1 Cartography as Power

Maps are selective representations of reality; they have to be. Even if maps were to be life-size photographs they would be distortions: a three-dimensional, spherical object, such as the globe, cannot be presented in two dimensions without its essence being altered, and this problem affects the mapping of parts of the globe. Yet, even if that problem could be overcome, and life-size, photographic, maps be produced in some futuristic virtual-reality technology, there would still be the question of how the photography/cartography should be presented. What perspective would be employed? Would there be shadows? Would the map be in darkness and, if not, why not? A landscape in twilight or darkness, the human presence, indeed power, etched in light, is as 'realistic' as the total vision of unclouded daylight, indeed more so, and yet this vision is employed in most maps (the most prominent exceptions being weather maps, which often include cloud). Furthermore, a 'daylight' map, whether life-size or not, with its misleading simultaneity of perception, is not affected by the methods by which humans on the ground, in 'real life', seek to create perceptions, to use light and lights to define space and create, or prevent, perceptions.

Maps are not life-size; they are models, not portraits, let alone photographs, of life. Most are minute compared with what they depict. As a result, map-makers have to choose what to show and how to show it, and, by extension, what not to show. The word 'show' is deliberately chosen. It conveys a sense of art and artifice, of the map-maker as creator rather than reflector. A map is a show, a representation. What is shown is real, but that does not imply any completeness or entail any absence of choice in selection and representation.

Some of the most striking modern images of the Earth are produced by orbiting satellites. Since the 1970s, NASA, the American National Aeronautics and Space Administration, has been producing such pictures, by a technique known as Remote Sensing by Landsat Imagery, which generates images from electro-magnetic radiations outside the normal visual range. These might appear natural maps, the product of human artifice,

but essentially maps as photographs, photographs as maps. However, human intervention in the creation of the image is more direct than many viewers appreciate. For example, the use of different wave lengths leads to a stress on various aspects of the Earth's surface. Infra-red is especially valuable for vegetation surveys and for water resources. Choice and context greatly affects the impression that is created. In particular, because the image and colour-range are unfamiliar to most viewers, the caption and accompanying text are especially important in influencing the responses of viewers.

A map is no mere illumination. A minuscule-scaled photograph from a high-flying aeroplane of, say, Eastern Ontario would be too crowded for it to be possible to discern much, other than a concentration of human activity in the form of light near the lake. As the aeroplane flew lower, more would be revealed in photographs, but a map is not a photograph. The choice of what to depict is linked to, and in a dynamic relationship with, issues of scale *and* purpose, and the latter issue is crucial. A map is designed to show certain points and relationships, and, in doing so, creates space and spaces in the perception of the map-user and thus illustrates themes of power. This is readily apparent with two very common types of map, which are produced at very different scales.

The first, the map of the world, or a region thereof, divides up its land space (although not generally the seas) in terms of territorial control and political authority: the map as assertion of sovereignty. States, such as France and Germany, are the building blocks of such a map. As will be discussed, other methods of organizing space at this scale, indeed of presenting political space, are ignored.

Such mapping, using states as building blocks, does not have to be explicitly political. For example, weather maps are one of the most familiar types of maps. They might seem totally removed from the world of politics. However, their frame of reference is generally that of a political unit, say, Italy or Spain, in part because they commonly appear in national newspapers or on national television or radio, or because such states are the most convenient units for discussion and depiction. Thus, in Britain, an inhabitant of Kent is provided with more information about the situation in distant Westmorland than in nearby Pas-de-Calais, which is in a different nation-state. The former is assumed to be more relevant, but that is not the essential reason for the scope of the weather map. Instead, it is a statement of the centrality of the national sphere even in fields in which the state, indeed the country, plays no role apart from the provision of the weather service.

The second very common type of map is that of a city or town, or a detailed part thereof. These maps are organized around streets; indeed, that

is how they are indexed when produced together in street atlases, such as the London *A–Z*. The index plays a crucial role in such atlases. Railways are marked, but they are shown as thin lines and are not indexed. It is only on the imaginary island of Sodor, the scene of the 'Thomas the Tank Engine' stories, that a modern British cartographer can map roads alongside railways and make the former far less prominent.

In the 'A–Z'-ing of life, habitations emerge as the spaces between streets. Differences within the city or town, for example of wealth, or environmental or housing quality, are ignored. The perceptions that create and reflect senses of urban space, often rival, contested and atavistic, are neglected, in favour of a bland uniform background that is described, and thus explained, insofar as there is any explanation, in terms of roads.

This is not a world of neighbourhoods, of upwardly mobile or downwardly mobile quarters, of areas largely inhabited by families or singles. Such blandness is necessary in order to highlight the roads, although, in addition, the network the roads thus display is misleading, because the detailed maps generally do not accept a hierarchy of routes, or, if they do so, do not give it sufficient prominence. A road map of a city does not depict roads in proportion to their traffic density, although it is increasingly common to distinguish main streets by colouring their surfaces. In addition, most city maps show major public buildings (typically in black), and thus allow city centres to be distinguished in a rough and ready way.

However, maps of cities are very much ground level. There is little, if any, suggestion of the vertical, and thus of the many who live and work in skyscrapers or more modest multi-storeyed buildings, and indeed of the transport problems these buildings pose and the links they offer (stairs/lifts). This elision of the vertical dimension of urban life is an aspect of the emphasis on ground-transport routes, particularly roads. The city is a space to be traversed, a region to be manipulated or overcome in the individual's search for a given destination, not an area to be lived in and through. Far from being composed of neighbourhoods, the city is a sphere of distance to be negotiated, indeed overcome, by road. More generally, the structure, typology and density of activity in the city is neglected.[1]

An *A–Z* road map does, of course, provide some hints about urban environmental quality. The presence of parkland is one important indicator. On the *Nicholson Colour London Streetfinder* (London, 1985) I use, there is an obvious contrast between the green spaces and graphic openness of the Hampstead area on p. 46 and Brixton (p. 90), where no green spaces are shown. They provide a hint of urban character for unvisited areas, and reinforce the perceptions already formed of parts of the town that have been visited.

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This map from the 1996 *Nicholson London Streetfinder* reveals clearly the contrast between Hampstead, with its plentiful green spaces, and neighbouring areas, such as Kentish Town, that lack them. Other amenities, for example the views from the Heath and the way in which Hampstead literally looks down on its neighbours, are not revealed in this source.

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Brixton, from the *Nicholson London Streetfinder*. This map provides no details of the dynamics, character and tensions of the community. Indeed, Brixton is presented as a group of routes. Without roads there are no locations.

Another possible indicator is the distance between streets. The wider the gap the more likely that there are gardens of some size, although this is by no means an invariable rule. Thus, on the *A–Z Street Plan of Exeter* the close-packed streets of the Mount Radford area contain property considerably more expensive than those in St Thomas. The map emphasizes streets and thus ignores housing quality and character. Political canvassers and estate agents in Exeter are aware of detailed variations among streets, of a geography of zones and boundaries, of ownership and residence patterns that do not appear on any street plan.

Similarly, historical atlases that employ such maps generally fail to address the human dimension. *Mapping the Past – Wolverhampton 1577–1986* (published by Wolverhampton's Library and Information Services Division in 1993) included as its last map a section of the Ordnance Survey map for the city centre. This showed the ring road and the accompanying text referred to the clearance of 'sub-standard housing'. The accompanying destruction or dislocation of neighbourhoods left no trace in the map or text; the reader has to infer it.

The structure and density of activity of a city can also be ignored in typological maps that emphasize clarity, rather than scale and direction; for example the London Underground Journey Planner. This is based on a map devised in 1931 by Harry Beck, a draughtsman working for the
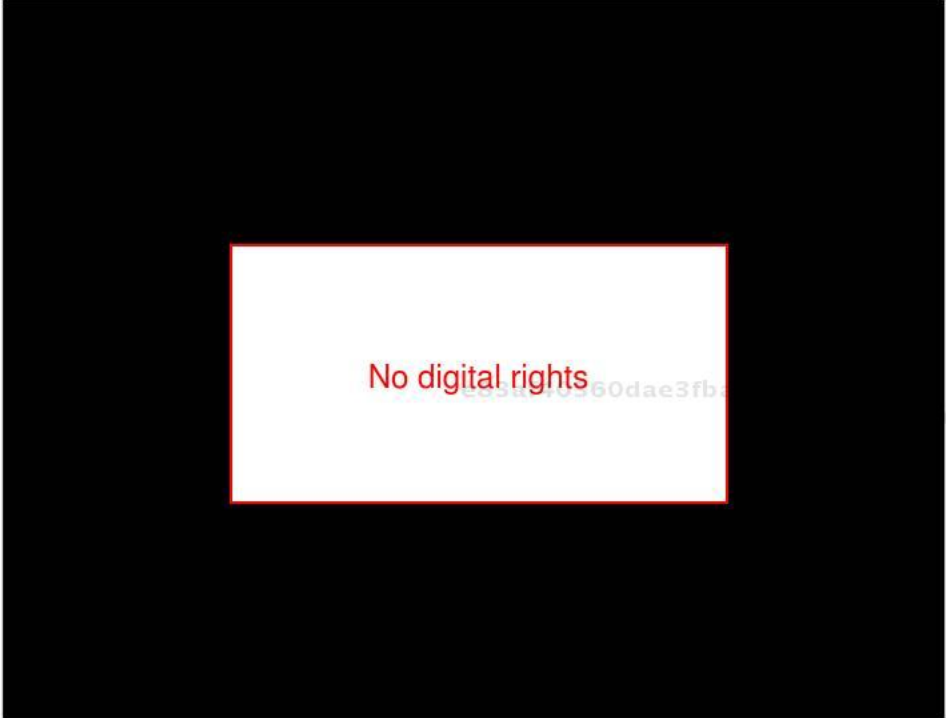
The Ordnance Survey map for the city centre of Wolverhampton. The new ring road is visible but not the damage and disruption it led to.

London Underground. Prior to that, the maps issued by the Underground railways were designed to be accurate in terms of distance and direction. The first such map, produced to show all the Underground lines, as opposed to those simply for an individual company, was issued in 1908 and depicted the lines superimposed upon a central London street map. Such a background was dropped by the 1920s, but the map still lacked the diagrammatic form that Beck was to introduce.

Beck's layout was inspired by scientific models, specifically by electrical-circuit diagrams, and depicted the lines as verticals, horizontals and 45° diagonals. His map was a success, and was used by London Transport for both station wall maps and pocket versions. Popular with users, the map offered an enlarged coverage of the central area, thus making it easier to understand routes and connections. The map also served another purpose. Some previous maps had had to exclude the outer, overground sections of the system or faced difficulties in including them, whereas the Beck layout included the entire system. By doing so, it shrank the apparent distance between suburbia and the inner city, and this achieved an important result at a time when suburban settlements, such as Edgware, were

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being developed. By making them appear closer, the Beck map ensured that movement there did not appear to be a case of leaving London. Instead, the ease of travel into the centre was emphasized, a visual effect that was encouraged by the use of straight lines on the map for the individual Underground lines.

The subject of a map reflects choice; so also do the scale, projection, orientation, symbolization, key, colour, title and caption. To imagine that there is a totally objective cartography is to deny the element and nature of choice and to neglect the assumptions present in choices, although these choices are often comprehensive within defined (and thus chosen) demarcations. Both assumptions and choices can require careful unpicking, as they entail subjective judgments, whereas the ideology of modern cartography, its *raison d'être*, is that of accuracy, which is generally seen as an aspect of objectivity; an impartial 'scientific' realization of reality. Most map-users see cartography as a science, a skilled, unproblematic exercise in precision, made increasingly accurate by modern technological advances. This approach is misleading, not least because it is based on a limited understanding of science. The limitations of the map-medium are more than 'technical' and non-controversial; the questions involved are more than merely a matter of which projection or scale to select, and with such choices seen as 'technical', rather than as involving wider issues.

It is possible, for example, to produce an accurate map of modern Italy that makes no allowance for the powerful fissiparous tendencies within the country. The administrative regions of Italy, regions that partake in the structure of state power, are mapped more frequently than the striking economic divisions between north and south, while Padania, the projected state of the separatist Northern League, proclaimed in 1996, appears on very few maps.

This essentially statist mapping was, and is, crucial, as the cartographic propagation of nations depends on a clear-cut identification of peoples and territory. To that end, space has to be understood as territory. The frequent reiteration of cartographic images of the state in, for example, rail and road maps and weather forecasting ensured that the shape and territorial outlines of states became clearly established. It is an educational process with a clear message about the natural way in which to order space. Such a process is enhanced by the comparable use of the shape of the state in advertising and in maps produced by commercial organizations.

In the 1980s and 1990s, the notion of objective cartography was challenged, in a series of arresting works. The most powerful of these was Denis Wood's *The Power of Maps* (New York, 1992). The chapter titles indicated the theme of the book: 'Maps Work by Serving Interests'; 'Maps Are Embedded in a History They Help Construct'; 'Every Map Shows

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This ... But Not That'; 'The Interest the Map Serves is Masked'; 'The Interest is Embodied in the Map on Signs and Myths'; 'Each Sign Has a History'; 'The Interest the Map Serves Can Be Yours'. Wood's theme is that maps reflect and sustain power.

This treatment of maps brought together the iconic tradition of decoding paintings and other works of art familiar from art history, with postmodernist concerns about the nature of text and the contingent nature of authorial intention. Wood's book was dedicated to the memory of Brian Harley (1932–91), a British geographer whose example he acknowledged in the Preface.

Harley saw maps as essentially documents that contribute to the discourse of power, and that should be seen in that light. He treated cartography as a form of language, and maps as texts to be read and deconstructed in the post-structural and postmodern sense pioneered for literature, architecture and signs by Roland Barthes and Jacques Derrida.[2] Cartography was linked to, and to be understood with reference to, ontology, epistemology, iconography and reception theory. His concern with discerning the rhetoric of maps offered a new layer of meaning for the cartographic project,[3] and made it possible to relocate cartography in broader intellectual movements, and, in particular, in intellectual contexts other than those of the simple spread of knowledge.[4]

Moving away from the question of the accuracy of maps, Harley, especially in his later work, highlighted the nature of maps as instruments of power, in particular by drawing attention to their practical and symbolic role as assertions and communications of proprietorial and territorial rights.[5] His analysis of the connections between power, knowledge and the mapping process drew on the work of the influential radical French philosopher Michel Foucault, and, in particular, on the problematizing of knowledge and its relationship with power. Foucault sought to use the notions, symbols and language of cartography, specifically of space, boundaries and networks, in order to understand and make dynamic his views on the politics of knowledge. For Foucault, knowledge as struggle was to be understood in large part by reference to space: there were boundaries and spheres of contest; ideologies colonized terrains.

If power is about space, spaces were created through the exercise of power. Cartography could be seen as central to this process. For Harley, the map, far from being passive, and viewed, emerged as a form of control, even surveillance; its producer was a map-creator, not a compiler, who manipulated map-users and was effective insofar as he or she could do so. This manipulation rested in large part on a conformity to the cultural assumptions of the viewer, thus ensuring that the language of the map was more than that represented by its symbols.

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This perception led Harley to focus on the morality of maps and the ethics of cartography, and to assert the need to fight back – to focus on the 'silences' in maps – the peoples ignored or marginalized – and to use maps to promote social justice.[6] In addition, an emphasis on the autonomy of map-creator and viewer led to a stress on their roles. These roles became a matter of scrutiny, designed to clarify the nature and impact of cartography. To use the language of the 1990s, map-users were to be empowered through knowledge.

Similar arguments have been advanced by some other recent writers on cartography, and they have acknowledged their debt to Harley. This was true both of some practising cartographers and of writers on the theory of maps. Harley was particularly concerned about the extent to which the cartography and mapping traditions of the imperialist powers had, in his eyes, distorted the historical, and thus present, cartographic treatment and understanding of those who had experienced imperialism, both outside Europe and within; for example the Irish. He claimed that the sense and naming of place of those who had suffered from imperialism had been appropriated, and that their understanding of territory and boundaries had been neglected.

Indeed, the mapping of colonies by the controlling powers was very much for their own purposes. When the French mapped Martinique and Guadeloupe after the Seven Years War (1756–63), their maps recorded the plantation system of a sugar, coffee and cotton colony and were also designed to provide information in the event of future hostilities with Britain. Mapping was carried out by engineers and was linked to a policy of fortification. On the maps, the names of owners were marked on plantations; not those of workers.[7] Thus, in Harley's view, the poor and the colonized had both been dispossessed by established Western cartography, and their cartographies had been neglected. The intellectual hierarchy that typecast non-Western cartography as primitive, or at least limited, was seen as serving a malign purpose. It was not so much that knowledge was power, as that power permitted a ranking of knowledges and that this ranking served the cause of power.

Similar concerns have been voiced by other cartographers concerned to recreate the past world of the non-Europeans or to present their modern world without European accretions. Jack Forbes, in his *Atlas of Native History* (Davis, 1981), argued that maps of the nineteenth-century USA were misleading in that they substituted the cartographic pretensions of the US government (and also the general perception of East Coast society) for the realities of native power. He sought to redress this 'mythological map', and presented his atlas as a cartographic catharsis:

this atlas represents . . . an intellectual process which we have to go through in the United States; a process of discovering truth free of ethnic bias and colonialist chauvinism.[8]

Forbes claimed that an objective cartography is possible, but that ethnic and cultural bias had to be countered to produce it; indeed, that the process of countering such bias was crucial to, and part of, accurate cartography.

The same ambition underlay post-independence mapping of Africa, past and present. However, unlike in the case of Forbes, the inevitable subjectivity of cartography was asserted in the best historical atlas of Africa, that by J.F. Ade Ajayi and Michael Crowder:

There is nothing fixed, or final, about a historical map. Maps are not simply a means of displaying historical evidence. They are interpretations of that evidence, often bringing into sharp focus the author's or editor's assumptions concerning the nature of the phenomena, process, or events under consideration.[9]

Similar themes were voiced by theorists, concerned to question the legitimacy of maps and map-making, and the role of maps in creating a misleading sense of natural territorial control:

When the fundamental importance of perceiving real and imagined space is compared to what passes for most mapping today, a huge separation is apparent. In our consumer society, mapping has become an activity primarily reserved for those in power, used to delineate the 'property' of nation states and multinational companies. The making of maps has become dominated by specialists . . . If you were entirely cynical, you could view the appropriation of mapping from common understanding as just another police action designed to assist the process of homogenizing 5,000 human cultures into one malleable and docile market.[10]

Cartography was thus to be reconceptualized, treated not as a science, with its often misleading claims for objectivity and progress, but, whether as a science or not, in multiple and changing intellectual and social contexts. According to this approach, cartography was to be seen as a discourse of power,[11] which related to an understanding of space itself as a prime cause and reflection of power relationships.[12] Countries became in part creations, essays in the structuring of space by power.[13] More generally, the modern conception of space has been seen as active in a double sense:

. . . they [maps] create social spaces while at the same time they are modes of spatial representation. They create those two aspects of spatiality through enabling two corresponding modes of connectivity. Maps connect heterogeneous and disparate entities, events, locations and phenomena, enabling us to see patterns that are not otherwise visible. They also connect the territory with the social order. Modern systematic maps rely on a standardised form of knowledge

which establishes a prescribed set of possibilities for knowing, seeing and acting. They create a knowledge space within which certain kinds of understandings and of knowing subjects, material objects and their relations in space and time are authorized and legitimated.

This process is related to the rise of the modern European state:

The establishment of this new international space set in motion the process whereby the whole of the earth's territory could be mapped as one. All sites would be rendered equivalent, all localness would vanish in the homogenisation and geometrisation of space. In order to achieve the kind of universal and accurate knowledge that constitutes modern science and cartography, local knowledge, personnel and instrumentation have to be assembled on a national and international scale. This level of organisation is only possible when the state, science and cartography become integrated.[14]

A similar stress on power arose from attempts to understand the nature of map representation and use. An important recent work by Alan MacEachren, *How Maps Work* (New York, 1995), argued

that to more fully understand how maps work, we need to investigate mechanisms by which maps both represent and prompt representations. The communication paradigm took us a step in this direction but floundered due to a fundamental assumption that matched only a small proportion of mapping situations: maps as primarily a 'vehicle' for transfer of information. A representational perspective, in contrast, begins with an assumption that the process of representation results in knowledge that did not exist prior to that representation; thus mapping and map use are processes of knowledge construction rather than transfer. To more fully understand how maps work, then, we must consider the ways in which map-makers structure knowledge and the ways in which cognitive and social processes applied to the resulting cartographic representations restructure the knowledge and yield multiple representations.

The antithesis of communication versus representation does not exactly match the axes that structure discussion of objectivity and politicization, but there is a relationship. The idea of power embraces something of the authority of the gaze, the questions of who is looking, how and why. The power of looking is both enhanced and directed by the map, which in its apparent objectivity matches that of looking understood from the viewpoint of 'Cartesian perspectivalism', an approach that has recently been challenged.[15] Furthermore, the map is constitutive of a certain form of reality, not merely representative of it. The message and medium of the map is different from that of the written text, not least because the first offers a simultaneity of form and impression whereas the second provides a sequential organization and content.

The theory of knowledge construction offers only limited guidance to the processes and problems of map-creation, not least the exigencies and

compromises that characterize the collection of data and the decision of what can be mapped. In politicizing these processes of choice and compromise, scholars such as Harley, in their search for conspiracy, simplified a complex situation, although they also enriched the discussion of cartography. They replaced 'can', as in what can be mapped and what can be seen in a map, by 'should', or argued that the question of what could and can be mapped was determined by cultural and political suppositions. In part, their very politicization of the theorization and analysis of cartography was itself a contingent political statement, an assertion of academic ideology. Harley, in particular, clearly distrusted the state, a body that he was inclined to reify and simplify. In selecting his target – the nexus of maps and governments – he, and others, sought to make coherent what was, and is, in fact, generally more diffuse.

The postmodernist interpretation of maps drew on a left-wing dislike and distrust of authority that neatly combined government (in its more malevolent formulation as the state), traditional map-making, conventional and established views on cartography, especially of its progressive and positivist character, and the notion of objective truth. Matthew Edney argued that 'the state continued (and continues today) to dominate map-making, both governmental and commercial, and to promote for its own reasons the empiricist illusion of cartographic mimesis ... Map-making was integral to the fiscal, political, and cultural hegemony of Europe's ruling elites'.[16] However, while it is true that the state does play a major role in map-making, it is less clear that governments actively 'promote' an interpretation of cartography. In addition, the notion that map-making was or is integral to hegemony requires careful analysis, and the very notion of hegemony is not always helpful to the understanding of an often more complex and diffuse situation.

Denis Wood saw the rise of map consciousness as linked to 'the continuous rationalization of management indispensable to the capitalist state', the latter clearly being understood as a negative. This was, at best, only partly true, for map consciousness reflected a range of developments, including increased travel.[17] Seeking to explain why reputable scholars, such as Harley, preferred the theatrical presentation of the Ordnance Survey in nineteenth-century Ireland as an instrument of political tyranny and cultural chauvinism, a view central to Brian Friel's successful play *Translations*, to his own scholarly demonstration of the more balanced institutional structure and practice of the Survey and of the degree to which English was not substituted for Irish in place names by a colonial state, John Andrews suggested that modern intellectuals were sympathetic to criticisms of government authority and that they liked the degree of attention the play focused on maps.[18]

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The critical approach dissected by Andrews was scarcely novel in the 1980s and early 1990s. The search for structures and practices of authority and authorization behind apparent scientific impartiality, the deconstruction of science, was beloved of a generation of scholars. The process was not without considerable value, but it suffered from a number of weaknesses, including a tendency to state the obvious, a simplification of, and a failure to understand the nature of, power systems, and a preference for style over substance. *Épater les bourgeois* might be fun – it certainly gave life to lectures, or at least to lecturers – but it was, and is, strangely limiting. In addition, the recreation of non-European cartographies through the mediums of 'First World' research and publication was also a process not without its ironies, although it served as a reminder that modern 'First World' senses of time and space are both contingent and relatively recent in origin.[19]

Rather than searching for cartographic conspiracies, it was more valuable to underline the degree to which space was, and is, understood differently by contemporaries, and to see this as a central problem for contemporary map-makers and map-users, not as an opportunity for deceit. As Richard Dennis pointed out in his investigation of the social geography of nineteenth-century English industrial cities, ' "Insiders", such as slum dwellers, and "outsiders", such as medical officers, were unlikely to see things the same way, or even to agree on what they should be looking at'.[20] Thus discussion of maps and mapping is related to a general consideration of points of view.

If only one viewpoint were adopted for mapping, then this could be seen as a political statement or judgment, whether conscious or otherwise. However, the extent to which such an adoption might have arisen largely, or even entirely, from the availability, even survival, of the evidence has to be considered.

This is equally true of the present. Data availability and the lack of uniformity in data collection are not only historical problems, and this is also true of the way in which data are presented. For example, both past and present are segmented in a manner that reflects patterns of authority, and thus power. Political and administrative units are commonly used for the collection, presentation and analysis of non-political data; doing so at least defines the possibility of lack of uniformity in data collection. Thus data on literacy or health are commonly presented, as they are collected, by administrative unit, not grouped by, for example, regions of common economic indicators. Equally, most data that are not mapped are also organized in terms of political and administrative units. Furthermore, mapping in terms of different units, for example regions of common economic indicators, is possible, increasingly so. Provided all relevant information is spatially coordinated, data can be remapped without using political units,

and such a process has been greatly eased by the digitization of data and the use of computers to process them.

Even if different non-political units, for example grid squares, can be employed for the base map on which data are to be presented, it is still the case, however, that all views are not equally heard. If the views of nine-teenth-century slum dwellers are harder to establish than those of medical officers, other than, for example, through the writings of such officers, this is also the case today. Illiteracy is far lower than in the past, and a greater percentage of the population is listed in the records of the dreaded state, thanks to national systems of education, health and employment insur-ance. Yet that is not the same as providing evidence of opinion, while the records of the state classify in terms of criteria set by government. In addi-tion, in some respects, the very multiplicity of opinions that characterize the modern world place a greater premium on the ability of some groups to present themselves prominently, and make it harder to distinguish the views of, not silent but quieter, less articulate or less-heeded majorities.

Paradoxically, this very problem of minority and majority opinions throws an interesting light on discussion about maps, because it is appar-ent that the notion of representational reality is widely held in at least 'Western countries'. Maps are taken to reflect reality and indeed are con-sulted daily on that basis, most obviously with reference to travel routes and weather forecasts. Issues of symbolization do not worry, and are not relevant to, the vast majority of map-users and are not explained to them. Thus an important aspect of the politics of cartography is that the very attempt to present maps and mapping as aggressively political in nature and intention is, itself, a minority opinion, whereby academics use the lan-guage of impartial enquiry to advance an agenda of their own, rather like the cartographers they sometimes criticize.

Harley's claim that 'Whether a map is produced under the banner of cartographic science ... or whether it is an overt propaganda exercise, it cannot escape involvement in the processes by which power is deployed',[21] can be amended by substituting 'analysed' or 'described' for 'deployed'. This is especially apparent because of recent attempts to use spatial distri-butions of, for example, wealth and poverty, or health and ill-health, in order to produce maps that are politically engaged, but without the nation-alist bent with which propaganda maps are generally associated, and for which they are frequently condemned. The contents and tone of Ben Crow and Alan Thomas' *Third World Atlas* (Milton Keynes, 1983; 2nd edn 1994), for example, are alive to novel methods of presenting space and to the way in which particular emphases are created without necessa-rily any intention to do so. Thus, in this case, attention is drawn to the use of 'the Christian calendar' in measuring centuries.[22]

A 'Third World' perspective offers a way to analyse and present global space that is different from the conventional 'Western' approach, although in many cases 'Third World' perspectives are 'Western' creations, reflecting intellectual agenda, and publication and marketing strategies devised in the 'West'. Other strategies are present at more micro levels. In general, popular political movements have sought to create 'counter-space' in opposition to existing political structures,[23] and the same is true of efforts by radical or alternative lifestyle groups[24] to contest and redefine space. This produces a fluid situation in terms of what is expected from maps. The very notion of the community has been presented not only as a neutral topic for, or a means of, analysis, but also as a possible challenge to social and political practices and norms that can have a cartographic dimension. In addition, there is pressure for discovering and disseminating the perceptions of time and space held by aboriginal peoples,[25] and also for cartographic 'relevance', seen as both as an adjunct of 'justice', whether environmental, social, political, ethnic or gender, and as necessary if cartography is not to be sidelined. Thus Ferjan Ormeling observed, in 1995,

Atlases nowadays have to compete with TV-soaps and computer adventures which pose crucial questions such as 'Will the hero be able to find true love,' 'Will he conquer evil,' or 'Will he solve the mystery?' Cartographic counterparts of these crucial questions would be: 'Does one control the environment in this region?' 'How far is this country from an ideal situation?' 'Do all inhabitants have equal access to the nation's resources?' or 'Do people here have better chances at success than people elsewhere, and, if so, at what price?'[26]

This approach uses the argument of 'relevance' to assert the case for an explicitly politicized cartography. The notion of competition with television, however, may be queried, and it can be argued that the crucial cartographic questions for most atlas-users remain those of relative location and transport routes. Nevertheless, these, and other, different ways of presenting space offer an appropriate way to consider maps and politics: a contro-verted rather than a conspiratorial approach, in which the multiple meanings of space are seen as challenges that ensure that no single cartographic strategy will be possible. Such pluralism is appropriate for modern democratizing cultures in which the notion of democracy has been expanded from a political issue centred on the franchise to the ideal or myth of the creation of a world in which the views and opinions of individuals are widely heeded and their expression not controlled by hierarchical power structures. Multiple meanings are also appropriate in an intellectual culture well aware of change and the contingent nature of analytical judgments.

This pluralism has been given added force by arguing that Harley and

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other deconstructionists make the same mistake as the cartographers they criticize by contrasting acceptable and unacceptable map-making, and underrating the extent to which there is, instead, a spectrum of standards.[27] This flaw is seen as similar to the professionalism of the traditional cartographers Harley criticized in discussing the scientific map,[28] and their hostility to what they see as inaccuracy and bias.

The dichotomous juxtaposition of allegedly acceptable and unacceptable map-making was also an aspect of Harley's argumentative approach, his search for the analytical 'other' that could bear the weight of his critique of traditional cartography. Yet there is a great danger in reifying this cartography. In both the content of maps and their presentation, traditional cartography was neither static nor uniform, nor unreflective. As so often, the quest for the new is valuable if it builds on, not denies, the old.

A critique of 'traditional' cartography is not the sole method and product of recent changes in the understanding of mapping. There has also been an extension of the sense of place, which, while not directly related to mapping, has consequences for the context within which it can be considered. Place has been reconceptualized to encompass also the analytic spaces in which knowledge is made both 'real', in a sense of specific locations, such as universities or laboratories, and conceptual. Thus knowledge is understood and disseminated in particular places, both material and metaphorical, with place as a common organizational term.[29]

The mappability, in conventional terms, of many of these places is limited. Given the understandable concern of cartographers with consistency and their unhappiness about lacunae in data or poorly defined subjects, symbols and data sets, it is scarcely surprising that this poses a considerable problem. Indeed, much of the new geography of place is best presented visually in diagrammatic terms: place is an aspect of model building rather than locational specificity, or, rather, if both pertains, the first is more important.

The recent re-presentation of cartography owes some of its intellectual energy to the related attempt to question and redefine the cartographic canon by drawing attention to non-European mapping traditions. This has also been an obvious and important field for critics of modern 'Western' cartography. Other mapping cultures, including earlier European understandings of cartography, are thrown into prominence both by the scholarly attention devoted to such traditions in the *History of Cartography* (Chicago, 1987–) project, especially those of East and South Asia, and by specific studies of indigenous notions of spatiality, for example those of Native Americans, Australian Aborigines,[30] New Zealand Maoris and Canadian Inuits.

The latter are presented as more holistic, more interactive with the in-

dividual and communal circumstances and needs of their production. Furthermore, they can be seen in a non-comparative context: one in which there is no sense of a single cartographic standard by which different cultures can be compared and judged. Indeed, this can lead to widely differing interpretations of what is a 'map'. It is not necessary to accept conventional Western definitions of maps, nor Western usage as a basis by which the products of other cultures can be diminished by being seen as 'maps'; failed realizations of the Western cartographic model. In short, politics is again involved in cartography, for it is through the projection (a nicely ambiguous and multifaceted term) of Western power that other cartographic traditions were ignored or diminished. In addition, only if different cartographic conceptions are comprehended can the spatialities of many other societies be fully understood.[31]

This, however, is not simply a matter of cultural relativism, of comparisons between European and non-European societies, because it is apparent that cartography has to take note of different accounts of spatiality and spatial links within particular cultures, societies and polities.[32] It is also important not to contrast European and non-European spatialities too readily. The role and location of sites of collective memory in non-European societies can be considered alongside symbolic spaces in European memory,[33] although it is true that the latter play only a limited role in European cartography. As ever, however, selection is present in mapping.

Non-Western cartography is not simply a matter of the spatial awareness of 'primitive' societies, 'primitive' being understood today not as a comment or stage on some 'great chain of being', Darwinian or otherwise, but rather as a society with different, and in some eyes more desirable, social, cultural and political arrangements and ethos from those in the West. Instead, it is also necessary to draw attention to cartographic traditions in bureaucratic societies with a developed literary culture other than those of Europe. This is particularly true of China, which in many senses was a leading seed-bed of cartography. Interest in mapping there developed early. The first known map in China dates from about 2100 BC and appeared on the outside of a *ding* (ancient cooking vessel). A map of a graveyard produced between 323–15 BC was uncovered in a tomb in 1977. Maps in China certainly became more common under the Western (or 'Former') Han dynasty (206 BC–AD 9), although very few have survived from before the twelfth century, when they were frequently used in various types of publication such as administrative works. By the first century AD the Chinese were employing both the scaling of distances and a rectangular grid system. The Chinese subsequently adopted the mariner's magnetic compass and the printing of maps before these were introduced into Europe.[34] The modes of transmission of cartographic ideas and tech-

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niques are difficult to assess;[35] certainly, the bold arrows that might be used to indicate influences on modern maps are inappropriate. However, it appears that Chinese advances such as printing by engraving on wood blocks were adopted by Islamic traders and thence passed to Europe. The Mediterranean world had witnessed significant advances in cartographic understanding, activity and techniques during the Classical period, but, thereafter, much of the knowledge was lost. Ptolemaic cartography was re-discovered in the same period as Chinese techniques spread.

Both the chronology and the pattern of developments and influences are obscure and have been differently interpreted. What is certainly clear, however, is that the Western cartographic project of the last half-millen-nium, with its Eurocentric assumptions and its relationship with the spread of European power, drew to a degree on Chinese roots. As with China, knowledge and interest combined to ensure that the resulting car-tography had a particular focus; in the case of China, that of China and its immediate neighbours, the latter being understood and presented in rela-tion to China.

Definitions of maps and understandings of cartography both involve issues of power. Politics stands as a metaphor for social processes that pro-vide the context for cartography and mould much of its content and reception. Although some of the more strident claims about the role of power in cartography and of cartography in power can be queried, it is, nevertheless, the case that such issues should play an important role in dis-cussion about the contents and purposes of maps.