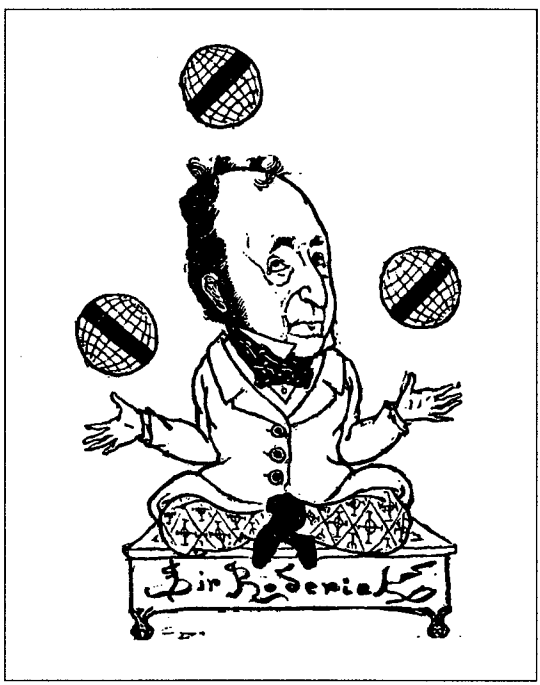
NATURE AND SCIENCE: ESSAYS IN THE HISTORY OF GEOGRAPHICAL KNOWLEDGE

Edited by
Felix Driver and Gillian Rose



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PREFACE

This publication arises from a seminar series run by the London Group of Historical Geographers at the Institute of Historical Research in the Spring of 1991. The seminars brought together a number of scholars from a variety of disciplines, all of whom shared an interest in various aspects of the history of the environmental sciences. The chapters therefore represent work in progress, and the aim of the editors in putting together the present volume of papers is to convey to a wider audience some of the important issues that historians of geographical knowledge are currently addressing. The Historical Geography Research Series provided us with an ideal means of bringing the papers together in one volume for relatively rapid publication, in an accessible form and at relatively low cost. We are very grateful to Charles Withers for his encouragement and advice at every stage of the project, and also to the authors and various referees, for their cooperation in meeting very tight deadlines. We would also like to acknowledge gratefully here the financial support of the British Academy for this publication, which was especially helpful in enabling the use of illustrations. Finally, thanks are due to the following organisations for supporting the seminar series on which *Nature and Science* is based: King's College, Queen Mary and Westfield College, Royal Holloway and Bedford New College, University College, the Institute of Historical Research and the Historical Geography Research Group of the Institute of British Geographers.

Felix Driver
Gillian Rose

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The cover illustration shows Sir Roderick Murchison chairing the Geographical Section of the British Association; detail from 'The British Association', *Punch* 49 (1865), p.113 (reproduced by permission of *Punch*). Murchison was an influential figure in the development of nineteenth-century Geography and Geology; in the words of one admirer, 'God made the world, Sir Roderick arranged it' (Stafford, 1989, p.202).

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John MacKenzie is Professor of Imperial History and Dean of the Faculty of Humanities at the University of Lancaster. Among his publications are *Propaganda and Empire* (1984), *The Empire of Nature* (1988), *The Railway Station: A Social History* (1986, co-authored), and as editor *Imperialism and Popular Culture* (1986), *Imperialism and the Natural World* (1990) and *Popular Imperialism and the Military* (1992). He is the general editor of the Manchester University Press series 'Studies in Imperialism' and is currently working on a re-assessment of Orientalism for Manchester University Press, a study of hunting and society for Basil Blackwell, and a social and cultural history of the British Empire for Edward Arnold.

Roy Porter is Reader in the Social History of Medicine at the Wellcome Institute for the History of Medicine. He is currently working on the history of hysteria.

Recent books include *Mind Forg'd Manacles: Madness in England from the Restoration to the Regency* (1987), *A Social History of Madness* (1987), *In Sickness and in Health: The British Experience 1650-1850* (1988), *Patient's Progress* (1989) - these last two co-authored with Dorothy Porter - *Health for Sale: Quackery in England 1660-1850* (1989), and *Doctor of Society: Thomas Beddoes and the Sick Trade in Late Enlightenment England* (1991).

Gillian Rose teaches social and cultural geography at Queen Mary and Westfield College, University of London. She has published several papers on the construction of meanings of space and community, and is currently working on *Feminism and Geography*, a critique of the masculinism of the geographical imagination.

CHAPTER 1

INTRODUCTION: TOWARDS NEW HISTORIES OF GEOGRAPHICAL KNOWLEDGE

Felix Driver and Gillian Rose

This collection of essays appears at a significant moment in the history of geographical knowledge. There are substantial changes taking place, not only in the ways that academics think about geography and its past, but also in attitudes towards environmental questions more generally. The essays that follow can be read as contributions to a new historiography of geography; but they also have wider roots in, and implications for, current thinking about people and nature. Each author focusses on a specific theme, yet all are concerned with the history of modern scientific thinking about the natural world. In their disavowal of both inward-looking disciplinary chronicles and broad-brush functionalist accounts of geography's past, these essays radically enlarge our vision of possible histories of geographical knowledge. The purpose of this brief introduction is to show how and why such perspectives have influenced recent writing on geography's history.

The history of geography

Until relatively recently, the history of geography was not widely regarded as a particularly dynamic field of inquiry. During the 1960s and 1970s, historical surveys of the development of geographical thought in England and America were seen by a new generation of model-building geographers as somewhat passé, not to say antiquarian. More generally, the synthesising works of the geographical establishment were treated essentially as foundation stones (or museum walls) for a subject obsessed with the need for disciplinary boundary-making (Hartshorne, 1959; Smith, 1990a). Of course, there were some important studies published during this period (pre-eminently Clarence Glacken's *Traces on the Rhodian Shore* in 1967), but the endeavour of writing geography's history seemed to many to be unrelated to the pressing tasks facing a brave new discipline. The net result was that the conceptual basis of much writing on the history of geography remained surprisingly undeveloped; Whiggish assumptions loomed large, and the rich insights offered by historians of science and cultural historians were frequently

ignored. In recent years, however, there has been a remarkable resurgence of interest in the subject, not simply amongst those who style themselves 'historians' of geography, but also amongst those interested in questioning the fundamental assumptions and categories of contemporary geographical inquiry. Amongst the former, criticism of Whiggish approaches has generally given way to a 'contextual' perspective on geographical knowledge in different times and places; amongst the latter, recent debates have focussed critical attention on the genealogy of the central themes of geographical discourse: place, locality, landscape, region, environment, nature. These debates are given added significance by the current concern with modernism and post-modernism, themes which inevitably lend a new significance to the ways in which history is written and read (Harvey, 1989; Livingstone, 1990; Matless, 1991). The combined effect of these re-appraisals has been to establish some entirely new agendas in the history of geographical knowledge. The study of this history is clearly a vast endeavour; certainly, it is by no means the unique preserve of geographers.[1]

The current revival of interest in the history of geography therefore contains some broader changes in the way in which this history is conceived. A paradigm for these broader changes may be found in recent approaches to the history of exploration. The Whiggish accounts of an earlier generation, in which the conquest of the 'blank spaces' on the world map was conceived in the relatively unproblematic terms of scientific progress (Baker, 1937) have now been eclipsed by more specific studies stressing the contemporary economic, political, cultural and intellectual significance of exploration and travel (Bishop, 1989; Driver, 1991; Heffernan, 1989; Hulme and Jordanova, 1990; Matless, 1988; Parry, 1981; Rousseau and Porter, 1990; Stafford, 1984). Fruitful connections might be made between this growing literature and the history of cartography, which has become a major focus of interest in recent years (Harley and Woodward, 1987). In current work, questions of power and representation are to the fore, clearly indicating that the history of maps is increasingly being seen in the context of geographical knowledge more generally (Harley, 1988; Woodward, 1987).

The history of geographical knowledge is not, of course, confined to topics such as exploration and cartography. Eight years ago, David Livingstone identified what he called 'encouraging signs of a greater rapprochement between the history of science and the history of geography' (Livingstone, 1984, p.272). Since then, historians of the natural sciences - especially biology, ecology and geology - have

[1] No attempt is made here to provide a comprehensive summary of recent work; the paragraphs which follow point to several themes which have attracted particular interest over the last few years.

frequently addressed questions of geography (Browne, 1983; MacKenzie, 1990; Secord, 1986), while geographers themselves have begun to consider the relationships between their discipline and allied fields of learning (Livingstone, 1988, 1991; Tinkler, 1989; Withers, 1991). The study of Darwin and Darwinism has continued to provide fertile ground for geographers (Livingstone, 1987a; Stoddart, 1986), although the problem of racism and racial theory has generally been left to historians of anthropology and biology (c.f. Bowler, 1989; Dubow, 1987; Stepan, 1985; Stocking, 1987).[1] More attention has been paid to the history of ideas about the environment, clearly one of geography's abiding concerns. Recent work has gone beyond clichés about 'determinism' and 'possibilism', instead locating the significance of conceptions of the environment within contemporary social, scientific and political thought (Campbell and Livingstone, 1983; Driver, 1988; Jordanova, 1979; Livingstone, 1987c). The history of environmentalism has recently been considered in a range of fields, including medical geography (Frenkel and Western, 1988; Kearns, 1990) and urban planning (Hall, 1988; Ward, 1989). In this volume, the essays by Ludmilla Jordanova and Roy Porter focus on the role of environmentalism during the Enlightenment, in the context of assumptions about the family and medical science respectively.

Recent years have been marked by much greater reflection on the status and genealogy of geography's key concepts by geographers. Rather than being seen as a spontaneous expression of the encounter between people and the earth they inhabit, notions of place, space and landscape are now seen as cultural and social products. The modern idea of landscape, for example, is increasingly associated with a set of specific cultural and technical practices, unimaginable outside the historical and geographical contexts in which they were developed (Cosgrove, 1985). Furthermore, images of landscape are considered to be more than passive reflections of social needs and aspirations; the images themselves are held to do cultural work, re-presenting the world to the spectator. Studies of the representation of landscape, in science, art and popular culture, have thus illuminated wider historical themes (Cosgrove and Daniels, 1988; Pugh, 1990). The same is true of recent writing on conceptions of space and place. This has raised new questions about the role of space in European social thought, particularly in the context of modernism (Harvey, 1989; Kearns, 1984; Kern, 1983; Rose, forthcoming; Ross, 1988; see also Agnew and Duncan, 1989).

[1] Recent work by geographers on science and racism in twentieth-century Germany is something of an exception in this respect: see Bassin (1987) and Smith (1990b). See also Livingstone (1987b) and his essay in this volume

The term 'geographical knowledge' is conceived here not merely as a set of information (data) or a system of concepts (theory); rather, we define it as a specific form of knowing the world. That is to say, geographical knowledge depends on a constellation of concepts, practices and institutions; in other words, a discursive formation. This formulation avoids the various forms of reductionism which characterise both institutional histories of the discipline (which tend to neglect the provenance of concepts which inform the work of geographers) and narrowly intellectual histories (which often divorce concepts from the practices and institutions through which geographical knowledge is sustained). Indeed, it offers an alternative to the dilemma posed by the conventional divide amongst historians of science between 'internal, cognitive history' and 'external, contextual history' (Glick, 1984, p.280). This polarity is not particularly helpful when it comes to asking questions about geographical knowledge in a broader sense. The analytical separation of 'geography' and 'empire', for example, may hinder rather than help historians, as MacKenzie argues in this volume. A focus on discourse would demand that the language and imagination of geography be seen itself as having a worldly role, thus undermining any strict divide between internal and external histories of geographical knowledge (Driver, 1992; Said, 1978; Stafford, 1989).

To argue that geographical knowledge is discursively constructed is to insist on the importance of practices and institutions as well as concepts. Discourses always do their work in specific social contexts and with material consequences; social and cultural relationships structure both writing and reading, experiencing and seeing (Rose, this volume). In order to specify more carefully the production of the texts which constitute geographical knowledge, we have found the work of Edward Said especially helpful, not least because of his emphasis on what he terms the 'imaginative geography' of the colonial project (Said, 1978, p.55). Imagined geographies provided the maps of meaning through which the colonisers made sense of the people and lands they had conquered, and such maps were made not only by the military and civilian authorities but also by novelists, anthropologists, linguists and, of course, geographers, among others. Colonial authority depended in part on military force, but, as Said makes clear, it also resided in the desire to catalogue and classify all that was seen and heard; knowledge became power. This discursive conquest produced a necessary relationship between the coloniser and the colonised. As Said so elegantly demonstrates, the self-image of the civilisers depended on their representation of the colonised as those in need of civilisation.

Nature and science

One aspect of this colonial relationship, as David Livingstone's paper in this collection implies, was its expression in the form of a distinction between nature and science, or between the object of study and the subject. The indigenous people and their land became the natural objects of scientific analysis by the steady mind and unblinking eye of the colonial observer. The colonial powers used all the rhetorical weight of a definition of science which laid claim to objectivity and rationality in order to interpret and classify the native as their other.

To elaborate. Strathern (1980) has argued that the notion that nature is separate from human culture is a specifically Western one. Feminists have also begun to write a history of the construction of nature as the object of a discourse of universal scientific truth, suggesting that such a discourse positions the scientist as masculine as well as white. In her controversial book entitled *The Death of Nature*, for example, Merchant (1980) focussed on the seventeenth century as a particularly important moment in the history of scientific knowledge. No longer seeing himself as just one part of an organic cosmos, the scientist stood more and more aloof and saw nature as all that he, in his rationality, was not: volatile, feminine, vulnerable both to his laws of interpretation and to his shovels, axes and picks. Mother Nature was both the object of his study and the victim of his rapacious desire for her resources (see also Kolodny, 1975; Haraway, 1989). This construction of nature had important consequences for the social world too, for the natural became an ideological tool which established difference from, and unavoidable inferiority to, the white masculine norm. Thus in the mid-nineteenth century, medical discourse characterised women as instinctive, natural mothers, whose place was therefore in the home (Jordanova, 1989a, and this volume; Nead, 1988; Poovey, 1989). It had also established the inferiority of black women - and Gilman (1985) suggests that the Hottentot woman was the paradigmatic example - through detailed anatomical study which described biological, natural, difference from the white norm. This is not to deny that, on occasion, the 'natural' was seen by the colonial culture as beautiful and inspirational; only to emphasise that its construction as other than human sustained an unequal power relationship through claims about natural differences between categories of people.

If nature is a discursive construction, its meaning depends on its mastery by a particular kind of science. The essays in this volume explore some of the different sciences and their own specific claims to knowledge: medicine, heredity, geometry, anatomy. What these sciences share is their claim to objectivity and, often in the experimental context, a certain kind of visuality. Although it has been

suggested that visuality is especially important to geographical knowledge (Cosgrove, 1985), Keller and Grontkowski (1983) have argued that metaphors of seeing are central to Western discourses of science more generally because they work to signify objectivity. Their discussion usefully raises some of the complexities of the power relations implicit in claims to knowledge. They turn to the seventeenth century and focus on the Cartesian split between the mind and the body, placing this split in the context of the powerful and traditional metaphor of perception as both visual and intellectual. They argue that Descartes sustained this older metaphor by claiming that for the scientist the eye was merely a passive lens, and that the mind reworked the information it received in order to construct reality. Thus while others were trapped in the biological definitions of their bodies constructed by white, masculine science, scientists themselves claimed that their consciousness was only contained by the body, not contaminated by it.

This contradictory discursive structure has been emphasised by Wolff (1990, p.121), who notes that it produces an attitude which both represses and possesses the body. Another contradiction this essay has noted is that between Nature as both an inspirational, revered muse and a vulnerable, raped mistress. Such contradictions within, as well as between, different discourses, are crucial, we would argue, to the question of how to write about the relation between power and knowledge. This is a difficult question because there is no innocent language outside the problematic terrain of power/knowledge relations, and so we must write in a language which is itself partly constitutive of the constellation of ideas it wishes to critique. As Said has argued in a discussion of the Enlightenment, the language of Western science is both emancipatory and oppressive. Said says that he responds to the word 'humanist' with 'contradictory feelings of affection and revulsion' (Said, 1985, p.135); similarly, we argue that while rejecting science completely is to lose the possibility of critique, sanctioning the scientific project without qualification is also to sanction the horrors committed in its name. We want to suggest that another strategy for a radical critique of geographical knowledge and its role in various power relations may be to work within the tensions between these positions. The task may be to subvert from within; to use the contradictions of science against itself, or, in Moi's words, 'not to abolish oppositions, or to deny that such signifiers exist, but rather to trace the way in which each signifier contaminates and subverts the meaning of others' (Moi, 1989, p.194). This is a strategy permitted by our argument that science and nature are discursive constructions, for a surplus of meaning is the condition of all texts, just as unintended consequences are the result of all social actions. The role of the critic may then be characterised as deconstructive: to work the contradictions of the

discursive structure of the same and the other against themselves, and then to work among the fragments to create a new relation between knowledge and power.

CHAPTER 2

GEOGRAPHY AS A SCIENCE OF OBSERVATION: THE LANDSCAPE, THE GAZE AND MASCULINITY

Gillian Rose

> In the course of fieldwork or on a summer holiday we have all climbed a mountain and gazed over uninhabited or unfamiliar country... In the contemplative mood that mountain tops induce, we have brooded over the view, speculated on the lay of the land, experienced a pleasurable sense of the mysterious - perhaps felt even a touch of the sinister. We have heard the Sirens' voices.
>
> (Wright, 1947, p.2)

One of the most important expressions of the relationship between power and knowledge in the discipline of geography in the Western academy is the exclusion of women and their experiences as both subjects and objects of research. Their marginality to hegemonic definitions of geography has been well-documented (Domosh, 1991; Monk and Hanson, 1982; Peake, 1989). There has, however, been relatively little discussion of its implications for the kinds of knowledge through which the discipline defines itself; feminist geographers have, until very recently, been more concerned to make women and gender relations a part of geographical knowledge than to question the epistemology and ontology of the geographical project (but see Domosh, 1991; Johnson, 1987).

Identifying the under-representation of women in geography is not to suggest, however, that femininity is absent from geographical knowledge; on the contrary, as this chapter will argue, the feminine is present in geography's texts. The chapter looks at one of the key concepts of Western geographical knowledge - landscape - and argues that the unknown and unknowable in landscape is implicitly represented by geographers as feminine. In order to understand why, the work of Le Doueff (1980) is helpful. In the context of her study of Western philosophical texts, she argues that their meaning depends on an internal contrast with what is meaningless (see Grosz, 1989). This dualism is gendered; masculine knowledge defines itself in contrast to a feminine unknowable. The work the feminine performs in geography is similarly epistemological, for the feminine presence is that against which the meaningfulness of masculine knowledge is established. My task

then is not to put women back into the historiography of the discipline, but rather to examine the masculinism of its central categories and ways of knowing.[1] Clearly this is an ambitious project, and only an extremely schematic start can be made here.

Landscape is one of geography's most resilient terms because it refers to one of the discipline's most abiding interests: the relationship between the natural environment and human society. Landscape developed as a concept in geography in nineteenth-century Germany as *Landschaft*, which literally translates as *the shape of the land.* By studying the morphology of scenery it was argued that geographers could formulate systematic and scientific theories of societies' interaction with the physical environment around them, in particular by relating the environment to the social, economic and cultural activity in the area over a period of time. Landscape then was never a self-evident object in geography. A theoretical framework always structured its interpretation; it was an analytic concept which afforded objective understanding. As a reviewer of interwar landscape studies insisted, although 'literally [the landscape] is the scene within the range of the observer's vision', the view demanded analysis and interpretation in order to gain an objective understanding of the landscape in its entirety (Dickinson, 1939, p.1).

The practice of fieldwork was crucial to this scientific understanding of landscape; its purpose was to observe directly the synthesis of land, flora, fauna and people. The eye held the landscape together as a unit and the geographer then analysed the view, selecting the features requiring elucidation, and fieldwork is still of central importance to the discipline. As a manual on fieldwork for schoolteachers puts it, 'when we train and seek to inspire a new generation of geographers we must by precept and by example remind them that the great discoveries and advances made in geography have been made by men who went to look *and think* in the field' (Jones, 1968, p.1, my emphasis). Every schoolchild and student is taken on visits to the field, and undergraduate field trips are the initiation ritual of the discipline. Field trips instill the ethos of geographical knowledge into its students, and it is an ethos of science triumphant:

> In the discipline a major approach has been through field study, in which geographers go directly to the original source of all geographical knowledge and confront the raw and undisturbed phenomena with which they have to deal. Field study [is]... an endless effort to bridge the gap between raw data and penetrating comprehensive knowledge (Platt, 1959, p.1).

[1] I use the term 'masculinism' because it avoids the universalist connotations of 'patriarchy' and the often purely linguistic reference of the term 'phallocentrism'.

The real geographer faces wild nature for the sake of rational science; as Stoddart proudly tells us, 'on uninhabitied Pacific atolls, sailing alone the barrier reefs of Australia and Belize, in the mangrove swamps of Bangladesh, on English coastal marshes, I have been concerned with making sense of nature' (Stoddart, 1986, p.ix). This heroism continues today too, with the organisers of field trips to the museums and cafes of Venice forced to legitimate themselves by referring to Sauer and Wooldridge as antecedents (Cosgrove and Daniels, 1989, p.179).

The analytic look was thus a crucial part of field research. But the gaze also gave pleasure to the geographer. It offered him the gorgeous scene, the enlightening detail, the beauty of diversity and the breathtaking view (Stoddart, 1986), and a past president of the Association of American Geographers has claimed that 'many of us are in geography because it involves using our eyes, and for the latitude it allows for wonderment at the world around us' (Parsons, 1977, p.2). Such pleasure in and awe of landscape is often celebrated by geographers, but with hesitation, even treated with suspicion. Pleasure in the landscape was often seen as a threat to the scientific gaze, and it was often argued that the geographer should not allow himself to be seduced by what were described as 'the sirens of *terrae incognitae*' (Wright, 1947, p.1).[1] This need for a certain analytical distance from the aesthetic pleasures of the view is repeated in much more recent accounts of landscape (Meinig, 1979; Cosgrove, 1985).

In the rest of the paper, I want to explore some connections between this ambivalent pleasure in looking at landscape and the scientist-as-hero ethos of fieldwork. The next section examines some more recent studies of landscape by cultural geographers, and suggests that pleasure in looking is again acknowledged but repressed unexamined. In order to explicate the ambivalent fantasies which structure the masculine gaze of the geographer, discussions of the discursive and visual encoding of nature as feminine follow. These suggest that the landscape which geographers hope to know but whose pleasures escape their mastery is a construct of masculine power and desire.

The critique of landscape by the new cultural geography

In 1987, a paper by Cosgrove and Jackson heralded 'new directions' in cultural geography. It marked the development of a rich and subtle literature in which, among other things, the concept of 'landscape' has undergone a major critique. Central to its arguments is the visuality of the landscape idea, and the following brief account focusses on this aspect of the new work.

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[1] I would like to thank Steve Daniels and Peter Sunley for helpful comments here.

Cosgrove has problematised the term landscape through a study of the concept as it first emerged in Renaissance Italy (Cosgrove, 1985). He understands landscape not as a material expression of a particular relationship between a society and an environment, observable in the field by the objective gaze of the geographer, but rather as a concept which makes sense of a particular relationship between society and land. In particular, geographers have stressed the construction of the look at landscape and have argued that landscape is a way of seeing which we learn: 'a landscape is a cultural image, a pictorial way of representing, structuring or symbolising surroundings' (Daniels and Cosgrove, 1988, p.1). A landscape's meanings draw on the cultural codes of the society for which it was made. These codes are embedded in social power structures, and theorisation of the relationship between culture and society by these 'new' cultural geographers has so far drawn on the humanist marxist tradition which sees the material and symbolic dimensions of the production and reproduction of society as inextricably intertwined (see Daniels, 1989). Cosgrove, for example, says culture is:

> symbolisation, grounded in the material world as symbolically appropriated and produced. In class societies, where surplus production is appropriated by the dominant group, symbolic production is likewise seized as hegemonic class culture to be imposed on all classes (Cosgrove, 1983, p.5).

Cosgrove places the development of landscape painting in the context of an emerging bourgeoisie which, while it was buying land in the countryside and constantly searching for new markets, was also improving various means of depicting and thus controlling these spaces. Surveying and map-making increased both its knowledge of and power over space and people. Cosgrove stresses the importance of the technique of three-dimensional perspective to this material/cultural process, a technique which enabled artists to render depth realistically. In so doing they established a particular viewpoint for the spectator of a landscape view: a single, fixed point which sees the property of the bourgeois individual spread out before it. Cosgrove concludes that landscape is a way of seeing which is patrician because it is seen and understood from the social position of the landowner: it is a 'visual ideology' made hegemonic (Cosgrove, 1985, p.47), and the pleasure if offers is merely the bourgeois pleasure in possession.

Although by the twentieth century landscape painting was no longer necessarily perspectival, the power of images of landscape remains as strong as ever. Its continuing significance has been connected not only to its ideological dominance but also to its emotive power in an important essay by Daniels (1989) which elaborates and complicates Cosgrove's arguments. Daniels advocates a

Figure 1: *Mr and Mrs Andrews* by Thomas Gainsborough (1727-1788).
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sense of landscape as not merely ideological, but duplicitous. Pleasure in landscape could be used by the bourgeoisie in ways explored by Cosgrove, but its enduring intensity suggests to Daniels that it also expresses something profound and constant about the human condition.

I want now to look briefly at the mid-eighteenth century double portrait of *Mr and Mrs Andrews* by Thomas Gainsborough, an image often used to exemplify these arguments about class and property and English landscape. For Berger, for example, and, by implication, for Cosgrove, pleasure in the right hand side of the canvas - its intense green fields, the heaviness of the sheaves of corn, the English sky threatening rain - is made problematic by the two figures on the left: Mr and Mrs Andrews, the improvers of the land. 'They are landowners and their proprietary attitude towards what surrounds them is visible in their stance and their expressions' (Berger, 1972, p.107). The perspective in this image allows our gaze to wander freely across the land in the way only landowners of the time could, and its use supports Cosgrove's claim that landscape painting is a form of visual ideology. The fact that this couple owned the fields and trees about them is central to the painting's creation and therefore to its meaning, and so any pleasure we feel must be tainted by theirs. However, following Daniels's insistence on the duplicity of landscape, our pleasure in its representation of the countryside remains real and enables the shock of Steve Bell's cartoon for CND in which Mr and Mrs Andrews are replaced by Reagan and Thatcher and Cruise missiles litter the fields obscenely (Bell, n.d.). The landscape here, in its desecration, works against the power which the two figures represent.

Daniels's essay is highly innovatory in its frank admission of visual pleasure; as this chapter has already noted, geographers have traditionally been careful not to over-respond to the pleasures of their observed landscape. Tuan, for example, simply says that when confronted with the emotional pull of art, 'the proper response is silence' (Tuan, 1979, p.422). In Daniels's essay, however, there remains another kind of refusal to engage critically with this expressive power, partly enabled by his claim that it is a universal, transcendental pleasure and therefore unproblematic. Its impact is also kept at bay by the reiteration of a quotation from Berger about visual pleasure which is repeated almost like a talisman against the power of which it speaks; for the spectator, pleasure is 'a going further than he [sic] could have achieved alone, towards a prey, a Madonna, a sexual pleasure, a landscape, a face, a different world' (Daniels, 1989, p.203 and p.215). It seems that the function of repeating the text which represents visual pleasure is to mark the ground of an apparently unspeakable pleasure; to delimit it, to render it bounded, a definition against which a stable system of interpretation is erected. The

new cultural geography then seems as ambivalent about the apparently disruptive power of the visual as the old. But why is this power characterised in terms of a Madonna, and in terms of sexual pleasure? Let's take a second look at Mr and Mrs Andrews.

The discourse of feminine nature

It is possible to differentiate between Mr and Mrs Andrews. For although both figures are relaxed and share the sense of partnership so often found in eighteenth-century portraits of husband and wife, their unity is not entire; they are given rather different relationships to the land around them. Mr Andrews stands, gun in arm, ready to leave his pose and go shooting; his hunting dog is at his feet already urging him away. Mrs Andrews meanwhile sits impassively, rooted to her seat with its wrought iron branches and tendrils, her upright stance echoing that of the tree directly behind her. If Mr Andrews seems at any moment able to stride off into the vista, Mrs Andrews looks planted to the spot. Through a discussion of this difference, I want first to establish the way it draws on a discursive association of women with nature, and then to think about what this means for geographers' amibivalent visual pleasure in landscape.

Many feminists have argued that the discursive construction of femininity as closer to nature than masculinity is the source of women's oppression, and in the mid-1970s anthropologists attempted a cross-cultural theorisation of patriarchy by suggesting that the naturalisation of women's childbearing role confined women to the domestic arena and excluded them from the public world of the polity, economy and culture (Rosaldo and Lamphere, 1974). Feminist historians have begun to specify this process both substantively and theoretically in Euro-America, and their work offers part of an explanation for Mrs Andrews's difference from Mr Andrews.

The notion that culture was separate from nature was made in classical times in Europe, but its gendering was elaborated in the seventeenth and eighteenth centuries. The discourses of that era in various and complex ways hardened the already-existing division between abstract and rational man who could pursue universal knowledge unencumbered by the limitations of a body placed in a particular period and place, and relational, emotional woman closely bound to the particular instincts, rhythms and desires of her fleshly, located body. With the development of mechanical theories of the world in the seventeenth century, women were seen as the repositories of natural laws and, like nature tamed by man, women too could be examined by male science and made intelligible. Science represented

nature as passive and therefore female: a set of discrete functioning mechanisms which could be known and controlled (Merchant, 1980). Political theorists pointed to the closeness of women to nature in their arguments against women's participation in the polity (Okin, 1979). The expression of such themes in legal discourse meant that only Mr Andrews was a landowner when Gainsborough painted him, and this suggests one reason why Mrs Andrews is denied the mobility of her husband and represented more as part of the landscape. Moreover, the shadow of the oak tree over Mrs Andrews refers to the family tree she was expected to propogate and nurture (Daniels, 1988); like the field she sits beside, her role was to produce. As Bermingham (1987, pp.14-16) notes, these references to trees and fields also serve to naturalise Mrs Andrews's function as a mother.

The comparison between women and nature was a complex one, though, for women were both the passive and nurturing mother nature of organic theories of the self and cosmos, as well as tempestuous and uncontrollable wild nature; medical discourse argued that both woman's fecundity and her lust placed her closer to nature than man (Moscucci, 1990; Poovey, 1989). Woman as both mother and whore was constructed as natural. And in many landscape paintings with women, not least in numerous images from the second half of the nineteenth century when geography was emerging as a discipline, Nature is discursively represented as feminine, both maternal and seductive. French genre scenes of that period often demonstrate the presumed naturalness of peasant women's maternal role by their visual equivalence of the women with the animals and land they tend (Nochlin, 1980). Woman's sexuality as well as her fertility was explored in images of classical, fantastical or allegorical women surrounded by wild nature; they are found in fields and woods throughout late nineteenth-century art, entwining themselves as nymphs or dryads in trees, or lying on the leaf-covered earth, languid, vulnerable, so that, according to Dijkstra's somewhat over-empathetic account, 'we can almost hear them call to us like animals waiting to be fed' (Dijkstra, 1986, p.99). In a final iconographic twist, women became allegories of nature herself, for the seasons, for weather, for the time of day, for flowers.

It is this transcoding of the complex meanings of woman and nature which begins to suggest an explanation of geographers' suspicion about visual pleasure. The first French encounter with Tahiti is described by Stoddart (1986, p.35) as one of the founding moments of scientific geography. Jordanova claims that by the eighteenth century, 'science [was] a sexual activity in its relationship to nature' (Jordanova, 1980, p.66), and the specific encounter Stoddart chooses to elaborate is a sexual one; the cook jumps ship to find Tahitian women. The new land to be explored, mapped, penetrated and known is thus shown as feminine and desirable,

not an uncommon trope in the language of geographic exploration (Kolodny, 1975; Said, 1978); at a later colonial moment, Gauguin's paintings of Tahiti fused beautiful, sexual, fertile women with a gorgeous, generous, lush land. In Stoddart's tale however the women are also threatening; the cook returns and says that whatever punishment his captain chooses for him could not be more terrible than them. Daniels too confirms the sinister and seductive sexuality of pleasure in landscape in his repeated attempt to contain its disruption through a conflation of hunting, a virgin, the single male orgasm and landscape. We are now in a position to understand this ambivalent pleasure in terms of the discursive construction of nature as both a nurturing mother and a seductive and dangerous mistress.

In its stress on the discursive construction of nature, however, this argument does not fully address the *visual* pleasure geographers find in landscape. Many feminist art historians and cultural critics have suggested that 'the specificity of visual performance and address has... a privileged relation to issues of sexuality' (Pollock, 1988, p.123), so I want now to suggest that visual pleasure in landscape is specifically sexual; there is a gendered logic of the gaze (Bryson, 1983). I want to connect geographers' ambivalence towards 'the landscape of the reclining torso' (Armstrong, 1986, p.237) to the imagined and desired sexuality of the feminine which is offered to the *spectator* of landscape, as well as to the discursive representation of nature as both maternal and sexual.

Visual pleasures and fears

To summarise crudely a large and complex feminist literature which draws to some extent on Lacanian psychoanalysis, 'looking implies subjects who arrange things into images and who are themselves produced by looking' (Deutsche, 1991, p.10); there is a 'complex identificatory investment in images' (Grosz, 1989, p.22). But in a phallocracy, not everyone can look equally; woman is image and man is bearer of the look (Mulvey, 1989, p.19). The active look is masculine, and the passivity of being looked at is constituted as the feminine position. Mulvey's (1989) comments on Hollywood cinema suggest that these positions are established through images of landscape especially. She argues that films re-enact some of the earliest moments of self-identification when the subject sees its image reflected in a mirror, and so we see ourselves on the screen, ourselves as we would like to be, heroic. The use of landscape structured through Renaissance perspective is central to this process, because 'the active male figure... demands a three-dimensional space corresponding to that of the mirror recognition in which the alienated subject internalised his own representation of his... existence' (Mulvey, 1989, p.20).

Movie heroes are the coherent, active subjects in which subjectivity is first recognised in the mirror; and Mulvey notes that women who identify with the hero are taking up masculine positions. Here then lies part of the satisfaction of fieldwork for geographers; they see themselves as the masculine hero in a landscape, and fulfilling themselves through their attempts to understand feminine nature.

The masculine gaze is also characterised by Mulvey as one of desire, a search for something that is lost, and the pleasure which both men and women find in visual images has been argued to rest in part on their ability to partially and temporarily assuage our sense of loss. In particular, images of women, of nature, of mother nature and the 'maternal natural landscape', to quote Sauer (1963, p.325), can offer plenitude and pleasure and suspend the fear of lack (Pointon, 1990).

However, alienation is also a necessary consequence of the importance of the mirror to identity, for the image in the mirror is separate from the subject who sees it/himself. This implies that voyeurism is also part of subjectivity, and the analytical distance upon which the protocols of fieldwork insist is a kind of voyeurism: investigative and controlling, instituting a distance from and mastery over the image. Such boundaries are needed, and visual pleasure is deeply ambivalent, because if images of women and the feminine can disavow lack, they also threaten to overwhelm the masculine subject. Dijkstra (1986) charts these anxieties in the nineteenth-century paintings of mermaids, sirens, sphinxes and Medusas, and studies of the exploration of North America and Africa have revealed the ways in which the terrors of the overwhelming unknown were seen in terms of maternal suffocation (Kolodny, 1975; Stott, 1989). Landscape can then signify visually not the welcoming topography of a nurturing mother or peepshow tease, but terrifying swamps, floods, seas. Geographers' ambivalence about landscape is therefore also part of the desires and fears which mediate their gaze and the image.

Looking and knowing

Geographers' profound ambivalence toward the landscapes they desire so much must be seen as part of geography's 'erotics of knowledge' (De Certeau in Deutsche, 1990, p.10). I have suggested that the feminine unknown is represented in cultural geography by visual pleasure, and that the geographers' gaze at landscape is structured by a distinction between nature (the feminine scene, to be interpreted) and science (the masculine look, the interpreter). The complexity of the femininisation of nature in the West, and the complexities of sexually-differentiated

interpretation of geographical knowledge needs the specificities of historical geography often missing from psychoanalytic accounts of the visual, and the work of the new cultural geography is clearly valuable here. But its repressive refusal to explore its own pleasures only continues to deny and simultaneously to display its masculinity.

CHAPTER 3

ENVIRONMENTALISM IN THE EIGHTEENTH CENTURY

Ludmilla Jordanova

'Environmentalism' is a modern term, unknown to members of eighteenth-century societies; some defence of its use is thus required. It is used here to refer to a cluster of preoccupations in the period that had the environment at their centre. Four of these were of outstanding importance. First, there was an analytical interest in the environment, that is, in understanding its constituent elements and in generating reliable information about them. Second, the environment was thought to possess the capacity to explain a wide range of natural phenomena, where 'natural' was interpreted extremely broadly. Third, the environment was seen in aesthetic terms, as the manifestation of nature's beauty, sometimes as bearing the marks of God's hand, and generally as a source of pleasure. The sheer variety of known environments added to this sense. Finally, the environment was construed as an agent of change, as a force or sum of forces with the ability to alter living things, including human beings, and as a result, to have a profound effect on societies.

All these preoccupations are suggestive of the well-known interest in 'nature' that characterises the period (Charlton, 1980, Crocker, 1963). This took innumerable forms; here I have gathered a few of them together under the theme of 'environmentalism' in order to examine some quite specific issues. It was a century that saw the development of a self-conscious empiricism, comparative methods and notions of management. Equally important, however, was the growth of natural theology, a field that reveals a special admixture of religion and science so characteristic of the time (Brooke, 1991). Nonetheless, a sense of the power of reason to analyse and then manage the world predominated, and nowhere is this better exemplified than in relation to the environment.

What, then, did eighteenth-century commentators understand the environment to be, given that the term did not exist? The French, for example, could deploy the word 'milieu', which nicely conveys the idea of surroundings, a setting, in which something is located. There is an implicit dualism here between that which surrounds and that which is surrounded. The latter is, in the eighteenth century, assumed to be living things, including human beings. More than this, each person came to be understood as a centre point in an environment, which

could include groups of people, institutions, parts of the natural world and so on. However, none of these was assumed to be static; the composition of the environment changed according to context, as did the organic beings in relation to which it was deemed an environment.

I have deliberately presented the environment in this rather open-ended way in order to point up what I take to be an important feature of eighteenth-century thinking in this area. Our models of the environment privilege geography and ecology, and then extend this metaphorically to a range of other settings. Late twentieth-century thinking on 'the environment' seems to mobilise emotional reactions to nature, where nature is left conveniently ambiguous. By contrast, in the eighteenth-century different types of environments are invoked: such as, historical, geographical and ideal ones. When writers wanted to think about settings, they often moved between examples from the past and from distant regions as if these were on a par. They also indulged in thought experiments, as in the construction of utopias, in order to imagine individuals and groups in entirely different settings and then tease out the possible implications. Conjectural histories and accounts of the state of nature are as relevant here as the familiar fictional accounts like the *Lettres Persanes* (Montesquieu, 1721) and *Gulliver's Travels* (Swift, 1726).

Out of this necessarily brief sketch, I want to draw three themes for further consideration. What I am calling environmentalism had the capacity to imagine nature in a holistic manner. This first theme is important in the period because of developments in the life sciences that we shall examine shortly. The emphasis on the integrity of organisms is one of the most significant features of holistic approaches. Indeed, the model of a whole organism interacting with a complex milieu lies at the heart of environmentalism in the period; it was underpinned by contemporary thinking in both the human and the medical sciences. The second theme is the development of comparative methods. The strong awareness of the diversity of environments led people to compare them as part of a scientific method. Their explanatory potential could only be realised if both the features common to and different in a range of settings could be specified. This is an inherently comparative approach, one found, it should be emphasised, in many branches of learning in the period. The third theme follows directly from this point about comparative ways of thinking, which only makes sense if the environment is a concept for analysing difference. Scholars are now increasingly aware of the dynamic in the natural and human sciences between concern for the unity of nature and natural categories, and that for the fundamental differences between classes of natural objects.

The most familiar example of this gender. During the eighteenth century there was sustained interest in 'Woman', that is, in the features all women had in common and in what differentiated them from men (Bloch and Bloch, 1980; Moscucci, 1990). At the same time, those who studied anatomy and physiology were also interested in traits shared by all human beings, but not, for instance, by apes. The further examples are endless, since naturalistic modes of thought were perpetually analysing and comparing various kinds of difference. The environment played an important role in these processes. If the unity of the human race in all respects had been taken for granted, the settings in which various groups lived would have been of no particular interest. It was precisely because this could not be assumed that the environment came to occupy such an important place in eighteenth-century thinking. Furthermore, it could be used to explore a number of sorts of difference - forms of government, climate, customs, education, domestic arrangements, child care practices, legal systems and so on, all of which were treated as if they were natural variables (e.g. Montesquieu, 1748).

I shall illustrate these general points about environmentalism in two ways. First I shall sketch in the role they played in the biological thinking of Jean-Baptiste Lamarck (1744 - 1829) in order to show some of the ways in which the natural sciences got to grips with the environment. Then I shall take a less familiar example - naturalistic thinking about the family - in order to show the manifestations of environmentalism in social and cultural practices and in institutions.

Naturalistic conceptions of the environment: Lamarck as a case study

In forging an original view of the history of nature Lamarck was able to draw upon many well-established trends in eighteenth-century science and medicine (Corsi, 1988; Jordanova, 1984). His preoccupation with meteorology, for example, which involved recording numerous climatic observations and attempting to find regularities in them, should be seen in the context both of a self-conscious Baconianism and of a well-established medical interest in the impact of the weather on health - an interest that had existed for centuries. Similarly, Lamarck's work on geology had ancient roots as well as being part of a remarkable growth of scientific interest in the earth over the course of the eighteenth century. A brilliant paleontologist, Lamarck did rather little geological fieldwork. His geology was directed instead at understanding the contours of change over vast periods of time and he explicitly presented this study of the earth as complementary to his biology, a term he was one of the first to use. Lamarck's earliest work was in the

fashionable field of botany, which amply demonstrated the impact of environments on organic forms. More particularly, Lamarck was a taxonomist. Taxonomy was fundamental to comparative approaches, indeed, as a practice that judged differences and similarities, it was the primary tool of comparison for natural historians.

As his long career developed, Lamarck became increasingly preoccupied with the nature of living phenomena in general, hence his interest in biology a new scientific discipline. In practice he worked more and more on animals, doing most of his empirical work on invertebrates. What continually struck him was the dynamism of living things, their ability to respond to stimuli in a co-ordinated fashion. Above all, he sought to explain the distinctive properties of human beings. In accordance with the dominant assumptions of the time, Lamarck turned to the nervous system when he wanted to understand human beings better, since it was believed that the brain and nervous system held the key to the unique mental abilities of human beings. Even in animals with less sophisticated 'mental' capacities, Lamarck, like many others, was struck by their responsiveness. Indeed, he used these reactions to provide characterisations of groups of animals - the simplest ones were dubbed 'apathetic', for example (Lamarck, 1809). In Lamarck we can discern one form of the model referred earlier, of interaction between surround*ings* and surround*ed*. And, since he had skills in geology and meteorology, as well as in biology, Lamarck was well placed to see the two sides of the model as a single system: nature.

That he constructed a theory of transformism, that is, of how organic forms had changed over time, out of these building blocks is well known. However, it is rarely appreciated how indebted Lamarck's thinking was both to philosophy and to medicine. He was sympathetic to the philosophical trends in the eighteenth century that are traditionally associated with Locke and Condillac, and he was friendly with as well as influenced by members of the *idéologue* group who presented themselves at the end of the century as the heirs of empiricism (Staum, 1980). Lamarck believed that all knowledge came from the senses, that experience moulded organic beings. He denied the existence of an immortal, immaterial soul, and although no materialist, he felt confident it was possible, at least in principle, to offer fully naturalistic explanations for all observed phenomena. Lamarck was not a deep philosopher, but he did try to produce a coherent picture of the physical world and its history, principally in order to place his transformism in a firm intellectual framework. In doing so he presented nature as a producer, as a force that works over time to generate all organic forms. Lamarck envisaged constant interactions between living beings and their environments.

His debt to medicine was important because so many practitioners of the period saw health and illness in environmentalist terms (Staum, 1980). In part these derived from their classical heritage; the Hippocratic corpus and Galenism encouraged an interest in climate, geography, and the 'non-naturals', which were those factors like diet and rest that had such a powerful impact on well-being. We should also note the many clinical approaches of the period that were informed by a fresh sense of environmentalism. The enormous interest in 'airs' went all the way from pneumatic chemistry to travel for health reasons. To a degree, assumptions about the impact of the external world upon living things, for good or ill, became commonplace, part of the cultural resource pool (Glacken, 1967). Often the concept used to express that impact was 'habit' - a notion we find also in Lamarck.

It is possible to see the presence in Lamarck's thought of four key ideas that underlie environmentalism more generally. First, organisms were seen as malleable and responsive to external stimuli. Second, living things interacted with a range of external forces, which were themselves amenable to scientific analysis. Third, change was produced in organic entities over time, it was not a question of fixed innate traits, but of genuine temporal alterations. Fourth, he enthusiastically espoused comparative methods. With these four features in mind we can turn to the family, seemingly a complete change of tack, but in fact all of a piece with Lamarckian biology - a kinship that is explained by the ubiquity of these assumptions.

Family and environment: conceptualising inter-relations

In the eighteenth century the relationships between the family and environmentalism were complex. If treated as a natural object, the family could be conceptualised as interacting with its surroundings in just the same way organisms were. Accordingly, variation in family forms over space and time would simply be expected, and the family could be seen to have 'evolved' just as other phenomena like languages, states and cultures had. These could be classified, analysed comparatively, and possibly explained in terms of their different 'environments'. If treated as an environment, then the family was imagined as having a massive impact on the malleable and responsive organisms that composed it. In this case, variations between individuals could be explained in terms of the impact of different types of family upon them. Thus, entities that we now consider social were treated as natural, with clear ideological implications. It might be more accurate to say that the natural and the social were not seen as necessarily opposed or mutually exclusive, rather 'social' often denoted highly complex natural phenomena. There

was always a certain tension in ways of thinking about the environment in this respect; it is easy to see climate as 'natural', forms of government as 'social', but in fact many features of the environment, such as diet, work, housing, had a more complex conceptual status. Thus the particular interest of the family as a concept in this period is the elaborate manner in which it could function as both a natural and a cultural/social category (c.f. Jordanova, 1986).

One way in which this was possible stems from the intense interest in education, which resulted in turn from the theory of learning that predominated in the period (Locke, 1693; Rousseau, 1762). If babies are blanks rather than replete with innate ideas, if people need to be formed, mentally as well as physically, then the significance of the family is greatly enhanced. These conceptions were based on a particular understanding of human nature, one that stressed above all our ability to understand our own minds as part of nature, and to act on the basis of that understanding. The mind became a natural entity, and in the process, early childhood, the time when the mind was at its most malleable, assumed a new importance. The family, then, was the place where these malleable human beings were produced and cared for; it constituted the environment that determined the experience of these tender organisms. Significantly, children were often compared to plants (e.g. Cadogan, 1748). Since there were evidently a variety of ways in which children could be reared, family behaviour and education were highly contested matters. In effect, this conceded the power that people could wield, by their very natures, over one another - a power that was only too evident to a critic of conventional education like Mary Wollstonecraft (1792).

Environmentalism never involved simply charting variables, whether these were on the stimulus or the response side. Always implicit was the idea that natural variables could be managed. This is clear in medicine, where environmentalism was closely linked with the management of disease, whether by diet, behaviour or exercise, or by changing living and work locations. This applied to the family too. An awareness of the elaborate interactions between people and their immediate environment led to the possibility of management, that is, the conscious manipulation of human beings for specified ends (c.f. Andrew, 1990). Blueprints for education were no less than this, as Rousseau's *Emile* (1762) made clear. The point can be made effectively by two well-known but somewhat different examples, that do not, as it happens, concern the family directly. In attempts to reform the penal system, and to use prisons as instruments of rehabilitation, considerable attention was paid to the physical and moral environment in which inmates would live (Rothman, 1971). This was to be a controlled environment, in which as much of the input as possible was deliberately designed to change the prisoners. More

specifically, the goal was to alter their habits, the constituent elements of their 'personalities'. It is no coincidence that habit was the term used by Lamarck of the means by which transformism changed organisms gradually, over long periods of time. For him, habits built up over the lifetime of a single individual as a result of perpetual interaction with the environment.

The other example concerns the plans to move cemeteries out of urban centres, where they posed a health hazard, to more 'rural', that is, natural settings that would better facilitate the process of mourning (McManners, 1981). Even the dead require an appropriate environment. So do the living, who were coming to feel that proximity to numbers of dead bodies was profoundly distasteful. There are numerous other examples that suggest the moral power a natural environment was thought capable of exercising. In this context, 'natural' could take on a wide range of meaning. A 'natural' mother, for instance, was one who obeyed the dictates of nature, as defined by whoever the writer in question happened to be. Good mothering, often denoted by the breast-feeding of one's own children, provided a natural family environment that had beneficial moral effects on the children and their father alike. Small wonder than that much philanthropic activity, including foundling hospitals and houses for the reform of prostitutes, was directed at improving the family as the main environment in which future citizens were socialised. Equally significant was the mass of didactic literature that had the same aim. It, like philanthropy, presented the family as an idealised environment, and if in particular instances it fell short of ideal, it was to be reformed and managed. Environmentalism was part of an ideological strategy that informed a wide range of practices, including print culture and institutions.

My argument has been that understanding the relationships between living things and their milieu was a project of particular importance for eighteenth-century savants in the bio-medical and human sciences. These fields used closely related ideas which could, in the absence of rigid discipline boundaries, move freely in the culture of the period. The organism/environment nexus was applied to human beings, both individually and in groups, and I have tried to show some of the conceptual work it did by examining the concept of family. 'The family' was a constructed abstraction, subject to constant definition and redefinition; its meanings were so varied and so unstable that it appears to resist historical analysis. One way of getting hold of its significance for this period is to examine the ways in which it was treated as a natural entity that could be both an environment and also, like an organism, responsive to larger environments. This enabled commentators to study it naturalistically, to chart its temporal and spatial varieties.

We find an interest in the comparative history of the family in many eighteenth-century writings. In *A Critical Essay Concerning Marriage* (1724), for instance, Thomas Salmon included thirty-four geographical chapters on marriage customs among the Laps, Swedes, Siberians, Turks, Siamese and many more. It was an attempt to bring a particular kind of empiricism to the study of social difference, using the family as a case study. I have suggested that environmentalism was a concept that served to highlight difference. The empiricism of Salmon and others was schematic; it took regions as types, and then used them to illustrate arguments that were driven by concerns about the family, gender and sexuality as points around which societies could, if managed correctly, stabilise. But if this did not occur, the family, the microcosm, could radically undermine social stability.

In what we can retrospectively designate 'environmentalism', eighteenth century savants developed clusters of ideas that served as cultural resources even as these ideas were constantly changing. A wide range of factors made them increasingly aware of the settings in which living things existed, of the power that factors outside organisms possessed. It makes no sense to think of an environment, without considering the implicit other term - the surround*ed*. Biologists focused on animals and plants, medical practitioners and others were more interested in human beings. Furthermore, the elaboration of a more naturalistic understanding of organism/environment relationships was bound up with the development of tools of management. These could well be discursive, as they were in the case of medical advice books directed at the family, but they were no less significant historically for that. It was an important phase in the formation of modern societies when the whole natural world, its history and even its future, became subject to a thoroughgoing naturalistic analysis. Environmentalism was a central component of this project.

CHAPTER 4

MEDICINE, THE HUMAN SCIENCES, AND THE ENVIRONMENT IN THE ENLIGHTENMENT

Roy Porter

Seventeenth-century astro-physics - the Newtonian revolution - gave science tremendous prestige. Enlightenment thinkers invested huge effort in rendering old disciplines newly scientific or in building new domains of knowledge. This paper addresses the field of the 'human sciences'. It examines the role of the external environment and the inner mentality, the natural and the social, in the constitution of the new and much contested sciences of man that emerged in the eighteenth century. It looks in particular at the deeply ambiguous role of medicine in these processes.

A scientific revolution in medicine?

Historians have often expressed doubts as to whether pre-nineteenth-century medicine became 'scientific', that is, shared in that Scientific Revolution between Copernicus and Newton which transformed the physical sciences. The synoptic histories of medicine written earlier this century - Fielding Garrison, Arturo Castiglioni, Charles Singer, for example - typically dismissed the Enlightenment period as a wasteland of speculative theorizing: 'the lost half-century in English medicine' William Lefanu has called the post-1700 era (Garrison, 1917; Castiglioni, 1941; Singer, 1928; LeFanu, 1972). Whilst today's historians would suggest such judgments are too pessimistic, precisely how biomedical inquiry underwent change in the eighteenth century remains hotly disputed. Perhaps we should be less concerned to judge the 'success' of eighteenth-century medicine, looking for discoveries and therapeutic breakthroughs, than to get under its skin, and understand its aims and orientations.

Eighteenth-century medical propagandists liked to present themselves as forces for progress. In its article, 'Medicine', the second edition of Chambers' *Cyclopaedia* (1738) traced the birth of medicine to Hippocrates, and its corruption to Galen and his idolators:

> At length, however, they [Galen's errors] were purged out and exploded by two different means; principally indeed by the restoration of the pure discipline of Hippocrates in France; and then also by the experiments and discoveries of chymists and anatomists; till at length the immortal Harvey overturning, by his demonstrations, the whole theory of the antients, laid

> a new and certain basis of the science. Since his time, Medicine is become free from the tyranny of any sect, and is improved by sure discoveries in anatomy, chymistry, physics, botany, mechanics &c. See MECHANICAL (Chambers, 1738).

In short, concluded the historical part of this article, 'it appears, that the art originally consisted in the faithful collecting of observations; and that a long time after, they began to enquire and dispute, and form theories; the first part has ever continued the same; but the latter always mutable. See HYPOTHESES &c.' (Chambers, 1738).[1]

Above all, Enlightenment propaganda mapped out for medicine a noble, humanitarian mission. In North America, Benjamin Rush, physician and signatory to the Declaration of Independence, and in Britain, William Buchan, author of the bestselling *Domestic Medicine* (1769), (Lawrence, 1975) represented the improvement of health as essential to emancipation in all dimensions - freedom from fear, want, and suffering. If medicine had too often pursued a closed shop and cynically kept the people in the dark, this 'dark age' was about to end: physic would be laid open, health and humanity marching forward together (Porter, 1992a, Introduction).

Eighteenth-century medical thinkers sought to render their study truly 'philosophical' in various ways. Observation and experiment became their watchwords. Giorgio Baglivi, Bernard De Mandeville, and other early eighteenth-century polemicists, advocated the bedside over the library, and experience over *a priori* rationalism, while being careful to elevate 'philosophical' empiricism above the 'vulgar' empiricism of quacks (Baglivi, 1696; Mandeville, 1730). Baglivi valued a mathematical approach, arguing in his 1699 *De Praxi Medica*, that 'the human body in its structure, and equally in the effects depending on this structure, operates by number, weight, and measure'. Therein lay the essence of science, for God 'seems to have sketched the most ordered series of proportions in the human body by the pen of Mathematics alone' (Baglivi, 1696, 29).

Amongst iatro-mechanists such as Archibald Pitcairn, sickness was resolved into physical problems, health apparently depending upon the unobstructed passage of life-sustaining fluids. Biomedical theory took on board the terms and tenets posited by the new Newtonian natural philosophy. Confronted by abnormal manifestations - malformations, coma, convulsions, and the like - medical mechanists insisted these were no marvels but could be accounted for in terms of the structures and functions of the body itself. Many eighteenth-century physicians were convinced, like physicical scientists and political arithmeticians, that Nature's wonders could be normalized through fact-collection, through *l'esprit géometrique*, through application of the law of large numbers, and through routine digestion of data in tables, formulae, and ratios.

[1] Enlightenment values are clearly signaled by Chambers' cross-references!

What could be enumerated could be formulated as natural laws, albeit only probabilistic. The empire of chance - so-called 'acts of God' - could thereby be tamed (Schaffer, 1990; Hacking, 1990; Gigerenzer *et al*, 1989; Frängsmyr *et al*, 1990). From the balancing chair of Sanctorius to the haemostatics of Stephen Hales, the operations of the body were weighed, measured, and numbered. Collection of vital statistics, contextualized against environment and climate, led to life-tables and the calculation of differential life expectations, essential for insurance, annuities, and other actuarial computations. The publication of Bills of Mortality provided a basis for morbidity profiles which were plotted against season, topography, and other variables. Numerous medical inquiries emphasized the morbidity differentials of hot and cold climates, urban and rural settings, the Old World and the New. As Ulrich Troehler has demonstrated, 'mortality crises' became objects of investigation by army, navy and civilian doctors, especially after 1750, in the expectation that if periodicities in outbreaks of such epidemic disorders as smallpox, putrid and gaol fevers could be established, they might be predicted, controlled, and prevented (Allan and Schofield, 1980; Tröhler, 1978). It is no accident that it was James Jurin, Secretary of the Royal Society as well as a prominent physician, who gave numerical form to the superior benefits of smallpox inoculation (Miller, 1957).

Historians have emphasized how Enlightenment physicians saw the conquest of disease as coterminous with the extension of man's dominion over the environment. Unimproved Nature, and slummy urban developments encouraged disease-bearing miasmas. Better drainage, forest-clearance, improved agriculture, and urban improvement would produce enormous public health benefits (Bynum, 1980; Riley, 1987). And, by the close of the century, birth and death, once those great mysterious ministers of Providence, had been reduced to a formula in the larger Malthusian ecobiology (Gallagher, 1987). The statistical worldview encouraged a secularization of living and dying (Cunningham and French, 1990, Introduction): it implied a human destiny whose key was not the decrees of Calvinist soteriology but the balance of possibilities. Numerical laws also entail a certain determinism: trends do not tarry for personal free-will. Concern with number and probability led medicine away from exclusive concern with clinical problems at the bedside, and stimulated interest in wider panoramas of life chances of whole populations in the context of the animal economy (or, later, biology) and the human condition (Riley, 1989).

A medical gaze on society?

In short, medicine 'shaped up' in the eighteenth century, assuming a more scientific and progressive face. And the moral and political thinkers of the Enlightenment,

seeking to understand and change society, looked to science for their model. It was a matchless engine of analysis: objective, critical, progressive. Natural order promised models of social order, for many *philosophes* a vision of free individual activity in systems governed by natural law.

If reformers were looking to science, medical men were returning the gaze and looking out at society. The spirit of inquiry encouraged medicine away from individual cases in search of the laws of health in wider contexts, examining climate, environment, the rhythms of epidemics. As Jordanova has emphasised in her essay in this volume, the Enlightenment was marked by energetic medical environmentalism (Jordanova, 1979). Certain eighteenth-century physicians developed an enlarged social awareness, confronting the interplay of medicine, sickness and society. What determined the patterns of illness in the community? Why did sickness levels vary from society to society, from region to region, from group to group? Confronting such wider variables, many eighteenth-century physicians felt obliged to be more than bedside healers: they had to become anatomists of society (Porter, 1991).

In some ways, this was nothing new. The Hippocratic 'airs, waters and places' tradition had centuries earlier alerted medicine to environmental hazards, underpinning 'miasmatist' thinking (Miller, 1962; Cooter, 1982). Occupational disorders had long been studied (Weindling, 1985); and bubonic plague had concentrated minds on the medical politics of contagion and quarantine (Mullett, 1949; Slack, 1985; Cipolla, 1976). Even so, eighteenth-century physicians felt driven to develop a richer understanding of sickness as a function of time, place, and society. A mark of this may be the coining by the ultra-Newtonian, Scottish-born physician, George Cheyne, of the phrase, the 'English malady' - the title of his book of 1733 (Porter, 1990). A malaise of anxiety and depression, the 'English malady' resembled what had traditionally been labelled 'melancholia' (Porter, 1987). But there were also subtle differences. The melancholiac had customarily been asocial, an outsider. The sufferer from the 'English malady' was, according to Cheyne, *par excellence* a creature of society: it was the pressures of a mobile, open, affluent, urban, polite society that precipitated this quintessentially 'nervous' disorder.

Cheyne denied that the 'English malady' was merely an imaginary disease of fashion - physiologically speaking, it was all too real, arising from that destruction of the digestive and nervous system modern life-styles all too often produced, with their gourmandizing, lack of exercise, tight-lacing, late hours, and stuffy rooms. It was nothing if not serious, commonly leading to derangement, madness, and even suicide. But central to Cheyne's analysis was a fascination with the malady's sociocultural aetiology. It was unknown in simpler, primitive societies or amongst the rustic classes (who were, in Cheyne's understanding, too impoverished in nervous sensibility to be

capable of falling victim). One of the triumphs of the social awareness of Enlightenment medicine lay in its formulation of the notion of diseases of civilization (Inglis, 1981).

It is also telling that, two generations later, Thomas Trotter argued, in his *A View of the Nervous Temperament* (1807), that the kind of nervous breakdowns identified by Cheyne had grown dramatically more prevalent (Trotter, 1804; 1807; Porter, 1992b). The 'English malady' had descended down the social scale, to afflict the middle classes and even prosperous working men, and women above all - an *apercu* that probably reveals a sharp eye, alongside the socio-political axe-grinding of a naval physician, convinced his country was going to the dogs.

Trotter extended Cheyne's account of the socio-cultural nature of the sickness in yet a further way, analysing the interpenetration of *moeurs*, maladies and medicine. A high-pressure competitive society made its citizens live on their nerves. They took to stimulants: hot beverages, tobacco, alcohol, narcotics. Their excitements were subject to the law of diminishing returns. Powerful and habit-forming stimulants were consumed in ever greater quantities. The result? Deleterious physiological consequences (pain, insomnia, hypochondria), which compelled the consumption of ever-increasing quantities of medicaments, some of which, opium above all, produced devastating side-effects, and were themselves habit-forming. Driven by morbid cravings for stimulus and artificially-induced compulsions, where would the spiral end? The consumer society was becoming an addicted society (Porter, 1992c).

Trotter thus offered - in a manner presaging 'degenerationism' a century later - a powerful account of the irresistible interdependency of sickness, medicine and life-style in the self-glamorizing world of modern urbanism (Chamberlin and Gilman, 1985; Pick, 1989). He further grounded his account upon a vision of human potential. Citing Locke, Trotter argued that human nature was not fixed, but the inherited product of self-development and habituation down the centuries. Man thus made his own nature, all too frequently his own pathological habits, his susceptibility to sickness. Trotter thus created a dramatic medicalization of the promise and pitfalls of human destiny (Passmore, 1972).

Trotter was not alone. As the fusion point between the physiological and the cultural, 'nervous disorders' provided the focal point for a stream of works by (among others) the Swiss physician, Tissot, examining the psycho-medical ailments of modern society (Emch-Deriaz, 1984). Tissot's lurid denunciation of masturbation dramatized the pathological consequences of what had once been handled as a rather venial sin, and thereby underscored the essential role of the physician as social monitor, for only he could foresee the power of personal vice and harmful habits to scar the body (Stengers and Van Neck, 1984; Jordanova, 1987). In an age when intellectuals were charting the socio-historical determinants of language, morals, legal codes, taste and faith, medical

men were not merely proposing that disease had its cultural history, but were suggesting that physiology and pathology were, in a sense, sedimented social history. Thus understanding of the wider dynamics of culture could not be separated from a grasp of bio-medicine.

Defining the human sciences: the moral and the physical

These considerations lead to a wider question. A central aim of the Enlightenment was to establish analysis of society on the same footing as the natural sciences has been set in the previous century (Gay, 1964; Gusdorf, 1960; 1972). It was a widespread ambition: it was not only Hume who sought to be the Newton of the moral sciences. The motives were manifold. A more secular age wanted to understand man in relation not merely to God and the Scriptures, but nature, history, and society (Manuel, 1959; Becker, 1932). An era of rapid socio-historical change needed a philosophy of man that could embrace difference and relativism, yet simultaneously posit social laws governing difference and change. For some, a science of society offered legitimations for the present order. For most, social science would provide tools for criticism, reform, even revolution, and the blueprints for the future (Vereker, 1967; Sampson, 1956; Spadafora, 1990). In any case, a science of man would serve the cause of emancipation from ignorance to the advancement of learning, and further man's escape from self-imposed tutelage. Montesquieu, Voltaire, Diderot, Rousseau, Condillac, Helvétius, Bentham, Beccaria, Turgot, Smith, d'Holbach, Ferguson, Millar, Herder, Erasmus Darwin, Condorcet - the list could be extended *ad infinitum* - no end of Enlightenment luminaries applied themselves to forging scientific accounts of man's mind, speech, imagination, emotions, psyche, gender relations, family structures, social organization, relations with Nature, economic activities, legal systems and political development, thus laying bare the hidden chains interlinking man and milieu, individual with group, past, present and future. Putative sciences of society mushroomed up, in all shapes and sizes (Baker, 1975; Gay, 1964; Gusdorf, 1972).

Many prominent Enlightenment spokesmen were medics, from Locke, through Mandeville, Hartley, La Mettrie, the Chevalier Jaucourt, and Quesnay, to Erasmus Darwin and Cabanis. In the light of this fact, surely we may assume that medicine (or, to use a convenient anachronism, the biomedical sciences) played a part in supplying the intellectual foundations of Enlightenment sciences of man? Instances to substantiate this view are easy to find. Did not, for example, Montesquieu 'prove' his theory of the determination of temperament by climate through a physiological experiment? - showing, by putting ice on an animal's tongue, that cold produced sluggishness and diminution of sensations? (Hankins, 1985, 160).

Furthermore, study of comparative anatomy from Camper to Blumenbach gave legitimacy to a notion of the natural hierarchy of the races, perhaps within the grander framework of the Great Chain of Being, on the strength of scrutiny of anatomical form, cranial angles, and skin pigmentation (Greene, 1959): blackness, it was suggested, might even be a disease (Gilman, 1988). Not least, the fierce debate in the 1790s, for example, regarding the supposed superior humanity of the guillotine hinged upon the rival testimonies of a gaggle of medicos, not least, Dr Guillotine himself (Jordanova, 1989b; Outram, 1989).

Themselves acute observers of the affinities between knowledge and self-interest, *philosophes* would hardly have been surprised to find that various *médecin-philosophes* argued that there could be no scientific understanding of man without a biomedical substrate. It was central to the programme of the *Idéologues*, that group of thinkers clustering in Auteuil in the salon of Mme Helvétius, that a true knowledge of man demanded a *science* of ideas, which in turn presupposed analysis of the physiology of consciousness (Moravia, 1974; 1978; 1980). The leading *idéologue*, Cabanis, himself prominent in medical circles, spent many years explicating the nervous roots of mind, above all in his *Rapports du Physique et du moral de l'homme* (1802): mind was not a separate, superadded principle, but a function of higher nervous organization (Staum, 1980).

In Britain, Cabanis's somewhat older contemporary, Erasmus Darwin, evolved a rather comparable biomedical theory of the material basis of human powers and human progress, expounded within a bold philosophy of cosmic evolution. Drawing on both Hartley and Haller, Darwin delineated the gradual, progressive series of neurologically-based phenomena (irritability, sensation, volition, and association) which marked the rise, simultaneously hierarchical and evolutionary, from the lowest *ens* right up to mighty man. There were no sharp divides separating beings endowed with mere life from those possessing will and those finally blessed with consciousness. Nor was human nature fixed. Man, argued Darwin, possessed an unlimited capacity further to develop his faculties through learning, for acquired ideas and characteristics could be passed down to posterity through inheritance. As his evolutionary poem *The Temple of Nature* argued, medical materialism offered the grounds and the guarantee of the perfectibility - social, moral, intellectual and scientific - of the human race (Macneil, 1987; Porter, 1989).

Moreover, with Darwin as with Cabanis, biomedical beliefs were more than *engagé* rhetoric. They shaped an agenda of social action - for instance, the former's insistence upon the primacy of practical education under conditions of intellectual freedom (Darwin, 1797). They suggested other distinctive views which he advanced, as with his theory of taste. Contemporary aesthetics was fascinated by the fact that

curved forms (the 'line of beauty') seemed to please. Why so? Purely geometrical or psychological explanations were generally offered. Darwin looked to corporeal causes: our pleasure in curves derived from the infant's experience of the 'good breast' (Hipple, 1957; Eagleton, 1990).

With Cabanis and Erasmus Darwin, the stipulation of a biomedical bedrock for a philosophy of social man and the assertion of the indissoluble and two-way association between the *physique* and the *morale* was expressed with some subtlety, and should not be viewed as a crude expression of professional prejudice or radical polemic. Rather more naked in its designs upon the reader was La Mettrie. In his *L'Homme Machine*, published in 1747, and, to a lesser degree, his *Histoire Naturelle de L'Ame* and his *Discourse Préliminaire*, this sometime student of Boerhaave and long-practising physician advanced an uncompromisingly reductionist vision of man as a pre-determined being, whose consciousness was a function of his material-organic needs. La Mettrie's writings were militantly targeted against the tribe of metaphysicians - be they Sorbonne theologians or Cartesian metaphysicians - who postulated dualistic accounts of human nature, privileging Soul or Mind as separate from and superior to body.

Such views, La Mettrie contended, were unscientific, false, mystifying, and subservient to the vested interests of ecclesiastical and secular authoritarianism. La Mettrie's intervention offers a foretaste of the protracted French struggle, still being waged during the Third Republic, between the medical and the clerical profession for the right to pronounce upon the nature (material or spiritual?) of man (Thomson, 1981; Vartanian, 1953).

Less easy to place is Diderot, who brought out a succession of provocative works, such as the *Lettres sur les Aveugles* in 1749, the *Reve de d'Alembert* (written 1769), which significantly uses the Montpellier vitalist physician, Bordeu, as fictive interlocutor, and the *Elemens de physiologie* (written around 1774: the last two remained unpublished in the author's lifetime). In these, Diderot posed and reposed - earnestly, teasingly, and certainly without resolution - the issues, already dealt with to his own satisfaction by La Mettrie (doctors 'ont éclairé le labyrinthe de l'homme') (La Mettrie, 1960, 151), of the relationship between man the material, and man the moral being. If man is a product of his biomedical make-up, does he have free will? can he be held responsible for his actions? is consciousness the captain of the soul? (is there anything resembling a soul?) or is consciousness just a by-product of the brain, as bile is a secretion of the liver? Is there, not least, any true diffference between *homo rationalis* healthy and sick, sane and lunatic? man and beast? (Wilson, 1969; Proust, 1962, Crocker, 1959; Vartanian, 1968).

Diderot brilliantly reinstates and restates the old Humanist topos: what a piece of

work is a man. Rabelais, Montaigne, Shakespeare, Sir Thomas Browne, and the neo-Stoic tradition had, of course, as Herschel Baker has shown (Baker, 1947), engaged with the peculiarities, the paradox, of the 'great amphibium', man, in all his dignity, the bizarre amalgam of body and soul, angel and animal, spiritual and corporeal being, immaterial and material, immortal and mortal, that 'glory, jest, and riddle of the world'. Diderot put the questions once again, from the viewpoint of Enlightenment monism. How far he thought they were soluble is another question. For, as the example of Diderot suggests, most Enlightenment thinkers also entertained profound doubts as to how far and how readily the sum total of human behaviour could actually be grasped in terms of the bio-medical basis. To a fair degree, Enlightenment endeavours to formulate 'philosophical', or 'natural' histories of man operated overtly or tacitly within 'Cartesian', or broadly 'dualist' guidelines. They engaged in analysis of man as a social, moral, rational, historical being, not as a primarily material being who happened to be endowed with a potential for psychological, social and cultural developments. Or, as the jargon of recent social-scientific polemic would put it, the bias, or the error, of eighteenth-century social inquiry was chiefly 'psychologistic', or 'sociologistic', not 'biologistic': the study of human nature was, in actuality, chiefly a study of nurture (Hirst and Woolley, 1982).

John Locke for instance was, both by training and to some degree by practice, a physician (Dewhurst, 1963). It might be expected, therefore, that he would have projected a fundamentally physiological account of man. Not so. The state of nature envisaged in his political writings is one in which the salient matters are those of his duties under God and his rights *vis à vis* his fellow men. His *Essay on Humane Understanding* (1690), that cornerstone of Enlightenment empiricist epistemology, is essentially a philosophical inquiry into the coherence of consciousness. The physical basis or apparatus of perception is barely discussed: Locke's interest lies in mind not brain (Yolton, 1956). Locke celebratedly raises the possibility that matter might think, but far say from suggesting physiological experiments, translates the issue into theology (it would not be impossible for God to create thinking matter) (Yolton, 1983).

Post-Lockean empiricism and sensationalism drove still further Locke's repudiation of *a priori* ideas and other modes of innatism. Reason, will, and the passions were not given - innate, immutable, beyond analysis, beyond alteration. They were the products of conditioning; they were amenable to change; they were open to investigation. Such was the radical programme of Enlightenment thinkers like Condillac and Helvétius (Knight, 1968; Smith, 1965). But it by no means automatically followed that such inquirers needed or wanted to translate explication of mental operations into the language of biomedicine. Far from it. Condillac analysed the role of sensation, Hume undermined the reliability of sense knowledge and proposed a dramatic

reworking of the relations between reason and the passions; Helvétius exhaustively examined the process of motivation; but they did so without feeling obliged to enter into substantial discussion of physical correlates. The same applies to many other departments of, and debates within, Enlightenment ideas. For instance, after Shaftesbury the basis for aesthetics shifted from a kind of metaphysical geometry to an empiricist psychology, but the method of such analyses was largely introspection (Hipple, 1957).

The examples could be extended but the point is clear. The 'party of humanity' believed that the proper study of mankind was anthropology, pre-history, history, politics, psychology, political economy, and certainly not just bio-medicine. As a rising intelligentsia, they naturally focused upon opinions, no less than the organism, as the source of social disease and social health (Williams, 1961; Lepenies, 1988; Barnes 1977). They wished not to diminish the empire of consciousness, but to establish its true mission and authority.

Conclusion

I have been trying to plot the complex intertwining of the biomedical endeavour with the Enlightenment. I have suggested that medicine helped stimulate the drive towards social science, but it was far from the only stimulus, and it generated profound intellectual problems, not least, regarding the mind/body issue. This inevitably raised questions of the relation between environment and man, nature and culture, the natural and what the Enlightenment termed the 'moral' sciences. It is arguable that in the nineteenth century it was physiology that constituted the intellectual basis of sociology. But, as Foucault has rightly insisted, nineteenth-century conceptions of life and of society differed profoundly from those current in the era of Enlightenment. The early history of the relations between medicine and the human sciences still requires much further analysis (Foucault, 1970; Canguilhem, 1978; Outram, 1990; T. M. Porter, 1990; Haines, 1978; Pickstone, 1981; Figlio, 1977; Jordanova, 1983).

CHAPTER 5

'NEVER SHALL YE MAKE THE CRAB WALK STRAIGHT': AN INQUIRY INTO THE SCIENTIFIC SOURCES OF RACIAL GEOGRAPHY

David N. Livingstone

In 1930 a book entitled *The Alien in Our Midst, or 'Selling our Birthright for a Mess of Industrial Potage'* made its appearance. It was a collaborative volume of essays, written by 'a number of Americans (present and former) on immigration and its results' and drawn together by Madison Grant and Charles Stewart Davison. The extract which follows is taken from one of the essays,'The Fallacies of the Melting Pot Idea and America's Traditional Immigration Policy'. Its author was Robert De Courcy Ward, Harvard's professor of Climatology. What is, I think, especially interesting is Ward's use of scientific categories to justify social policy. Here the vocabulary of science is being deployed as a legitimating tool in the discourse of ethnic/racial questions.

> 'Never shall ye make the crab walk straight. Never shall ye make the sea-urchin smooth'. Thus many centuries ago, Aristophanes disposed of the fallacy of the Melting Pot. Up to recent times, we have ignored the principle of selection in our immigration legislation. Our policy of opening the gates to all who would come in meant that we recognized no distinctions among our immigrants. We refused to recognize that one group or nationality provided better material for citizenship than another ... We deceived ourselves into thinking that we could change inferior beings into superior ones ... Yet the laws of heredity are at work. We cannot make a heavy horse into a trotter by keeping him in a racing stable. We cannot make a well-bred dog out of a mongrel by teaching him tricks. Nor can we make a race true to the American type by any process of Americanization ... The distinct trend of modern biology is that heredity is far more important than environment in determining not only the physical but also the mental characteristics of men...
>
> What goes into the Melting Pot determines what will come out of it. Put in sound, sturdy stock akin to the pioneer breed...then we shall develop a race here worthy to carry on the ideals and traditions of the founders of our country. But if the material is a polyglot assortment of nationalities, physically, mentally, morally below par, then there can be no hope of producing anything but an inferior race...
>
> The statement of Aristophanes quoted above, finds parallel in the words of one of the best-known modern writers on heredity, Karl Pearson: 'You cannot change the leopards spots, and you cannot change bad stock to good. You may dilute it; spread it over a wide area, spoiling good stock; but until it ceases to multiply it will not cease to be'. (Ward, 1930, pp.230-31)

In this essay I want to explore some of the intellectual sources and scientific rhetoric that geographers could, and did, resort to in order to rationalize their racial ideologies. To simply describe these attitudes as 'racist' in the modern sense, however, is to assume foreclosure on the very issue under investigation, for that label was not widely in vogue as a term of moral censure until relatively recently. Instead we need to grasp how what we now describe as 'racism' was constructed out of a variety of sources, including the 'best', most 'respectable', scientific scholarship. For science lent its support to racial prejudice both among the intellectual elite and within popular culture. As a contribution towards elucidating this history, then, I see my task as identifying some of the scientific theories and practices that reinforced within the geographical community assumptions - sometimes well-intentioned, sometimes truculent - about racial hierarchy.

Throughout, my assumption will therefore be that science in general, and geography in particular, are social practices. To put it another way, I mean that these enterprises are embedded in a social matrix, and that claims to scientific *knowledge* - not just institutional arrangements or professional ambitions or funding policies - are conditioned by social, political, religious and other ideological factors. In saying this, however, I intend no more than to insist that theorizing just *is* underdetermined by the data; it should not be taken to imply that claims to knowledge are nothing but social relationships writ large, or that the scientific can be directly mapped on to the social. That *might* be the case; but it's not my concern here. Rather I am saying that there are circumstances when social ideology insinuates its way into the very heart of scientific knowledge. Of course I shall neither be able to, nor do I desire to, canvas the entire range of scientific racisms that were available. Rather this essay charts in a preliminary way some of the themes that provided ammunition for geographers' racial ideologies.

Bones and brains: the taxonomic imperative

The felt need to find some labelling system whereby the human race could be brought under the control of scientific classification was both deep and lasting. Many efforts were made, but none was successful. For whereas Cuvier identified three races, Huxley made the case for four; Blumenbach found five but Geoffroy St-Hilaire believed he could isolate eleven; Deniker pushed it up to seventeen and Haeckel to thirty-four; and Burke topped the count with sixty-three (Haddon, 1910). The failure to achieve taxonomic closure on the subject, evidently, was not for want of trying. A wide range of human trait occurrences - skin colour, skull shape, facial angle, brain size, and hair pile - were subjected to mathematical computation in the belief that such measurable external traits tracked some internal racial essence.

The precise ways in which these were deployed have been charted elsewhere and need not be reviewed here (see especially Haller 1971; see also Bieder, 1986; Gossett, 1963; Gould, 1984; Gould, 1991, chapter 15). All I want to emphasize is that the 'hard data' of statistics were mobilised for rhetorical purposes by racial ideologues. Consider the case of Samuel George Morton, the early nineteenth century Philadelphia anatomist and author of *Crania Americana* (1839), whose quantitative methods have been scrutinized by Stephen Jay Gould. Morton's lifelong objective - by and large - was to settle once and for all questions about human racial difference and to determine the relationship between crania and race. His premise throughout was that races were of different origins and he supported his polygenetic thesis with an impressive range of statistical measurements of human cranial capacity. But, as Gould (1978) has shown, Morton's success in establishing a racial hierarchy (a hierarchy moreover that suited Yankee prejudices perfectly with whites on top, Indians in the middle, and blacks on the bottom), was achieved through his 'finagling' - conscious or unconscious - the data. Besides ignoring the sex-linked relationship between bodily size and cranial capacity, and employing unrepresentative samples, Morton used the visual language of artistic representation (in the form of John Collins's lithographs) to fortify his racial ranking.

Morton was, of course, far from alone in the cultivation of the project of racial science. Also at the Academy of Natural Sciences, his successor J. Aiken Meigs further 'refined' Morton's data in the mid-1850s. In his writings on the subject, similar statistical strategies are clearly to be found. Meigs (1857) modified Morton's cranial tables, for example, in such a way as to increase the Teutonic average and decrease black. Whereas Morton had used 18 German skulls, Meigs for some reason reduced the sample to 15 but ended up with a higher mean score, namely 95 cubic inches instead of 90 - quite a substantial difference. But perhaps of even greater interest was Meigs's use of Morton's five English skulls. This merits a closer examination.

Meigs rejected one of these, No. 62, because it had belonged to a lunatic. As for the other four: Number 991 was an English soldier; No. 59 was a convict by the name of Pierce; No 539 was the skull of James Moran an Englishman who was executed in Philadelphia for murder and piracy; and No. 80 was from Gwillym, another English convict. The sample hardly represented the moral excellence Meigs and others invariably wanted to garner out of cranial algebra. After all Morton had deduced from the numbers that the Greenland Inuit were crafty and sensual as well as being ungrateful, gluttonous and selfish. The project of statistizing about the human race was - at this stage - an exercise in *moral numerology*. So what about those five English skulls? Simple. Meigs was able to maintain if the average brain size was so

large even for these, how much larger must the cranial capacity be of the healthy and irreproachable representatives of the English race!

Race and place: anthropometric cartography

Moral *numerology*, of course, turned out to be moral *geography* too. Just as there was a *racial* distribution of cranial size so, too, was there a *regional* distribution. Polygenists typically thought of the different human '*species*' as region-bound, and so they frequently made the case against migration from indigenous climatic régimes. Indeed when George Gliddon produced his 'Ethnographic Tableau' which was appended to *The Indigenous Races of the Earth*, it was organized around the idea of geographical 'realms'. For Gliddon believed, with Agassiz, that there were a number of natural provinces both for the animal world and its human counterpart (Nott and Gliddon, 1857).

Not surprisingly - given this regional emphasis - geographers also became intrigued with the task of producing anthropometric cartography. Renato Biasutti, for instance, professor of geography at the University of Florence, gave cartographic expression to the anthropometric measuring of brains and bones in his construction of a 'geography of the racial provinces'. Indeed Biasutti's somatometric cartography, beginning with his *Studi di Antropogeografia Generale* of 1912 which was embellished with eight world maps showing the distribution of human trait-occurrences, was still to provide the basis of Terry Jordan's 1988 European maps of hair colour, average stature, cephalic index, and the distribution of Caucasian subraces (Biasutti, 1912; Jordan, 1988, chapter 3).[1] In the interim H.J. Fleure had earned himself a Fellowship of the Royal Society largely on the basis of his anthropometric mapping of Welsh racial types (see Livingstone, 1991). Rather than surveying these various efforts, however, I want to focus on one particular geographical manifestation of anthropometric cartography, namely, that by Griffith Taylor.

I do not propose here to canvas the length and breadth of Taylor's substantial output; rather I shall focus on a single (though entirely representative) article that he published in the *Geographical Review* for December 1919 because it anticipates many of the themes that he would later elaborate in books like *Environment and Race* (1927) and in journals like *Human Biology* (Taylor, 1927, 1930, 1936; see also Taylor, 1921). Here Taylor took up the theme of 'Climatic Cycles and Evolution'; his concern was to correlate climatic change with evolution theory and to determine the role that those environmental shifts played in 'the development and migrations of the four main

[1] Jordan, it must be noted, resolutely rejects the 'myth of superiority.'

races of man' (Taylor, 1919, p.289). The details of the story Taylor wanted to tell about human migration have been examined elsewhere (Livingstone, forthcoming). I want to focus here on the pull-out colour chart (which must be seen as an instance of representational iconography [see Lynch and Woolgar, 1990]) entitled 'Zones of Migration Showing the Evolution of the Races' that he produced to accompany the article. The subtitle of the chart is itself significant; the map was, he reported, 'Based mainly on the cephalic indices of the most primitive tribes in each region'. The different colours represented a composite ethnic stereotype where skin colour, racial group, cephalic index, orbital index and hair type were correlated with cultural conditions. When lines depicting patterns of migration were superimposed on this base it became clear to Taylor that long-headed (dolichocephalic) groups were being replaced by round-headed peoples (brachycephalic). In Taylor's telling, the most primitive peoples were dolichocephalic, while the brachycephalic head-form was the product of later evolution. Negroes, of course, were long-headed and as such represented the earliest phases of human evolution; the Aryans had oval-to-round skulls and were more highly evolved; the Mongolians represented the most recent evolutionary emergents. Thus, just as the Aryans had driven out the black races from humanity's original cradle-land, later migrations out of Asia by the Mongolians had driven the Aryans before them. Elsewhere Taylor was to describe this sort of cartographic activity as 'Evolution from the map' (Taylor, 1951, p.444).

Taylor's anthropometric world chart (the projection of which incidentally gave rhetorical expression to peripherality and centrality) was, understandably, highly attractive to Ellsworth Huntington who used it (and others) in his own volume on *The Character of Races* (see Figure 2); Huntington also used Taylor's cartographic data for his maps of the 'Correlation of the Components of the Nations of Europe' into dolichocephalic and brachycephalic, and 'The Correlation of Cultural Conditions with the Cephalic Index'. It was plain, of course, that both Taylor and Huntington wanted to map intellectual and moral excellence onto the distributional pattern of the cephalic index and here a telling tension arose. Huntington made it clear that the round head 'is biologically the highest and most specialised, because it can hold the largest brain in proportion to its surface and weight'. But this immediately raised the thorny problem that the Chinese would necessarily be superior to the Aryan! Huntington had to acknowledge this biological possibility:

> All this is not pleasing to us who are Nordics, for our heads, though long and high, lack breadth. The south Germans, Rumanians, Turks, and Chinese approach nearer to the supposedly ultimate broad-headed type than we do. We hate to admit that potentially they may be the better people, but both Taylor and Dixon agree that our present seeming racial superiority is only an accident...The Mongols of central Asia and of the American Cordillera share with the Alpine (early Mongol) folk of central

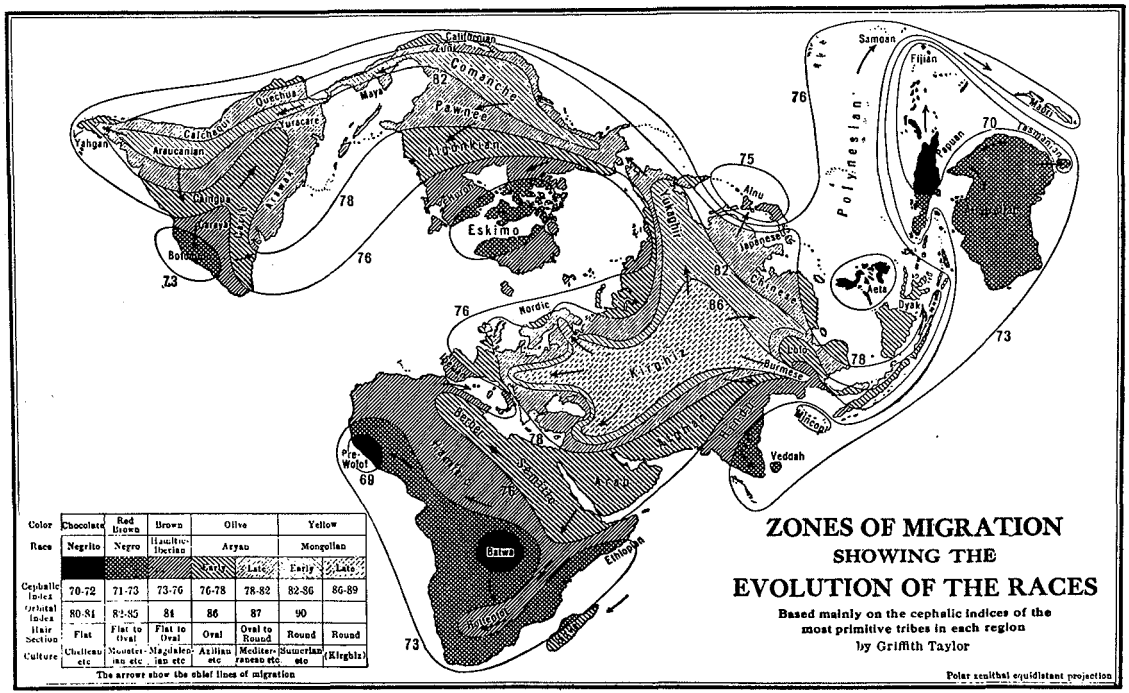

Figure 2: from Ellsworth Huntington's *The Character of Races As Influenced by Physical Environment, Natural Selection and Historical Development* (1924)

> Europe the honor of possessing the highest cephalic index. They are of course farthest removed from the Negro and Negrito in this important respect. (Huntington, 1924, p.77)

Mercifully, however, geography had intervened to save the day. For both Taylor and Huntington confirmed that the 'present superiority of the Nordics is due to environment' (Huntington, 1924, p.78). What genetics had failed to accomplish for white Northwest Europeans and their trans-Atlantic transplants, geography had.

If geography had secured the Teuton's evolutionary superiority it had acted, no less inexorably, in a repressive way in the evolutionary history of other peoples. Thus when Huntington came to discuss African blacks, he explained that evolution had 'stagnated' in the tropics and therefore that tropical peoples were 'in reality the children of the human race'. Lack of specialization, he insisted, meant that they displayed the characteristics that 'man first showed when he separated from the apes and came down from the trees'. Geography had dictated that it was wrong to expect that 'such peoples should ever rise very high in the scale of civilization'. As for the North American Indians, their early treks through the wastes of northern Siberia prior to their crossing of the Bering Strait had subjected them 'to a repressive evolution'; the Arctic cold had induced in them a 'passive endurance [which] may have been an important factor in moulding the mental quality of most of the people of America'. Thus whether through the representations of anthropometric cartography or the regionalizing of evolutionary history, race and place were umbilically bound together.

Time and talk: linguistic paleontology

Racism, it is clear, was deeply embedded in the discourses of taxonomy, anthropometry, cartography and environment. Archeology and linguistics, it turns out, were no less deployable in the service of racial ideology. By the middle of the nineteenth century the idea that the human race might be of very considerable antiquity had already gripped many minds. Earlier Johann Friedrich Esper (1732-1781) in Germany claimed to have found human bones in Pleistocene deposits rich in fossil vertebrates. But it was later in France that archaeological data on human antiquity were most fully exploited by Boucher de Perthes (1788-1868) who used stratigraphic position and integrity to establish the age of buried artifacts. And then, when Brixham Cave was discovered in England in 1858 and its human fossil bones were excavated by William Pengelly and Hugh Falconer, the question of human antiquity was finally opened up with a vengeance (Grayson, 1983; see also Rossi, 1984; Trigger, 1989). By the middle of the third quarter of the century the time revolution had occurred. And it was now believed that even if humans were of one racial stock they had differentiated very early in history and continued to 'breed true'. The belief that modern culture

groups had persisted for very long periods of time thus encouraged many to take up the search for the origins of European culture.

Part and parcel of this project was linguistic paleontology. Down to the nineteenth century philological history had been erected on the Genesis narrative with its story of the confusion of tongues at Babel and the subsequent repeopling of the world by Noah's descendants (Kuper, 1985; Traumann, 1987; Knoll, 1986). This conventional story proposed a genealogical set of relationships for the history of language emphasising as it did the unity of the human family. The story of language just had to be a monogenetic tale of differentiation,[1] and it was a tale inevitably bound up with the attempt to recover the perfect but lost language of Adam. Indeed it is within this context that the idea of Sanskrit as a language of highest perfection, with its savor of rationalism and romanticism, has to be placed (Aarsleff, 1983).

Of course, the birth of modern comparative philology and Indo-European linguistics is to be traced to the late eighteenth century (Mallory, 1973), but it was during the mid nineteenth century that prehistoric archaeology and linguistics merged most dramatically with nationalism, romanticism and racial thinking. This owed a good deal to the philological writings of Franz Bopp, Jacob Grimm and Max Müller who engaged in the task of elucidating the particular set of similarities in the comparative philology of Greek, Sanskrit, Latin, Persian, Celtic and Germanic languages (MacDougall, 1982, pp.119ff.). In the concept of the Indo-European, language, culture and race began to be tied together; a single ancestral tongue, a coherent set of social, legal and religious arrangements, and a common physical anthropological heritage were bound together. It was all too easy for these considerations about time and talk to take a racist turn. Bopp's lauding of the great Indo-Germanic family, for example, was one expression of a rising German nationalism that was supported by many thinkers including Hegel and Herder. So there emerged the idea of the German as an ideal racial type, the epitome and acme of all that was noble and great. To be sure some like Müller were eventually to make noises about the ineptitude of equating Aryan language with an Aryan race, but when he thrilled London salons with tales of their Aryan ancestors, he gave every impression of the Aryan as a label bearing considerably more than a mere linguistic designation.

Further elucidation of the precise details of this archeo-linguistic story is beyond my present concerns. Rather I just want to reiterate the point made by Edward Said that philology 'is both a comparative discipline possessed only by moderns and a symbol of

[1] It is interesting to observe that the coming of Darwinism helped to reinforce aspects of this tradition. In fact when Darwin turned to the classification of species and introduced his celebrated branching diagram, he turned to the history of language to illustrate his principles.

modern (and European) superiority' (Said, 1978, p.132). Thus this scholarly pursuit has to be connected up to the racial project of the western construction of the Orient - a project in which many ethnologist-geographers were deeply implicated. As Said puts it:

> For what was philology on the one hand if not a science of all humanity, a science premised on the unity of the human species and the worth of every human detail, and what was the philologist on the other hand if not...a harsh divider of men into superior and inferior races...? (Said, 1978, pp.133-34)

Such was certainly the case with R.N. Cust, a philologist and fellow of the Royal Geographical Society, who called upon his academic expertise to bolster a scholarly version of European anti-Semitism (Said, 1978, p. 262).[1] His two-volume *A Sketch of the Modern Languages of Africa* - published in 1883 - was organized on a geographical basis and based on Müller's classification system, and was accompanied by a language map compiled by Ravenstein (see also Cust, 1880). Oscar Peschel too, in *The Races of Man and their Geographical Distribution*, a work first published in German in 1874, devoted considerable space to the role of 'The Structure of Human Language', using it to chart the 'wide chasm between the best developed of the lower languages and those of the Semitic and Aryan families' (Peschel, 1906, p.126). On a far more popular level L.W. Lyde - Professor of Economic Geography at University College London - could speak in 1910 of a 'baby' language persisting among certain ancient Chinese culture groups (Lyde, 1910, p.24), while Fleure was certainly disposed to connect up physical racial traits with linguistic families. Indeed in *The Peoples of Europe*, published in 1922, Fleure substantially structured his narrative around European language differences and began his treatment of 'The Peoples of German Speech' with reference to 'the long-headed types of man' (Fleure, 1922, p.38). All of these suggest that geographers were involved, to one degree or another, in the conversation about race and linguistics.

Seeds and breeds: the Teutonic vision

This infatuation with Indo-European origins could influence geography in other ways too, in particular via the Teutonic theory of history which cultivated a 'Nordicized' version of the Aryan myth. This movement achieved its apotheosis in the United States in the racialist apologetics of Madison Grant (1916) and Lothrop Stoddart who affirmed

[1] I am grateful to Felix Driver for pointing out the relevance of Cust to my discussion of race, philology and geography.

that the 'Nordic race stands at the head of the whole human genus', and in Europe by Arthur Gobineau and Houston Chamberlain who insisted that the 'Nordic entered history to rescue agonizing humanity from the clutches of the bestial' (Snyder, 1962, p.50).

We have already explored some of the conceptual sources of the Aryan myth in Europe, constructed as it was out of physical anthropology, prehistoric archaeology and linguistic paleontology. Now I want to turn to the United States in order to illustrate how this tradition surfaced in American history and in the American geographical tradition. Here the Anglo-Saxon myth and its concomitant Aryan-Nordic ideal were disseminated through the writings of a series of historians in the form of the 'germ theory' of American history. In the post-bellum era a group of historical scholars began to emphasize the Teutonic origins of American institutions. The idea was that various social 'seeds' or 'germs' had been transported across the Atlantic to take root in New England. Thus everything from field sports and family life to the American tradition of democracy were traced back through the English shire to the primitive *Volkmoot* of the ancient Germanic forests. Chief among the germ theory's advocates were Herbert Baxter Adams who highlighted the Germanic origins of the New England town-meeting and John W. Burgess who adopted the Social Darwinian idea that of all the peoples who had learned Darwin's lesson of the survival of the fittest the Teutonic race was the only one of superior stock (Hofstadter, 1955, 1970; Herbst, 1965). Here national history and natural history were blithely conflated. Closely allied was the doctrine of Manifest Destiny, advocated by John Fiske who saw the United States as in the vanguard of evolutionary history. In 1885 Josiah Strong (1847-1916) a Congregationalist clergyman portrayed the Anglo-Saxon as the most vital force on earth bearing with it the American heritage of freedom and faith (Berman, 1961; Persons, 1958; see also Gordon, 1964; Higham, 1973).

The American geographical tradition did not remain immune from these currents of thought. Nathaniel Shaler at Harvard, for example, in his celebrated *Nature and Man in America* traced the 'best' people and culture of the New World to 'a stock which was nurtured in north-western Europe and acquired its civilized character in several states of that continent' (Shaler, 1891, p.13; see also Livingstone 1984b, 1987b). In the woodlands of the Atlantic seaboard the seeds of democratic self-government from Europe spontaneously reproduced themselves. Such was Shaler's vision, and, as we will presently see, it was only too deployable in the cause of immigration restriction. Meanwhile Ellen Semple was dissertating on the Anglo-Saxons of the Kentucky Mountains. Here, Semple believed, she had isolated 'the purest Anglo-Saxon stock in all the United States'. Kept free from the 'tide of foreign immigrants which has been pouring in recent years into the States' and from the

incursions of the black population, they continued, despite the disadvantages of their local environment, to exhibit 'the inextinguishable excellence of the Anglo-Saxon race'. Economic hardship, domestic privation, primitive architecture, and geographical isolation had only served to breed in these mountain types 'an intense spirit of independence'. In Semple's portrait we sense the tensions of the environmental determinist who, withal, feels the pull of Teutonic nativism. For while she concluded her survey with the observation that the 'whole civilization of the Kentucky mountains is eloquent to the anthropogeographer of the influence of physical environment', her depiction of their 'natively strong and acute' intellects, her reference to 'the prevalence of that democratic spirit,' and her discussion, which drew directly on Shaler's writings, of linguistic and cultural survivals (which she might perhaps have referred to more appropriately as revivals) undergirded her admiration for the species of which the Kentucky mountain people were atavistic instantiations, namely, 'that progressive Anglo-Saxon race' (Semple, 1901, pp.592, 594, 609, 622-23, 610, 619, 623). As she put it herself: 'Though these mountain people are the exponents of a retarded civilization, and show the degenerate symptoms of an arrested development, their stock is as good as any in the country' (Semple, 1901, pp. 592-93).

It was this enthusiasm for Anglo-Saxon stock that bolstered the various nativist movements that surfaced in America during the decades around the turn of the century for it was, of course, all too easy to transform Anglo-Saxonism into political praxis. Already by the 1870s Shaler was predicting that the new immigrants would sorely 'try the digestion of our New England civilization' (Shaler, 1873, pp.712-13). And so in the 1880s and '90s he threw his weight behind various nativist causes insisting that the destitute of Eastern Europe were simply less fit material than the earlier Teutonic stock from which to mould American citizenry (Shaler, 1888, 1883). The changing patterns of immigration especially manifest during the 1890s began to spook nativists like Shaler who institutionalized their panic through the formation of the Boston Immigration Restriction League. With the support of New England intellectuals like Shaler, John Fiske, Charles Warren, and Prescott Fransworth Hall - all of whom were intimately associated with Harvard - and bolstered by the demographic research of Francis Amasa Walker who provided statistics drawn from his oversight of the Tenth Census, talk of race suicide began to be found on the lips of these publicists. All were infatuated with the Anglo-Saxon dogma and through the aegis of their newly formed society they issued pamphlets warning the Bostonians of the incipient crisis in American identity (Solomon, 1956).

'Never shall ye make the crab walk straight'

It is now time to return to the point at which I began: the observations of Robert De Courcy Ward (Koelsch, 1983). As it turns out he, too, was intimately involved with the Immigration Restriction League of Boston serving as chairman until 1908. In fact much of his own research effort was geared to the study of what he labelled 'anthropoclimatology' which constituted a mélange of geography, history, medicine, meteorology, hygiene and ethnology. Ward had been a student of Shaler's at Harvard and from him learned key scientific elements in environmental and biological determinisms; moreover he was to spend some eleven years as the chairman of the Department of Geology and Geography. Thus from a position of considerable institutional standing Ward was able to mobilize his scientific authority in the cause of racial politics. Using the vocabulary of science, nativists like Ward easily constructed with remorseless zeal a racial hierarchy to which genteel Bostonians could give their allegiance. To demonstrate that such sources were readily available has been the objective of this essay. The impressive statistizing of the anthropologists, the scholastic brilliance of the philologists, the detailed foragings of the Teutonic historians, not to mention the cartographic displays of the geographers themselves, all provided 'impeccable' scholarly sources to reinforce the idea that just as the crab could never be made to walk straight, neither could 'inferior [human] beings' be changed 'into superior ones'.

CHAPTER 6

GEOGRAPHY AND IMPERIALISM: BRITISH PROVINCIAL GEOGRAPHICAL SOCIETIES

John M. MacKenzie

Between 1821 and 1880 some fifty-three geographical societies, several with multiple branches, were founded world-wide (Schneider, 1990). Thirty of these appeared in the years 1875-1880. Yet, while there were a dozen or more in France and Germany, Britain boasted only the Royal Geographical Society in London, founded in 1830. From 1885, however, six provincial geographical societies (one with four branches) were to be established in the United Kingdom. The tardy appearance of these societies poses a number of questions for historians of British geography. Did this happen merely because geography was a laggard discipline on this side of the Channel? Are the societies inseparably bound up with the development and spread of geographical scholarship or do they represent pressure groups which, at least for a period, used the discipline to further certain public ends? And why were British provincial societies founded in such a rush from 1885? This paper is primarily concerned with the latter question, though in attempting to find an answer to it, some light may be cast on the other two.[1]

Interestingly, modern scholarship has tended to be similarly behind-hand. Although Ronald Robinson suggested some years ago that 'the Congolese fantasies [of Leopold II] exciting geographical and philanthropic societies in Europe had been orchestrated largely by the International Association' (Robinson, 1988), no one has actually studied the truth of such an assertion, the degree of excitement, the complexities of the orchestration or the manner in which it was conducted. Congolese fantasies certainly abounded when the Manchester Geographical and the (later Royal) Scottish Geographical Societies were founded in 1885, the latter with four branches in Edinburgh, Glasgow, Aberdeen and Dundee. They were fading, but still retained a potent half-life when the Tyneside Soceity appeared in 1887. They were beginning to lose their power by the time the Liverpool Society emerged in 1891. And they were already turning into nightmares when the rather shadowy

[1] I am grateful to Terry Barringer, Morag Bell, Roy Bridges, Robin Butlin, Tony Champion, Felix Driver, Mike Heffernan, Christine Kelly, Norman McGilvray, Janet Mommsen, and Gillian Rose for help of various sorts in developing this research on the provincial geographical societies.

Hull and Southampton Societies were created towards the turn of the century. This paper, an interim report on work in progress, will test Robinson's contention. Did these societies owe their sudden appearance and (as will be demonstrated) mushroom growth to Congolese fantasies, imperial dreams or the growth of civic pride in relation to new educational institutions and a maturing discipline?

Geography and imperialism

Historians of British geography have tended to retain a metropolitan focus and a somewhat inward-looking perspective. While the Royal Geographical Society (RGS) has been subjected to a whole series of studies of its membership, objectives, and its role in the development of the discipline of geography, its ideology and connections with wider international trends have received much less attention, while the provincial societies have been barely noticed at all (*inter alia* Mill, 1930; Stoddart, 1980). Moreover, the interest of historians of geography has tended to be stimulated by survival. In an age obsessed with anniversaries, nothing is more calculated to prompt a study of origins than a thorough-going centennial. Of the British provincial societies, only the Royal Scottish (RSGS) and the Manchester (MGS) were to survive beyond the Second World War. But the studies of the survivors have tended to be heavily local in scope, making little attempt to link the respective societies to wider national and international trends (Brown and Nigel, 1971; Lochhead, 1981, 1984; for a partial exception, see Bridges, 1985). Thus the British geographical movement has so far lacked the sophisticated studies that have been applied to the French or Portuguese equivalents, studies that have helped to revise our understanding of the impulses of French and Portuguese imperialism from the 1870s (Schneider, 1990; Guimaraes, 1984). Following these models, the British provincial geographical societies may well help to unravel the puzzles associated with the relationship between new interest groups, new journalism, new education, the so-called new geography and the new imperialism of the late nineteenth century. Such a study should help to contribute to a wider understanding of the inflections between civic interests and national concerns and the harnessing of emergent disciplines to imperial issues in the period.

Geographers interested in the history of the discipline in Britain have attempted, at least by implication, to distance the development of the 'new geography' in the late nineteenth century from the new imperialism (Stoddart, 1980, 1981, 1986). The key events in both occurred at the same time and this apparently helped to place on geography the mark of Cain. Contemporaneous development is indeed no guarantee of causality and in any case a causal

relationship may be as much negative as positive. David Stoddart has argued that the RGS was essentially an imperial and, because of its social connections, quasi-official body between its foundation in 1830 and the 1880s, but that the creation of a professionalised scientific discipline, initially founded on physical geography, constituted a scholarly reaction. Stoddart suggests that this occurred partly because the other scientific disciplines were professionalising in this period and that this concentration on specialisms and their specialist societies, 'the crystallisation of allegiance' as he has put it, led to the transformation of the RGS into a more homogeneous body ripe for the great battle between the travellers and the scholars. To emphasise the differences between disciplines, as well as their own scholarly respectability, the academic geographers set about creating a wholly different tone for themselves. Geologists were outdoorsmen, rugged and bearded he-men; the geographers, at least the Cambridge variety, tended to be aesthetes and wimps (Stoddart, 1986, pp.59-76).

Thus Stoddart seems to attempt a distinction between the rugged imperial dries, travellers and geologists, and the more relativist, ideologically-free intellectual wimps. It is hard to avoid the conclusion that Stoddart is saying something about Cambridge rather than about Geography. The Oxford geographers, in keeping with the imperial traditions of the place, were quite different. As is well known, Halford Mackinder felt constrained to establish his credentials with the travellers by his ascent of Mount Kenya in 1899, an expedition which had more symbolic than intellectual or political significance (Mackinder, 1991). Not that anyone would doubt Mackinder's imperial credentials given the many other causes he espoused and the manner in which he viewed the Empire as vital to the British economy (Mackinder, 1902; Semmel, 1958; Blouet, 1975, 1987; Parker, 1982). But Stoddart seldom mentions imperialism in his various studies and others have apparently been sufficiently influenced by post-imperial guilt to attempt to free both the emerging discipline and even geographical societies of the taint. Horacio Capel has gone further, turning chronological explanations on their head. For him the late development of geography as an academic discipline and of geographical societies in Britain cannot owe their origins to imperial activity since Britain, as the earliest and most notable imperial power, might be expected to have spawned such movements earlier (Capel, 1981, p.60).

Elspeth Lochhead (1981, 1984) appears to have confirmed such a view by her more detailed study of the RSGS. She has contrasted the Scottish body both with its metropolitan predecessor and with the English provincial societies. The Scottish society was largely free of the aristocratic, military, naval and explorer set which dominated the RGS. It emerged in the context of Edinburgh's reputation as

a scientific centre, arising from the range of research being prosecuted there, for example in the Challenger office, and from a series of essentially intellectual events which took place in the early 1880s. The Scottish society also had a powerful humanistic basis from the participation of many clerics and figures from the humanities. Moreover, the RSGS was not so strongly dominated by trade and commerce, by the business communities which were, in Lochhead's view, so powerful in the founding of the Manchester, Newcastle and Liverpool societies. In her study the British Empire merits but one mention (Lochhead, 1984).

Roy Bridges (1985) has revised Lochhead's view by examining the published objectives, membership, and activities of the Aberdeen branch. While acknowledging its interest in geographical education and its special concern with Scottish topography, he has demonstrated that imperial issues formed both the context for its founding and major aspirations for its development and influence. It had a predominant interest in Africa, arising not least from its close connection with the Free Church of Scotland and missionary endeavour in Nyasaland (Malawi). If the Aberdeen branch serves to demonstrate the futility of a scholarly Whiggism, it is also worth pointing out that a concern with geographical education, even indeed with the topography of Scotland, need not be antithetical to the dominant imperial ideology of the period. That ideology, albeit in a range of detailed forms, was of course viewed as redemptive and progressive by contemporaries. As a study of textbooks indicates, geographical education in the schools was very much set into an imperial framework, and was to continue to be so for several decades (MacKenzie 1984), while many aspects of the cultural and intellectual renaissance in Scotland were concerned with establishing Scotland's global role (MacKenzie, 1991).

Indeed, a parallel examination of the provincial geographical societies helps to demonstrate that they had a good deal more in common with each other, and in some respects with the RGS itself, than Lochhead's distinctions would allow. Moreover, their common elements serve to demonstrate not only the power of the idealistic and even internationalist elements of the imperial idea, however briefly expressed, but also the danger to which so many modern scholars have fallen prey, of attempting to contrast a supposedly reactionary imperialism, associated with specific social classes, with a progressive allegedly anti-imperialist or at least non-imperialist scholarship. The hollowness of such supposed antitheses can be revealed by attempting answers to a number of questions associated with the emergence of the provincial societies. To the general questions at the opening of this paper we can add some more specific ones. Why did these societies seem to have such a rapid success, measured in terms of growth in membership, income,

publications, civic influence, and pressure group activity? What indeed were their principal concerns in their early years? What was their relationship to the new geography and exponents of the expansion of geographical education? Why did several of them disappear in the twentieth century? And the corollary, what were the conditions of success for those that survived?

The genesis of the British provincial societies

The story of these societies starts in 1879. In that year a public meeting was held in Manchester, chaired by the Catholic Bishop of Salford, to attempt to establish a Society for Commercial Geography on the model of those that were already flourishing in France. Two thousand letters were sent out to the leaders of business and commerce in the region, but sad to relate the organisers received very little return for their labours. Only one hundred and thirty replies were received. Five years were to elapse before the attempt was renewed. Why was there this hiatus? Why did the projected Manchester society not have the momentum of those of Lyon (1873), Bordeaux (1874) or Marseilles (1875)? Given the architectural, artistic, musical and educational history of Manchester, the answer does not seem to lie in lack of civic pride. The answer must surely be found in the fact that in 1879 the commercial community, to whom the letters were addressed, was yet to perceive a threat.

The 1870s was a hesitant decade, particularly in relation to British imperialism in Africa. Informal imperialism, the imperialism of free trade, so advantageous to the dominant power and so closely connected with the economic theory of the Manchester school, still seemed to work. Of course it had failed fully to prevent imperial advance, but in the 1870s, despite the developing signs of recession, competition had not yet become truly threatening. In short, the supreme imperial power, in contrast with the expansionist French, the ambitious Germans, or the threatened Portuguese seemed to have little need of new geographical societies. All this was to change in the 1880s. When these societies emerged from the middle of the decade they were, like so much of British imperialism in the period, essentially defensive. Far from indicating a disjuncture between developments in geography and imperialism, they represent a very tight connection. Imperialism meant different things to different European powers. An imperial policy was concerned with the protection of existing interests and possessions, formal and informal; imperialist ambitions were the engine of aggressive expansionism; the imperialistic mood of Europe developed from the ideology which

would prompt imperialist expansion. The various European powers must be seen as combining these three levels in different proportions, which changed over time.

The call for the founding of a society in Manchester was renewed at a moment of national crisis. The British were isolated and on the defensive after the invasion of Egypt in 1882. Bismarck was determined to continue to drive a wedge between the British and the French, and attempts by the British Government in 1884 to control the situation in West Africa through a treaty with the Portuguese provoked a powerful response from businessmen led by the Manchester merchant, J.F. Hutton, and the evangelical and imperialist shipowner, William Mackinnon, among others. For them, Portugal was protectionist and slave-trading (not to mention Latin and Catholic), far from an appropriate agent of British interests. The Berlin conference of 1884-5 seemed to have been called by Bismarck to force Britain further onto the defensive in relation to Africa. There were continuing anxieties about the protectionism of the French and the Germans as well as the Portuguese, exacerbated by fears for the security of acknowledged British spheres like the Niger, the Zambezi, southern Africa and the informal empire of Zanzibar. And surrounding all these African concerns was the realisation that British power was relatively in decline. The British navy was no longer as supreme as it had been and there was a naval scare in the mid-80s. The depression prompted the establishment of the Royal Commission on Trade and Industry which gathered so much evidence from chambers of commerce and trades councils on the prospects of trade in Africa. It was in this atmosphere of gloom that so many free traders and evangelicals became enthralled by the apparently enlightened and for many contemporaries exciting prospect of a vast internationalised, philanthropic and above all free trading zone inspired by the man still described as 'the great and enlightened monarch, Leopold II'.

It is far from an accident of timing, therefore, that the Manchester community turned back to the founding of a geographical society in late 1884. Indeed J.F. Hutton was to be a leading figure in this geographical agitation and the society's first president. As we have seen, the RSGS was founded at the same time and the Tyneside and Liverpool Societies followed within a few years. Moreover, the common figure in the founding rituals of the first three of these societies was to be the leading employee and propagandist for Leopold's Congo, Henry Morton Stanley. In October 1884 he appeared in Manchester and delivered to a large audience in the Free Trade Hall what was described as a 'brilliant address' on 'Central Africa and the Congo Basin or the importance of the scientific study of geography' in which he argued for the need to found geographical societies throughout the country:

> London, large as it is, possesses no more intrinsic interest in it [geography] than does Liverpool, Manchester, Glasgow, Edinburgh, Newcastle, Hull, Bristol, or Plymouth.

Geography, he went on, should be of interest to every enterprising manufacturer, merchant and shipowner, indeed to the merchant's clerk and book-keeper, manufacturers' assistants, employees, clerks and packers, even down to the smallest boy in the factory. Further yet, geographical societies should inspire every resident, male or female, in the country. He went on to establish the meaning of 'abroad' and Britain's total dependence upon it. Thus, in propounding the need for a geographical society in every port and manufacturing town he spoke 'of a society of geography, not as an ornamental addition to a great city, but from a utilitarian point of view'. As a practical contribution the main part of his lecture was devoted to the raw materials and trading potential of the Congo basin, protected in the interests of free trade by Leopold and the International Association (*Journal of the Manchester Geographical Society*, Vol. I, 1885).

The MGS, which survives to this day, was duly inaugurated in January 1885. Stanley gave that self-same address in Edinburgh in December of 1884 and also visited Glasgow and Dundee in the same month. The inaugural public meeting of the Scottish society had already taken place in September; Stanley's address became the first article in the Society's journal, and the Society, like the MGS, was fully constituted in January 1885 (*Scottish Geographical Magazine*, Vol. I, 1885). Newcastle missed Stanley on that round of lectures, but captured him in June 1890, when he was given the freedom of the City of Newcastle and seems to have put the Tyneside society's membership and funds on to a firm basis when they were canny enough to charge ten shillings a head to hear him or free entry to members (*Journal of the Tyneside Geographical Society*, 1889-90). In the same month, Stanley was to be found in Aberdeen and back in Manchester, where he again packed the Free Trade Hall and also received the freedom of the city. The founding of the Liverpool society followed in 1891 though it seems to have failed to secure a Stanley spectacular and lamented its weakness as a result. However controversial a figure Stanley may have been with humanitarians (Driver, 1991), there can be no doubt that he was received with immense enthusiasm at all these meetings, was hailed in the local press as a considerable hero, and gave a tremendous fillip to the founding and membership of the geographical societies.

Indeed, in the prevailing defensive mood, the geographical societies revealed a remarkable social and political consensus. An examination of their councils and membership reveals that each was based on an extraordinary coalition

of Tory aristocrats and Whig grandees, clergymen from bishops downwards (including Catholics, Anglicans and free churchmen), representatives of industry, commerce and shipping, together with academics from the local institutions of higher education. In Manchester we find the bishops of Manchester and of Salford (respectively Anglican and Catholic) lining up with the Duke of Devonshire, the Lords Houghton, Egerton and Winmarleigh, MPs like Jacob Bright (brother of John), the influential merchant J.F. Hutton and ten directors of the Manchester Chamber of Commerce, the Vice-Chancellor of the Victoria University and lecturers from Owens College. In Scotland, the Duke of Argyll, the Earls of Rosebery and Dalhousie, and the Marquess of Lothian (all aristocrats with imperial connections), shipowners like Sir Donald Currie, James Currie and William Mackinnon, imperial officials like Sir Charles Aitchison, Admiral Sir A. Milne, and publishers and cartographers like Adam Black and J.G. Bartholomew, as well as scholars from the universities and representatives of the missions and of the Scottish churches, established and Free. In Newcastle we find the Percies and the Greys combined with industrialists like Lord Armstrong, shipbuilders like Maurice Richardson, MPs of the stature of John Morley and Sir Edward Grey together with academics from the Durham College of Physical Science. In Liverpool the Earl of Derby was the almost inevitable choice as president and the council contained the usual blend of shipowners (including the chairman of Booth Line), commercial men and educationalists.

The rhetoric of the opening speeches of these societies reveals why it was that aristocrats, politicians, liberal free traders, and representatives from the churches, business, education and the professions found common ground in geography. In his opening speech Hutton at Manchester explicitly referred to the aggressive imperialism of European rivals and the need for a defensive reaction, but of course he dressed this up in the rhetoric of high-flown and high-minded educational and civilising purposes. The Roman Empire had faltered and declined when it abandoned the search for fresh geographical knowledge. Now 'other mercantile nations' were 'studying the causes of that commercial success and supremacy which Great Britain has so long enjoyed' and their competition showed every sign of being successful since 'in geographical knowledge they have now surpassed us'. His peroration made his objective abundantly clear:

> Let us therefore commence our work in earnest, and with the conviction that our opportunity has come, and the Geographical Society of Manchester must be such a success as will benefit and promote the welfare and the happiness of our fellow-citizens of to-day and of the future.

Furthermore, geography offered to several of the early speakers to these societies a unifying system of study. Grant Duff, the President of the RGS, when opening the new building of the Tyneside Society at Barras Bridge in 1890 (interestingly it was a Presbyterian Church, the congregation having moved on to a new building) described earth knowledge as the science which gathered up the results of all knowledge. Geography could bring together the sciences and the humanities, creating an integrative science that could be understood by all. This served to cut across the increasing specialism and impenetrability of the sciences. Empire, for many of these speakers, was a great laboratory. Geography's role was to educate and inform those at home, so that the developmental aspects of its activities in relation to the study of resources, the delineation of economic regions that cut across ethnicity and nationality, and the assessment of transportation systems linking commerce and industry, could press forward. Albert Grey saw the task of the Tyneside Society as being to educate citizens in the importance of empire. Societies should proliferate to this end (*Journal of the Tyneside Geographical Society*, 1891). Even that great Victorian sage and polymath John Ruskin caught the prevailing interest. In a letter published in *Fors Clavigera*, Ruskin argued for a uniform system of geography teaching throughout the Empire, a sort of imperial curriculum. For Ruskin the beauty of geography was that it linked art to practical knowledge, the visual and the verbal, through maps, stratigraphies, diagrams combined with the romance of its prose (Ruskin, 1884).

Speeches and papers reflect the role that was cast for the geographical societies. Within the 'discursive conquest' of imperialism, geography was seen as a grand integrative system, accessible and practical. British society, given the character of its economy, was utterly dependent upon 'abroad' for foodstuffs, raw materials and commercial opportunities. As the most advanced industrial state, she was the most dependent. In the new atmosphere of protection and land-grabbing, she was therefore also the most vulnerable. Thus the transformation of travel and exploration, mineral prospecting and botanical potential, trading and transport systems into the practical purposes of commercial geography was a precondition of survival. The 'knowledge is power' formulation has usually been expressed in terms of European dominance vis-à-vis the rest of the world. But it must also be considered in the context of the social Darwinian construction of a competitive Europe. Survival could no longer be predicated on the strength of the élite; in the modern world it implicated the knowledge and abilities of the entire population. The transformation of nature into science and from science into commerce and industry could best be effected by a science open to all. Survival depended on universal knowledge (both in the sense of a global geography and in the sense of

popular involvement) to be promoted by the propagandist and educational activities of the geographical societies.

The provincial societies and imperialism

In turning from the initial rhetoric to the practical meetings, as reflected in the speeches and papers reported and printed in the early issues of the societies' journals, it is apparent that Africa was in the forefront of the interests of all these societies. In looking at their activities in this period, one is repeatedly reminded of the words of Sir John Scott Keltie that 'Livingstone's death turned African exploration into a kind of holy crusade', that in the Partition of Africa 'we have been witnesses of one of the most remarkable episodes in the history of the world' (Keltie, 1893). It is clear that a number of individuals, like Harry Johnston, John Kirk, Consul O'Neill, Fred Moir, the Rev. John Mackenzie literally did the rounds. In Edinburgh the link with Livingstone was clear and personal. His daughter and son-in-law, Mr and Mrs A.L. Bruce, were prominently involved in bringing Stanley to the city and in the founding of the society. Frederick Holmwood, British Consul-General in Zanzibar, addressed the inaugural meeting of the Manchester society. It is also clear that the agenda swiftly changed from support for Leopold's allegedly 'internationalised' form of imperialism to a conviction that, as the Scramble developed, British interests could only be protected by direct annexations. Thus the societies made the transition from imperial, free trade bodies to imperialist pressure groups.

The articles in the journals, the public meetings and pressure group activities of the societies represent this well. When a joint conference of the northern societies was held in Manchester in 1888, it was on the subject of the 'East Central Africa Question'. In 1890, the Manchester society held public meetings on the Nyasaland controversy, that is the possible loss of the Shiré Highlands, so closely associated with David Livingstone and with missionary endeavour, in the recently negotiated Portuguese treaty. A major agitation in Scotland in the same year helped to convince the Prime Minister Lord Salisbury that the treaty should not be ratified. In 1892 Manchester held a large meeting on the Uganda crisis (caused by the collapse of the Imperial British East Africa Company) and sent a delegation to the Foreign Office headed by Lord Egerton to urge that Uganda should be retained. Twice in the 1890s conferences were held on missionaries, geography and Africa, all issues profoundly associated with Livingstone.

The secretaries of the Manchester and the Tyneside societies, Eli Sowerbutts and G.E.T. Smithson, one an accountant and the other a merchant, were energetic

propagandists for the idea of geographical societies and fostered their foundation in other towns. Sowerbutts toured the north with a lecture entitled 'John Bull's Estate, How He got it and What He's Going to do with it'. Sowerbutts and Smithson also discomfited the RGS by seeking representation on its Council, closer relations and reciprocal membership, loans of books and maps, as well as pictures and blocks for journal articles, joint conferences and other activities. Only the conferences were reluctantly conceded and then half-heartedly.

Indeed it is apparent from the relatively fragmentary material in the RGS Archives (correspondence block 1881-1910) that relations between the RGS and the provincial societies were somewhat strained. In 1899, the RGS indicated to the provincial geographical societies that it was 'desirable that the RGS and the Provincial Societies should be united by close ties of sympathy and friendly intercourse, in the conduct and pursuit of their common objects'. But, its letter went on, the ideal relationship would be 'unity of action with absolute independence'. This was a fairly obvious hint. Rhetoric apart, the RGS was gravely suspicious of the provincial societies. The metropolitan body was reluctant to grant reciprocal privileges, complained of attempts to secure its speakers for provincial tours (particularly objecting to acting as a *poste restante* for such requests!), was half-hearted about joint conferences of officers (which only lasted three years) and was generally doubtful about the character and objectives of its new rivals. There was of course a certain amount of *amour propre* involved: the RGS had been the only society between 1830 and 1885. But it went deeper than this. There were doubts about the provincial societies' social and scientific credentials, perhaps because they showed early signs of genuine competition. The provincial societies seemed to have a commercial thrust that the RGS had notably eschewed, such that a rival commercial geographical society in London had actually been proposed - by Verney Lovett Cameron among others - in the 1880s. Cameron had indeed been pleased that the Manchester had been founded to fulfil this more practical objective. The provincial societies admitted women, thus creating real problems for reciprocal membership since the RGS of course did not. And the provincial societies had emerged very swiftly as immensely popular local bodies, harnessing the full weight of civic and regional chauvinism to their activities.

Do these societies, then, represent a provincialisation of the RGS tradition? Obviously the conditions in which they were founded were different. Moreover, their development occurred at the same time as Keltie was producing his celebrated report on geographical education, Mackinder was delivering his address on the scope and methods of geography, and new scientific specialisms were crystallising. The provincial societies expressed their concern for education and took various

measures to further it in their own localities. They formed a forum for academic geographers, as many of the early papers suggest, but that does not make them anti-imperial. Surely the problem lies in the efforts of Stoddart, Capel, Lochhead and others to distance the development of geography from late-nineteenth-century imperialism. To react against the old concerns of the RGS was not necessarily to react against the most powerful ideology of the age. On the contrary the creation of the new geography was at least partly a response to new imperial needs that the RGS did not seem to be satisfying. Empire, particularly in Africa, had passed through its exploration phase into an era, as contemporaries saw it, of development and commercial growth. The new geographers were no less imperial than the old, as the career of Mackinder amply demonstrates. Moreover, the school text books produced to answer the call for geographical education, prepared by H.J. Herbertson, Mackinder's successor as director of the Oxford school, and J.M.D. Meiklejohn were notably imperial in their approach. They continued in use until at least the inter-war years (MacKenzie, 1984).

The striking dominance of the imperial idea is well represented by the foundation of the Geographical Association in 1894. This has often been portrayed as a response to the ideology and policies of the RGS (Stoddart, 1986, p.24). A reaction to some of the policies of the RGS it certainly was, but again this does not imply that it was anti-imperial. Indeed, the implication of some of the early activities of the Geographical Association is that the RGS, in practical terms, was not imperial enough. In 1896 the Association proposed that Empire geography should be taught in all schools. To a large extent the relationship of the provincial societies with the RGS was similar. The provincial societies were seeking the practical application of geographical knowledge, the development of commercial geography, the teaching of an imperial geography in schools, a geography turned to national ends at a time when Britain seemed heavily on the defensive in the face of European rivals where the study of geography, in common with other aspects of technical education, seemed bent upon securing the ends of the state. Thus the new geographical societies, including the Geographical Association, and their concerns with practical and commercial geography constituted a reaction to the notion that the RGS was not, in a practical sense, adopting a sufficiently imperialist policy.

It is only through a recognition that the new provincial geographical societies caught the national mood of the moment that we can explain their extraordinary mushroom growth. The Manchester society had a membership of 383 in 1885, reaching 893 in 1890, and in 1894 it moved to its own house, complete with library, map room and offices in St. Mary's Parsonage. By 1899 the Scottish society had 1,492 members, 908 of them in Edinburgh, 300 in Glasgow;

the Newcastle society boasted 751 members by the end of its third year, while the Liverpool membership reached 746 in 1898. The journal of the Liverpool society which tended to complain that it had not been as successful as it should have been, nevertheless announced that by 1893 its lectures were attended by an average of six to seven hundred people. These figures were helped by the fact that all these societies admitted women. There were several women on the provisional committee of the Manchester society and women also delivered papers. Even allowing for some exaggeration, the growth of each of these societies, and their resulting financial security, represented in their appointment of staff, highly professional publications and the purchase or renting of their own, often quite opulent, rooms is remarkable.

But in many respects they were seven-day wonders. They were founded at a period of great public passion, a moment of national defensiveness, when Africa was a source of tremendous interest. It is not too much of an exaggeration to suggest that the continent was viewed as a panacea for some of the economic ills of the time as well as providing apparently limitless opportunities for missionary endeavour, scientific study, settlement and commercial enterprise. By the turn of the century that initial passion was spent. Many of the most valuable parts of Africa, strategically and economically, had been secured for the Empire. Although interests shifted towards the highly fashionable polar exploration, memberships generally reached a peak in the 1890s and declined thereafter. The aristocratic, political, industrial and commercial elements tended to disappear from the councils and membership lists. The always shadowy Hull and Southampton societies disappeared by the First World War; the Liverpool found its functions taken over by other bodies; the Tyneside experienced a slight revival in the late 1930s, but its rooms were requisitioned in each of the world wars and it never fully recovered (*Journal of the Tyneside Geographical Society*, new series, vol. 1, 1936). Only the Scottish and the Manchester survive, perhaps because they succeeded in making the transition to truly learned bodies, reasonably well connected to their local educational establishments and with successful programmes of regional studies, field-trips and lectures. But there can be no doubt at all that all these societies were originally founded as pressure groups for imperialism, concerned with a more practical and ideologically committed geography than their metropolitan predecessor, and with an educational and scholarly programme designed to further the interests of the imperial state. While that offered them initial strength and popular appeal, it left them vulnerable to all the weaknesses of pressure groups: the achievement or disappearance of the cause, the slackening interest of their more

powerful proponents, the realisation that their economic objectives were not quite as rosy as they first seemed.

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