this essay.