

2 What do maps represent?

The crisis of representation and the critique of cartographic reason

It is comparatively easy to visualize maps as representational models of the real world, but it is important to realize that they are also conceptual models containing the essence of some generalization about reality. In that role, maps are useful analytical tools which help investigators to see the real world in a new light, or even to allow them an entirely new view of reality.

(Board, 'Maps as models')

A map seems the type of conceptual object, yet the interesting thing is the grotesquely token foot it keeps in the world of the physical, having the unreality without the far-fetched appropriateness of the edibles in Communism, being a picture to the degree that the sacrament is a meal. For a feeling of thorough transcendence such unobvious relations between the model and the representation seem essential, and the flimsy connection between acres of soil and their image on the map makes reading one an erudite act.

(Harbison, *Eccentric Spaces*)

Maps and mapping have always been of theoretical and practical importance to geographers and cartographers, and they have had long-standing technical and metaphorical importance for the theory and practice of fields such as geology, surveying, astronomy, anthropology, art history and literature. In recent years, the emergence of new capacities of digital mapping in cartography and the spatial turn in the humanities and social sciences have extended mapping practices and metaphors across the social field. As Board foresaw in the quotation with which this chapter begins, a new analytics and a new view of modelling reality have been in the making; a deepening and extension of the possibilities of spatial representation requiring the specific reading skills and erudition to which Harbison points. At the same time, profound epistemological changes have shaken the self-understanding of the sciences and humanities as Cartesian dualisms and scientific naturalisms of all kinds have been brought into question. The result has been nothing short of a 'crisis of representation'

28 *Deconstructing the map*

and it is this crisis that forms the core of this chapter. I focus on four main aspects of the broader impact of the crisis and of the spatial turn in social theory:

- 1 The renewal of the cartographic imagination spawned by the spatial turn in social thought is having an important influence on a broad array of social science and humanistic disciplines and social practices, providing new metaphors and frameworks for thought and action.
- 2 Cultural studies are being transformed by a rethinking of the cartographic imagination in ways that pose challenges to and opportunities for rethinking cartographic practices themselves.
- 3 Technical changes are blurring any former boundaries between cartography, imaging, and social and scientific practices. As a result, the theory of cartographic representation that held sway for so many years has begun to show signs of wear and tear. In particular, new technologies and uses of spatial representations have brought to the forefront again issues of accuracy and error.
- 4 The broadening and deepening of mapping practices reflected in the first of these three points presents a paradox for geography and cartography. In recent years, we have become much more aware of the many ways in which cartographic reason has underwritten the structure of thought in other fields. But the recognition that its own imaginative structures are still firmly rooted in representational logics and beliefs has come late to geography and especially cartography. What Gregory called the 'Cartographic Anxiety' and the epistemology of viewer and world, subject and object, interiority and exteriority on which it rests continues to limit the theoretical and practical possibilities of cartography itself.

In the next section, I unpack the Cartographic-Cartesian Anxiety in terms of three related elements of the crisis of representation. The first focuses on the emergence and role of communication models of information and the objectivism to which they laid claim. The second turns to J.K. Wright's arguments about the subjective nature of maps. The third deals with how implicit assumptions about objectivism and subjectivism frame the understanding of error and distortion in cartography. I elaborate these three elements not to provide a thorough synthetic genealogy of cartography's self-image or self-understanding, but to highlight one aspect of this self-understanding, its abiding Cartesianism and the depth and consequences of this particular commitment.

THE SPATIAL TURN IN SOCIAL THEORY AND NEW SOCIAL AND CULTURAL CARTOGRAPHIES

In terms of most communication theories and common sense, a map is a scientific abstraction of reality. A map merely represents something which already exists objectively 'there'. In the history I have described, this relationship was reversed. A map anticipated spatial reality, not vice versa. In other words, a map was a model for, rather than a model of, what it purported to represent ... It had become a real instrument to concretize projections on the earth's surface. A map was now necessary for the new administrative mechanisms and for the troops to back up their claims ... The discourse of mapping was the paradigm which both administrative and military operations worked within and served.

(Thongchai, *Siam Mapped: A History of the Geo-Body of a Nation*)

The underlying changes that have brought about a crisis of representation and a re-engagement with cartographic reason are particularly well illustrated in Stephen Hall's (1993) *Mapping the Next Millennium: How Computer-Driven Cartography is Revolutionizing the Face of Science*. Perhaps the landmark of this contemporary broadening and resituating of the mapping impulse in non- and multidisciplinary perspectives, *Mapping the Next Millennium* illustrates particularly clearly the proliferation of mapping techniques and uses ranging from territorial mappings to astronomy to mapping the interior of the human body. In their sheer scope of coverage, such mapping systems and practices challenge the reader to ask how these different 'ways of seeing' have roots in particular regional political economies, cultural geographies and historical traditions, and how such multiple, but parallel and linked, forms have been grafted onto, and still influence, contemporary representational practices (see Cosgrove 1988, 1989).

Mapping the Next Millennium is part of a broader canon of works dealing with the changing nature of mapping practices. These have encouraged much more attention to the ways in which maps inscribe and shape socio-spatial identities (for example, the naturalizing of new social, class and neighbourhood categories in Charles Booth's maps of London or in the Hull-House maps, national identity in Thongchai's *Siam Mapped*, or self and state in Renaissance France in Conley's *The Self-Made Map*).¹ They have expanded the ways in which the cartographic impulse is understood in ways that go well beyond traditional disciplinary frameworks.

Rolland Paulston's (1996) *Social Cartography: Mapping Ways of Seeing* and *Social and Educational Change* is an interesting example of this new post-disciplinary mapping that draws explicitly on a wide range of contemporary social theorists, social scientists and humanists. For Paulston, mapping – as a fundamentally non-linear representational system – provides a means not only for rendering concrete representations of patterns, but also for opening up the spaces of *thinking* and *discussion*. After

encountering the spatial turn in the work of geographers while visiting at the University of British Columbia and working through new writings in phenomenology, postmodern geographies, works by Bourdieu, French post-structuralists and feminist cartographers, Paulston (1996: xvi–xvii) says he was better able to ‘understand how the spatial turn in comparative studies would focus less on a formal theory and competing truth claims and more on how contingent knowledge may be seen as embodied, locally constructed, and re-presented as oppositional yet complementary positionings in shifting fields.’ By drawing on Henri Lefebvre’s resistance to categorization and Gilles Deleuze and Felix Guattari’s call for ‘nomad’ mapping, *Social Cartography* aims to think beyond the binary categories of what Paulston calls an ‘intentionally modernist mapping of social cartography’. The intent is ‘the crafting of a ground-level social cartography project with critical potential, that would build upon and extend earlier postmodern mapping contributions in geography and also in feminist, literary and postcolonialist studies. Work in this new genre uses spatial tropes to map discursive fields’, it rejects essentialism and scientism, it understands contemporary knowledge as ‘akin to a space of shifting sites and boundaries definable only in relational terms’ (Paulston 1996: xvii), and it accepts Soja and Hooper’s suggestions that ‘this spatialized discourse on simultaneously real and imagined geographies is an important part of a provocative and distinctly postmodern reconceptualization of spatiality that connects the social production of space to the cultural politics of difference in new and imaginative ways’ (Paulston 1996: xvii quoting Soja and Hooper 1993: 184).

Social cartography is ‘the art and science of mapping ways of seeing’ that seeks to avoid the rigidities of traditional mapping practice by shifting the focus to the efforts of individuals and cultural groups to define their own ‘sociospatial relations and how they are represented’ (Paulston 1996: xv and xviii; see also Paulston 1997: 117–52). Social cartography is thus a mapping of relational spaces orientated ‘toward charting the variable topography of social space and spatial practices’, understanding how ‘sliding identities’ are created, and finding ways to represent these motions in ways that reflect their contested and discursive origins (Paulston 1996: xviii–xix).²

Geoff King’s (1996) *Mapping Reality: An Exploration of Cultural Cartographies* is similarly concerned with the crisis of representational thought in modernist thought. In replacing the objectivism of representational thought with a discursive analysis of the processes of mapping and identity formation, *Mapping Reality* is a timely intervention in the ‘power of maps’ and ‘maps as power’ literature. In these readings, what Foucault (1984) called repressive notions of power hold sway and interpretations of maps and mapping that reduce the map to this or that embodied interest have proliferated.³ Early empiricist readings of maps (where maps were seen to be the unproblematic representations of an external reality) have thus increasingly been replaced by reductionist readings of the power of and in

maps. These have been productive in the ways in which they have challenged empiricist and technicist readings of maps, but limiting in their tendency to reduce theories of mapping to theories of power. In the place of this repressive notion of power King provides a more culturally situated and conceptually nuanced reading of maps and mapping as concrete historical practices. The result is a remarkable tour de force, an ambitious reading of mapping practices and map uses through three centuries, a rich selection of themes and detailed case studies, and a critical deconstruction of maps and the mapping enterprise.

Map and territory, image and reality, as binary constructions of a modernist world do not survive long in King’s text. The first page of the book begins with a disconcertingly straightforward reading of Garrison Keillor’s mythical Lake Wobegone which does not appear on the map because ‘[m]istakes were made by cartographers working without the benefit of aerial views or modern technology’ (King 1996: 1). It ends with Jean Baudrillard’s claim that the map has come to precede the territory. Instead of thinking of the map as the product of a territory or a passive representation of it, King (with Baudrillard) suggests a strategic reversal; it is the map that engenders territory. The notion of the real as something existing in its own right is no longer tenable. The real is not only what can be reproduced, but that which is already reproduced – the hyperreal. Thus

Map and territory cannot ultimately be separated. Cultural mappings play a central role in establishing the territories we inhabit and experience as real ... To blur this distinction between map and territory is to destabilize this relationship, to acknowledge the socially constructed character of the mappings within which our lives are orientated.

(King 1996: 16–17)

Particularly interesting in *Mapping Reality* is the way in which the author evokes complex readings of maps through story after story about their development, use and effects. The text conjoins a refreshing theoretical richness with an equally refreshing level of concrete detail about the map in various contexts. King offers us a reading of maps and mapping that is multiform and complex, without reducing one form or interpretation to another. Throughout the book, King raises questions of power, interest and alternative uses and rejects standard cartographic approaches which understand mapping in terms of information theory, or that make claims to authority based on the neutrality, objectivity or *transparency* of maps.⁴ Instead, maps are to be understood as products of particular representational practices. ‘World-views’ are the material products of cultural projects such as nation-building, colonial expansion or cultural hegemony. In each, maps (and other forms of representation) have played their role. Systems of meaning are inscribed in maps through the lines, boundaries

tional patterns they help the researcher to 'uncover possible relationships', and they serve 'to communicate the results of research in more generalized form' (Jan Broek 1965: 64).

By the 1960s and 1970s, this understanding of cartography as representation and communication was increasingly being articulated in terms of 'communication science' in which the map functioned as a tool for communicating spatial information (Robinson and Petchenik 1976).⁸ In this view, maps were devices of information transmission involving the basic rules of communication (source-channel-recipient) based on a one-to-one correspondence of the world and the message sent and received (Muehrcke 1972). At the time, such communication models of information were common across the social sciences. These had been greatly influenced by the adoption of informational models of the mind in psychology, with scholars such as Robinson (1952) suggesting that a new cartography might be grounded in experimental psychology. Such information models were also stimulated by research at techno-scientific research labs such as those at Harvard, MIT, Berkeley and Bell Labs, and those more directly funded by the US Government's combined efforts to both build Cold War security institutions (e.g., Ciccone *et al.* 1978, Martin and Rinalducci 1983) and rebuild the cities (e.g., Craik 1977). Muehrcke's model of the cartographic processing system drew on these wider debates about information and communication, but in practice cartographers soon settled on a rather more instrumental approach to map use and on models that assumed a more mechanical transfer of information from the 'real world' to 'raw data' to the 'map made from raw data' to the 'user's mental image of the map' (Kimerling 1989: 688). In the process, the complex processes of meaning and metaphor were gradually being lost as process models understood in terms of sender (inputs), medium (transfer) and receiver (outputs) models of communication held sway (Monmonier 1975).

This model of communication required that information from the sender be encoded and that the receiver decode the information. Information is conveyed, and, in so far as the cartographer, map, and map-reader all receive the same information, distortion is avoided (Robinson and Petchenik 1976). The measure of communication efficiency in the mapping process is related to the amount and accuracy of information transmitted. The cartographer's task is to devise better approximations between raw data and the map image (Muehrcke 1972) and the map-reader's responsibility is to interpret the symbolization of the map carefully and accurately. The map itself is merely an objective tool for transmitting this information. In so far as the technical production does not distort the data collected from the 'real world' the 'good cartographer' is successful, and in so far as the map-reader interprets the information accurately he or she is a good map-reader. In both cases, the primary responsibility in handling maps is to manage error technically and with skill. This is a form of realism and representationalism that is anything but 'naive'.

and symbols that give meaning and reality to the world. These are not mere representations of reality but come to represent objects whose existence is in part conditioned and produced by their representations.⁵

Mapping Reality probably fails in one important sense for geographers and cartographers in that it does not undertake any systematic engagement with recent geographical work on maps and mapping. While Brian Harley is present to a limited degree, even standard geographical texts such as Norman Thrower's (1972, 1996) *Maps and Civilization: Cartography in Culture and Society*, Denis Wood's (1992) *The Power of Maps*, or David Turnbull's (1993) *Maps are Territories* are not considered. Even *The History of Cartography* project does not make it into *Mapping Reality*, and a myriad of critical hermeneutic, Marxist and post-structuralist readings of maps and mapping are also absent (e.g., Harley and Woodward (1992), Pickles (1992b), St. Martin (1995), and the various essays on cartography and mapping in Reichert (1996)).

This important lacuna is, surely, indicative of something more serious than disciplinary focus and trans-disciplinary oversight. I think of it as a paradox that might help us to understand one of the central problems of geographical and cartographical imaginations at work. While Hall opens our eyes to the development and diffusion of new cartographic and imaging technologies and practices, and Paulston builds on his encounter with geographical texts and ideas but in the end remains committed to a modernist project of synthesis and totalizing mapping, King has cut loose the foundational tethers and allowed his readings to focus on multiple discursive formations. But he has done so at the expense of any engagement with the work of contemporary geography and cartography. While one could ask of these three authors to be more attentive to the literature of geography and cartography, I prefer to turn around the problem of the lacuna and ask, instead, what is wrong with contemporary cartographic theory and practice that this can happen at a time of such growth in the mapping sciences? My short answer is what I will call the paradox of representation and its commitment to objectivist epistemologies of science, or what Derek Gregory has called 'the Cartographic Anxiety'.⁶ This paradox brings us to the three elements of the crisis of representation.⁷

FIRST CRISIS OF REPRESENTATION: THE OBJECTIVISM OF SCIENTIFIC CARTOGRAPHY

For geographers and cartographers, 'The notion of a "map" ... is essentially that of a model, a representation of a geographical area (usually) on a flat surface. Ordinarily, each point on the cartographic diagram corresponds to an actual geographical position on earth, according to a definite scale or system of projection' (Henrickson 1994: 52). Maps 'serve as the base to register geographic data', by facilitating the inspection of distribu-

When asked about the representational nature of maps any cartographer will point out that maps are always a compromise among error terms. Of all mapping techniques, map projections most clearly illustrate this. Flattening the surface of the globe inevitably produces distortions. More technically, mapping a two-dimensional surface of constant positive curvature on to a planar surface involves transformation of some combination of shape, area or directionality (azimuth). Hence, as the old saying warns, 'All maps lie flat, therefore all maps lie' (Henricksen 1994: 52).

Map-makers have always understood the importance of choice in map design; not only is the world too full to represent everything, but sometimes important information is not available. As a result, the art of map-making has been tied closely to efforts to formalize and sharpen the nature of the transformations involved in projection (Figure 2.1). Once an appropriate projection has been selected to achieve minimum distortion in terms of specific criteria (area, shape or azimuth), the map-maker's task continues to be one fraught with difficult choices and interpretations, including omissions, thicknesses and thinnesses, additions and erasures. How does the cartographic imagination render geographical patterns in map form? How are lines chosen and how are they measured, drawn and circulated? And how does it happen that even simple line drawings come to mean so much in the practice of worldly affairs? How do maps work so well? Consistent selectivity has been the hallmark of all cartographers and

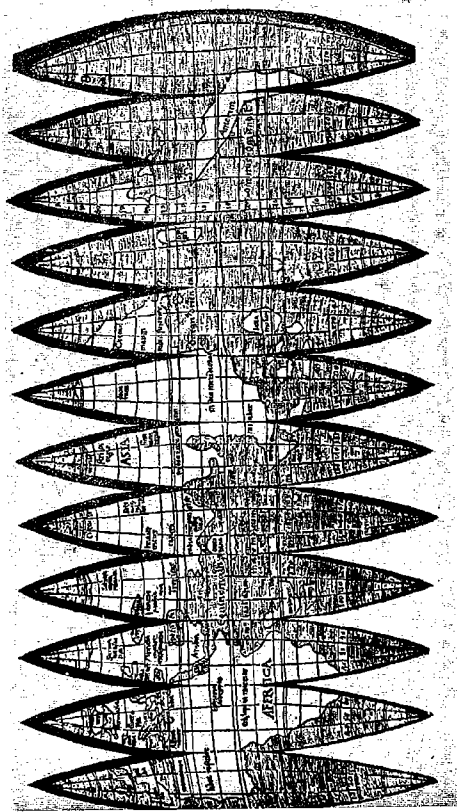


Figure 2.1 Waldseemüller's terrestrial globe gores, 1507. Cartographers have long been familiar with the technical challenges of dealing with error and distortion resulting from all mappings of a two-dimensional surface of constant positive curvature, such as the earth's surface, onto a two-dimensional planar surface. Much less attention has been paid to the social and moral conditions and consequences of such 'renderings' of the earth through gores, slices and projections

cartographic institutions (Wood 1992). Map-makers have long understood the ways in which their craft is one of constructing a persuasive and useful pictorial representation of spatial relations. In this most basic of senses, by selecting some features and ignoring others, maps act like cultural expressions indicative of the society that produced them (Aziz 1978: 50).

These questions have posed fundamental and, I think, intractable problems for cartographic theorists. Certainly not all cartographers accepted such functionalist models of cartography. Many took exception to this way of seeing maps, arguing instead for the importance of semiotic (Schlichtmann 1985, Wood and Fels 1986) cognitive (Petchevnik 1983) or cultural (Guelke 1977, 1981) approaches to maps. But even in these reworkings of the meaning of maps, psychological models and technical-instrumental understandings of meaning were common. While the limitations of a communication model for understanding map-making and map use soon became apparent, subsequent attempts to model the mapping process quickly approached the baroque. The flow of information was quickly rendered in mathematico-psychological terms as transformations in the flow of information, the techniques of the transformations, and the effectiveness of the map in regard to them (Robinson *et al.* 1984). But, what Bruno Latour has called 'the modern settlement' (the commitment to a binary logic of society-nature and representational logics in politics and science) remained at the heart of cartographic thought. Cartographic representation continued to be conceptualized as the technical transfer of real-world information to users within this modern settlement. It left cartography with the Kantian dilemma of how it knows the world and how it can represent that 'real' world adequately to control the misreading of map users. That is, the management of choice, distortion and error – fundamental to any cartographic representation – became its problem.

As Jan Broek argued (1965: 64), it was the very craftsmanship and persuasive quality of maps that meant that map users have often overlooked the actual practices of map design and map-making. Unlike the author of a written text, the cartographer cannot express the limits of technique in the map itself. The lack of cartographic 'buts' and 'ifs' gave the cartographer 'much less leeway' to remind the map-reader of the interpretative nature of the mapping process, and, as a result, the map-reader easily falls into the habit of seeing 'the map as a precise portrayal of reality' (Broek 1965: 65). This easy tendency to see maps as naive representations of reality has also meant that the map has been easily adaptable to nationalistic and propagandistic purposes. It has been the very skill of crafty transmutation in which the cartographer translates lines and shadings into worldly reflections that has led to an easy acceptance of naturalism (the 'mirror of nature') and, in the process, provided opportunities for charlatans to propagandize the map. It is to this issue that we now turn.

SECOND CRISIS OF REPRESENTATION: JOHN KIRTLAND WRIGHT AND THE SUBJECTIVE NATURE OF MAPS

It was precisely this emerging scientific notion of maps that prompted John Kirtland Wright to write his classic essay: 'Map-makers are human: comments on the subjective in maps'. First published in wartime conditions in 1942, the essay was concerned with the emergence of propagandistic cartographies of various kinds. But the essay has rarely been read in this context, partly because of the circulation of it through his collected works, published in 1966, and partly because of the ways in which his geometry of modernity (a binary of objectivity and subjectivity) and his moralist tones were so readily adapted to anti-political post-war discourses.

In the essay, Wright provided a spirited defence of the role of the subject in constructing and reading maps against the then emerging empiricist and naturalizing tendencies in geography and cartography. Maps, he began, 'are drawn by men and not turned out automatically by machines, and consequently are influenced by human shortcomings' (Wright 1966: 33). Like Broek before him, Wright argued that it was precisely the 'trim, precise, and clean-cut appearance that a well-drawn map presents' (p. 33) that lends to the map an air of scientific authenticity and a persuasive character that reaches beyond the technical limits of the map itself. The map leaks as a tool so that '[w]e tend to assume too readily that the depiction of the arrangement of things on the earth's surface on a map is equivalent to a photograph ... The object before the camera draws its own image through the operation of optical and chemical processes. The image on a map is drawn by human hands, controlled by operations in a human mind' (Wright 1966: 33). 'Every map is thus a reflection partly of objective realities and partly of subjective elements ... No map ... can be wholly objective' (Wright 1966: 33).

Wright immediately pulls back from this distinction between the objective nature of photography (and the representational economy it suggests) and the subjective nature of cartography. Instead, he turns to what he calls the subjective and objective elements in maps and photographs. 'Even a map of an imaginary country is objective, in the sense that the mountains, roads, towns, and so on that it pictures were suggested by corresponding objective things in the real world' (Wright 1966: 34). For Wright, mapping is a 'Mirror of Nature', but a mirror whose images are occasionally fogged and distorted by the subjective elements of the map-maker and user: 'the maps produced by government surveys or made in the field by explorers are more or less directly copied from nature ... Many maps, however, are not drawn from nature but are compiled from such documentary sources as other maps, surveyors' notes and sketches, photographs, travellers' reports, statistics, and the like. As these sources are themselves man-made, the subjective elements they contain are carried over into the maps based on them' (Wright 1966: 34). In this view, objectivity derives from closeness

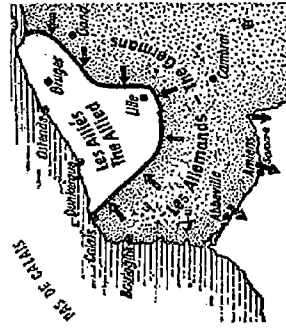
of observation, in which direct access to the reality of nature is given to the cartographer who can then copy its form. With increasing distance from nature, greater levels of subjective judgement are introduced and these in turn require consideration of the mental and moral qualities of the cartographer and map user. The recognition that map-makers are human requires an attention to questions of 'scientific integrity, judgement, consistency, progressiveness, and their opposites' – a thoroughly modern, American liberal economy of science – a second crisis of representation – has been put in place that will frame the moral economy of geographical discourse for the rest of the century.⁹

THIRD CRISIS OF REPRESENTATION: DISTORTION, ERROR AND PROPAGANDA MAPS

The third crisis of representation with which I want to deal arises from the selective interests that shape all maps. It has to do with the ways in which modern cartography has dealt with distortion in its two linked meanings: error and deception. I focus on the ways in which the objectivist claims of scientific cartography have been lodged against the treatment of propaganda and popular maps. In dealing with this issue, propaganda and popular maps have been marginalized from the cartographic canon, variously referred to as a form of 'graphicity' akin to literacy and numeracy (Balchin and Coleman 1965/1966), a form of 'cartohypnosis' (Boggs 1947), as 'magical' (Speier 1941), as 'weapons' (Weigert 1941; Herb n.d.), as 'persuasive' (Tyner 1982; Herb 1989), and as a form of 'propaganda tool' (Burnett 1985; Herb 1989; Pickles 1992). In ways that should be unsettlingly familiar to the cartographer, the propaganda cartographer is seen as one who deliberately selects information to support an argument, distort information, and display it in ways that seek to persuade the map-reader of a particular viewpoint. The propagandist structures the production of the map for maximum visual impact as a calculated exercise of 'persuasive cartography' (Ager 1977). That is, propaganda aims at persuading large groups of people to believe something or act in a way that they would not, in the normal course of events.

Propaganda techniques are, then, techniques of persuasion that may fail to abide by established and accepted norms of accuracy and truth. They may seek to manipulate relationships in order to persuade people about a particular claim to truth. But they might just as well deploy truth claims, accurate information and careful argument to make their case. For example, Lord Northcliffe's observation after the First World War that '[t]he bombardment of the German mind was almost as important as the bombardment by the cannon' has since been taken to heart by many propagandists and pundits. Hitler is reported to have argued that 'Propaganda consists in attracting the crowd, and not in educating those who are

already educated'. It must be addressed to the emotions, not to the intelligence; it must concentrate on a few simple themes; and it should be presented in black and white. It has little to do with the truth and more to do with historical necessity. But to achieve political and military success the truth was to be strategically deployed, especially in maps. In this strategic thinking, lies were too easily shown to be false and were therefore ineffective. Instead the nucleus of truth or falsity was to be hidden by veils of interpretation, providing a channel of escape if anyone questioned the truth of propaganda (Thomas 1949: 78). Prior to the Second World War, Karl Haushofer had attempted to deploy these ideas in propaganda or suggestive cartography that would transform geopolitics into 'a dynamic Weltanschauung to further the expansive claims for Lebensraum of Germany' (Weigert 1941: 529). Such dynamic suggestive maps relied on the strength of the initial idea and the use of symbolism – the new cartography was to be visually violent – to accost the map-maker and to present a clear message. Often such images are hardly recognizable as maps or the map is only part of a collage of images that wilfully exploit the inherent limitations of maps to distort and exaggerate (Quam 1943: 21). A particularly clear example is a map dropped on the Allies at Dunkirk during the Second World War (Figure 2.2). The map depicted the position of the



Camarades!

Telle est la situation
En fait c'est la guerre est finie pour vous!
Vos chefs vont s'enfuir par avion.
A bas les armées!

British Soldiers!

Look at this map: it gives your true situation!
Your troops are entirely surrounded -
stop fighting!
Put down your arms!

Figure 2.2 Map-poster dropped by German aeroplanes to Allied troops in Belgium while they were fighting, c.25 May 1940 (*The Belgian Campaign and the Surrender of the Belgian Army*. The Belgian American Educational Foundation, New York, 1940, with permission)

troops as hopeless. They were shown to be completely surrounded, with little hope of escape and nowhere to escape to: the Allies were surrounded, the Germans were on the move (indicated by the use of bold arrows throughout occupied territory). The technical manipulation of the visual field of the map made the call for men to lay down their arms appear reasonable in such an island of desperation. Hope was removed visually from the map by the failure to show the south-east coast of England 30 or 50 miles across the Channel.

Such notions of propaganda are, of course, already centred on an unexamined boundary between 'truth' and 'falsity', an unstable boundary at best; one that Gramsci (1981: 80, n. 49) sought to reconfigure in his analysis of hegemony.

The 'normal' exercise of hegemony on the now classical terrain of the parliamentary regime is characterised by the combination of force and consent. Indeed, the attempt is always made to ensure that force will appear to be based on the consent of the majority, expressed by the so-called organs of public opinion – newspapers and associations – which, therefore, in certain situations, are artificially multiplied.

Institutions concerned with the process of establishing hegemony all too readily and easily use such techniques to capture the discursive field and reconstitute the discourse of the age and the place, and it is this discursive capture that cartographers such as Monmonier (1989, 1991, 2001) and MacEachren (1994, 1995) have attempted to problematize.

The map has been an archetype for such kinds of hegemonic projects in the historical construction of the nation-states, where it has been an essential tool in territorializing the state by extending systems of policing and administration, and in establishing a sense of national identity at home and abroad (sometimes in the face of explicit internal disunity or rebellion). The state must consistently attempt to capture the discursive and ideological field not only through the more obvious organs of public opinion, but also by the appropriation of space (and the map) to its purposes and by the symbolic constitution of mapped space as national space (Figure 2.3). Here the link between map and symbol becomes clearer. The territorialized state, symbolized in unity under the sign of the *Leo Holicus*, is rendered as integral, unified and powerful. The unity of President-government-territory-nation is captured in the unusual 1912 Roosevelt map of the United States (Figure 2.4). Here complex (unrepresented) histories of texts are evoked as the anthropomorphized map unifies people and land; the resultant unitary state – the nation-state – is personified through a single figure, a personification that itself evokes multiple other texts. In this sense, meaning is produced through the invocation of chains of national-patriotic-territorial signifiers. The map evokes, not represents, these unrepresented signifiers.

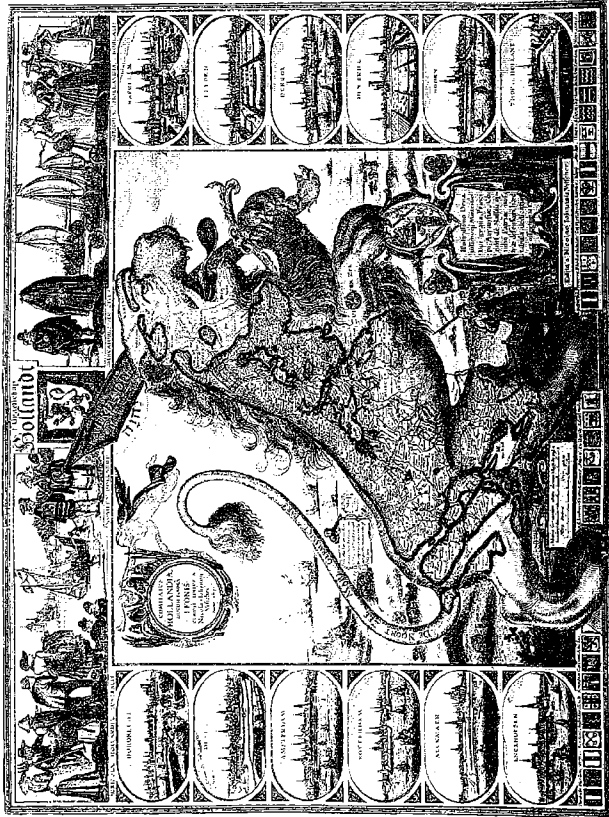


Figure 2.3 *Leo Hollandicus*, Claes Jansz, Visscher, 1648. The territorializing of the geo-body of the nation-state depended, in part, on the map. In the *Leo Hollandicus* map, the Seven United Provinces of the Low Countries were depicted as a lion, symbolizing an imagined and hoped for community of unity and power

It is perhaps the association between propaganda and the politics of totalization in the twentieth century that has diverted attention from the ubiquitous uses of propaganda generally and propaganda maps specifically in all sorts of projects that seek to territorialize identity and foster hegemony: national mapping programmes, commercial advertising, the everyday work of public institutions and the construction of our own 'enemies' (see Zizek (2001) for a more extensive treatment of this politics of purification and exclusion). In my view, this association and demonization of propaganda maps has led to a narrowing of the cartographic canon and the bolstering of a technicist and instrument understanding of representation. Propaganda maps and popular maps have been treated as exceptionalist and they have been exempted from theories of maps and cartography.

In their rush to create a science of mapping, post-war cartographers have too quickly forgotten the lessons of their war-time colleagues. Indeed, perhaps the clearest statements of the map-propaganda map relation was provided by the very cartographers who were engaged in combatting German attempts to use propaganda maps during the Second World

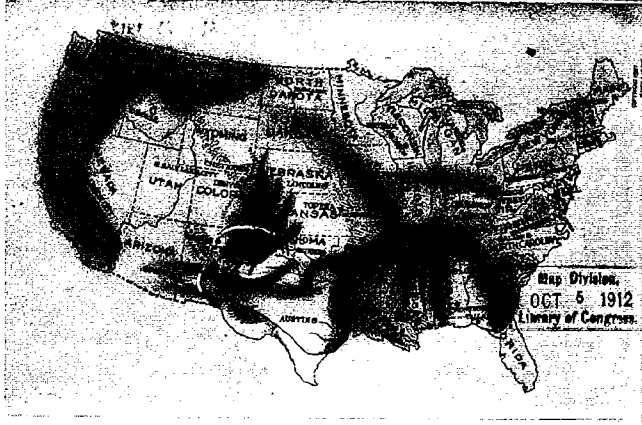


Figure 2.4 *Roosevelt Map of the US* (Library of Congress, Washington, DC)

War. For Weigert (1941: 5301) the map was a double-edged weapon: 'in unskilled hands it easily becomes a subject of ruthless and stupid propaganda. But in the hands of the expert who knows the rules of the war of words as well as those of modern cartography, it is a good weapon ... it can bring hope to the suppressed nations and fright to their suppressors. And here too, the attack is the best defense.' Here, science, accuracy and truth were to be mobilized in defence of democracy. Map-makers 'must strive to make their maps accurate and in harmony with the democratic ideals of our cause' (Quam 1943: 32), a task made more urgent by the fact that as: 'global war progresses the harder it is for even the generally well informed and earnestly interested citizen to keep track of all its rapidly changing aspects and the more difficult grows the task incumbent upon the various media of information' (Soffner 1942: 465).

Such lessons of persuasive cartography were not lost on commercial designers, who have always seen the benefit of the recomposing images, arraying them in series, using incomplete forms, and encouraging viewers to 'fill in' the boundaries with broader cultural imaginaries, techniques that are currently being developed with immense sophistication in American television commercial and public service advertising (Levi jeans,

anti-smoking ads, and 'just say no' ads (McDermott 1969). In each visual 'clip' (the commercial equivalent of the soundbite) sustained plot lines appear to be absent. Instead, the narrative structure is built temporally with clips building on each other to form a coherent and often powerful composite impression. Cold war geopolitics have long been fostered through similar partial, and in themselves often meaningless, visual 'clips' drawing on historical and often biological analogies to produce a kind of temporal montage. Some of the most sustained of these images in cartography are those that evoke imperial metaphors of reach, expansion and power. The Russian bear was a form repeated in various guises, playing off earlier uses of the image and depending for its impact on them. Extremely influential elaborations of this image were to be found throughout the cold war from atlases using Mercator projections to render superpower status, to R.M. Chapin's communist contagion map in *Time* magazine for 1 April 1946 and Red China in 1955, to the covers of Defense Department codebooks. In the map 'Red China', Chapin's careful selection of shading and symbolism permitted him to illustrate the red menace reaching round the Chinese mainland (see reproduction in Pickles 1992b). The threat from the Soviet Union, North Korea and Vietnam is visually focused first on China, but then on to the island of Okinawa, where stands the stars and stripes. Moreover, the gross exaggeration of the Himalayas closing in on the margins of China emphasizes its isolation from the West, whose surrogates India and Pakistan are shown in the recessive colours of light green. The message is strong but not obvious. The whole map is a study in suggestion, in which cartographic techniques are used to depict a particular situation in such a way that both the intrinsic meaning and the suggested meaning resonate with other texts and images beyond this single map.

On occasion, the globe and the map have become such successful symbolic images that their 'shadows' can be presumed in images that contain no map form at all. In geopolitics, one especially rich and evocative example of this adaptation of the globe has been the motif of the spatial reach of Empire, symbolized by the arms of the spider or octopus (Figure 2.5). Here the historical repetition and reworking of the same image has permitted the cartographic specification to be removed. No map or country location is given, but one is presumed. At this point the map and the cartoon fuse. The map form is present as a kind of technical and historical memory; an unacknowledged absence that is constitutive of the image and essential for any interpretation. In practice *all maps* exist within similar unacknowledged contexts of other maps, symbols and meanings, and any theory of maps must find a way to deal with the work done by such absent contexts.

In each of these examples meaning arises from the merging of multiple horizons, some directly represented, some evoked, some presumed. As Weigert (1941: 528) suggests:

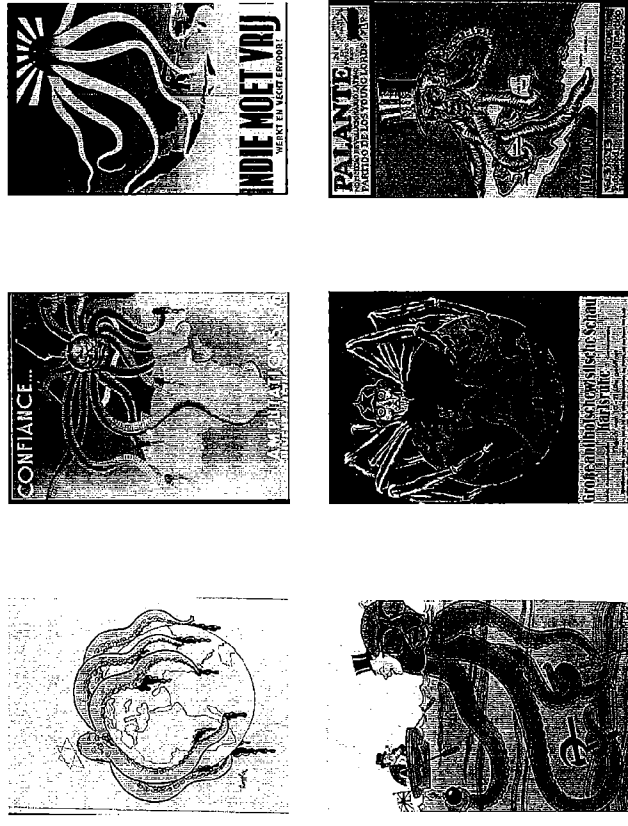


Figure 2.5 Cartographic tropes of imperial power and reach

it is surprising to see that we are not all conscious of the important part which the map and the art of map-making plays in the process of creating a new conception of the world. We simply rely on maps as if they were facts in this transformation of thinking and seeing. The astounding observation that, in the discussion of the vital problems of the day, the maps as they are presented to us are being taken as stable and indisputable facts, as mere tools which do not themselves reflect aims and opinions of their creators – this naive confidence in the truthfulness of the map indicates that many of us are not aware that maps are weapons. Like the written and spoken word, like photographs and cartoons, the map has become a psychological weapon in a warring world where the souls of men are as strongly attacked as their lives.

And this is surely the point: mapping is an interpretative act, not a purely technical one, in which the product – the map – conveys not merely the facts but also and always the author's intention, and all the acknowledged and unacknowledged conditions and values any author (and his/her profession, time and culture) bring to a work. Thus, like all works, the map carries along with it so much more than the author intended. Also, like any text, the map takes on a life (and a context) of its own beyond the author's control. The map is a text, like any other in this regard, whose meaning and impact may go far beyond the limits of technique, the author's intention,

and the mere transmittal of information. Thus, the perception of graphical images is not a purely psychological reception of information but a complex social play of images present and absent, in the context of other symbolic, ideological and material concerns. All cartography operates within and makes use of such unacknowledged preconditions and more or less accepted symbolic forms and mapping conventions. The impact of these techniques and effects are only clearer and sharper in propagandistic texts.

Certainly, modern cartography has done little to elucidate what might be the social, historical and technical metadata needed for an understanding of the work being done by a particular map. Strangely, while the question has been an important one in geographic information systems and new digital mapping, and while specification of projection, scale, legend and the date of the map's production has always been important to cartographers, this kind of contextual metadata about the production, circulation and consumption of maps in the plural and in their historical specificity has rarely been attempted. Instead, the individual map has been the locus of attention and the frame of analysis; unacknowledged context and histories have been dealt with in terms of the history of maps, not as a fundamental technical and ethical issue of map production and use.

It seems to me, at least, that it is precisely this failure to deal with the hidden presences and the metaphorical and symbolic complexities of maps that has produced such a limited reading of propaganda maps (and maps generally). While cartographers are seen to present information accurately, comprehensively, with a balanced design, and without favouring one side of an issue, the propaganda cartographer is seen 'to produce a map which has visual impact and is not only believable, but goes a stage further – is convincing' (Ager 1977: 1). Propaganda maps are problematic because the cartographer has used the wrong method and has 'failed to communicate correctly with the user' (Ager 1977: 14). The cartographer's colour choice, use of lines, orientation of north to the top of the page, and choice of material which will appear at the centre of the map, as opposed to at the edges, are all elements that are 'extraneous to the scientific purpose of the map' (Speier 1941: 313). The propagandist exploits these elements: 'The propagandist's primary concern is never the truth of an idea but its successful communication to a public. Geography as a science and cartography as a technique become subservient to the demands of effective symbol manipulation' (Speier 1941: 313).

Judith Tyner (1982: 2) has suggested the name 'persuasive cartography' to distinguish such propaganda, suggestive, advertising, journalistic and subjective cartography from other forms. Persuasive cartography is a 'type of cartography whose main object or effect is to influence the reader's opinion, in contrast to most cartography which strives to be objective'. Persuasive cartography thus seeks to manipulate symbols in order to influence some group about the value of some idea, opinion or action. But as Ager (1977) pointed out: 'in reality there is not a clear division between "Propa-

ganda" cartographers and "Perfect" cartographers, but both are at opposite ends of a spectrum in which all cartographers fall, and their positions vary in accordance with the production of each map.' But while such distinctions may be difficult to draw in practice, it is the very distinction between objective cartography on the one hand and biased or propaganda maps on the other that may be the problem. What, for example, can we say about maps such as those that represent the 'earth from the South' or 'the Australian's view of the world'? In such maps, the techniques of modern cartography (and often very finely crafted maps) are used to dislodge a particular hegemonic orientation that has been standardized historically. Is this to be characterized as a propaganda or a political map, but the more standard northern orientation of other modern maps is not simply because the latter has been accepted as the norm? What are the limits of standards and norms, and when is a norm itself a form of propaganda? Is the distinction between propaganda and scientific cartography dependent on specific moral and historical judgements about accepted practice? Does scientific cartography not use the arts of persuasion, distortion and aesthetics? What can we say, in this context, about the cartographies of reconstruction drawn by Hans Speier for national socialist Berlin (Figure 2.6)? Surely such technically accomplished maps for the new city of Berlin must be contextualized within Speier's own claims for cartography and the relationship between cartography and the planning of a post-war national socialist city. That is, the scientificity of Speier's maps requires a historico-political analysis of his cartography. Is it really sustainable to claim that the style, form and underwriting of the maps produced by classical and modern cartography have not been shot through with equivalent (albeit less abhorrent and violent) political and social interests of one kind or another?

By not paying sufficient attention to their own craft skills of transmutation and by tirelessly seeking to turn away from the interpretative nature of

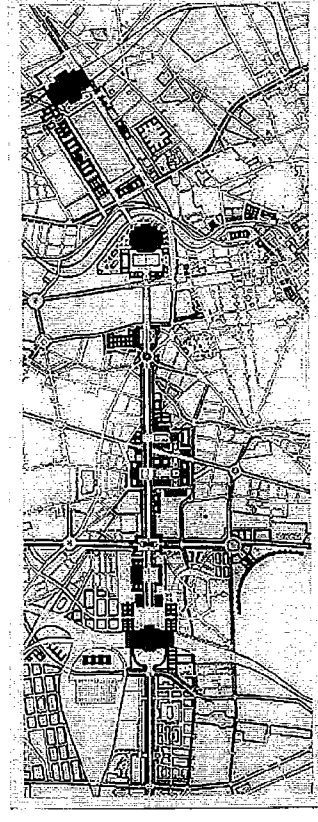


Figure 2.6 'Geography as a science and cartography as a technique become subservient to the demands of effective symbol manipulation' (Hans Speier 1941: 313). Albert Speer's map for the reconstruction of Berlin (Library of Congress, Washington, DC)

their Merlinesque constructions, scientific cartographers have found it very difficult to explain the difference between their own magic and the conjuring tricks of those who would use this magic for militaristic, propagandistic or commercial ends. By making scientific cartography into a technical enterprise and by rejecting (or overlooking) its magical and hermeneutical practices, cartographers have grappled with error and distortion in only technical terms. In this scientific view, the management of error has been rendered only in terms of technical error, malicious intent or the limitations of the untrained. They have, as a result, also made maps much less interesting!

Here the three crises of representation (objectivism, liberalism and subjectivism) and a commitment to transparency coalesce to frame a contemporary theory of scientific cartography, one that locates theory and practice firmly within the domain of technical expertise. Cartographic technique is seen as an ongoing approximation to the real, presupposing a correspondence or representational theory of truth. The distinction between fact and fiction is mirrored by the separation of the good cartographer and the propaganda cartographer (the latter being banished from the halls of science). The ideological is expelled, but from a world that disavows its own ideology, its own history, and its own commitments to transparency. Science is seen not as a persuasive enterprise but as a claim to true knowledge. A good map is one in which the image received by the map user corresponds to that intended (inscribed) by the map-maker and where the image inscribed (and received) is an accurate representation of the real world. Map-making and map-reading are seen to involve the straightforward transmission of information in a philosophically and practically unproblematic manner. In particular, while cartography always does seek to persuade, to convince or to argue, it does so without selecting its techniques for purely visual impact; in the choice of subject matter, what is centred on the page, what is consigned to the edge of the map, and which scale and projection shall be used, the cartographer is guided by rules of scientific procedure and convention. The context within which the map is interpreted is restricted on pragmatic and technical grounds.

For some, the patently inadequate boundary between science and non-science and between technical error and intentional error inscribed in this understanding of cartography suggests an alternative theory of maps. One resolution might be to assert that all maps are propaganda maps. But this too fails to deal with the problem. Since all maps are constructed images, and since all images are interpretations of a particular context, we gain little by merely repeating that maps are both interpretations and distortions. We remain caught within the metaphysics of presence that presupposes some foundational object against which the distortions and interpretations can be measured: that some interpretation-free image could be produced that does not distort the world. At this point, liberal cartographic theory merely asserts the difference between its legitimate and illegitimate children. Recognizing that all maps distort, cartographic

theory insists that what matters is the intention behind the construction of the map and the use to which a map is put. For Monmonier (2002: 640) 'it's the situation that makes a technology good or bad'. But, what is meant by 'the situation' and what are the historical, geographical, and social chains of causality and effect bound by 'the situation'? It is clear that for Monmonier 'the situation' means specific spatio-temporal practices, immediate uses, possibly bound together by repetitions of inappropriate practice. In this view, maps are neutral until activated within a specific context.

Karl Figlio (1996: 73–6) has attempted to wriggle free from this liberal impasse and the metaphysics of presence it presupposes, arguing that mapping is a representational act that both presents the world and annuls it at the same time. 'Every mapping into geometrical spaces – every picturing leaves a gap between what was present in emotional space ... And what appears in the mapped space' (p. 75). Mapping is therefore the building of repression. Like Mary Shelley's Frankenstein (perhaps the extreme example of scientific mapping), the creation is a monster, shunned and forced to live ignored until finally it takes its revenge. For Figlio, science acts in this way: it concocts nature, reduces its dimensionality, represents it in non-contradictory, bounded form. But this project of visualization is predicated on both repression and leakage; the monster emerges as an actor in its own right, no longer as representation but as the return of the repressed. In this sense propaganda maps function as the repressed creation of scientific, objective cartography; a monster created and unleashed by its own logics and practices. If, as Bruno Latour (1999) suggests, we simply abandon our commitment to both objectivism and naturalism, as objectivist epistemologies breathe their last breath, such monsters may just shrivel up.

BEYOND OBJECTIVISM AND RELATIVISM

In 1968 Juergen Habermas published *Knowledge and Human Interests*. In it he showed so well how the hubris of modern objectivist epistemologies could not be sustained. Knowledge claims were always embedded in forms of social interest; not only interests of specific social groups but also broader epistemological interests in technical, interpretative and critical knowledge. Such claims found resonance in geography. For Zelinsky (1973): 'a map ... has meaning only as it relates to other aspects of an interlocking communicative structure' and 'can only be understood as one of several elements in a complex series of transactions, in constant state of flux, involving: (i) an objective reality "of some sort"; (ii) explorers or observers; (iii) the map-maker; (iv) the document; and (v) the map-reader or, more realistically, a community of map-readers.'

With Brian Harley's later work, the study of maps and cartography as products of human endeavours, social interests, and institutional powers became an established and legitimate area of inquiry.¹⁰ Both in terms of the

specific claims made in Harley's writings, but also in terms of the ways in which 'Harley' and 'deconstructing the map' have entered the lexicon of critical human geography and cartographic studies, the study of maps as other than simple iconic devices or complex technical products has gained widespread acceptance. As Harley suggested in his introduction to Volume 1 (Harley and Woodward 1992: 1), in making the principal concern of the history of cartography the study of the map in human terms,

the *History of Cartography* is concerned, as far as possible, with the historical process by which graphic language of maps has been created and used. At once a technical, a cultural, and a social history of mapping, it rejects the view of a historian of discovery who wrote that 'cartographical studies do not come within the sphere of social history' ... On the contrary, it favors an approach that is potentially capable of exploring the behavioral and ideological implications of its subject matter.

For Harley (and for geographers and cartographers since), the map was a social product and a social actor, a product of and embedded in complex networks of social relations and interests. Like any other technology and product, the map must be interrogated in its social contexts of emergence, dissemination, and use. But for Harley (1990: 1) the writing of a social history of cartography as a set of practices was even more crucial. The crisis of representation is also a crisis of democratic practice and ethics in which technical knowledge (in particular digital geographical information systems) displaces more accessible hard-copy maps that have, for generations, allowed a certain kind of public practice and exercise of civil society in the face of power. The result is the need for a strong debate about the ethics of representational practices and cartographic goals. In this debate, Harley (1990: 2) sought to foster

a *public* agenda that seeks through an open debate to extend cartographic consciousness beyond a narrow concern with 'accuracy' or 'utility' as the sole ethical yardsticks. It will become clear that I believe that our discourse about maps, whether historical or modern, should be more responsive to social issues such as those relating to the environment, poverty, or to the ways in which the rights and cultures of minorities are represented on maps.

Harley began his 'Deconstructing the map' with a basic question and surprising answer. He asked, what is a map? And he answered, 'cartography is seldom what cartographers say it is' (Harley 1989b: 1). For most cartographers,

[t]he object of mapping is to produce a 'correct' relational model of the terrain. Its assumptions are that the objects in the world to be

mapped are real and objective, and that they enjoy an existence independent of the cartographer; that their reality can be expressed in mathematical terms; that systematic observation and measurement offer the only route to cartographic truth; and that this truth can be independently verified.

But, for Harley, maps were always social creations, embedded in networks of social relations and interests, reflecting them intentionally and unintentionally. The hidden agenda of mapping (including cartography's modern claim to accuracy of representation) is precisely what makes them interesting and problematic texts, first in terms of the silences of maps (those elements of the landscape that are omitted) and second (and often related to the first), in terms of the implicit and explicit authoritarian nature of the map as a tool of power (of the state, military or capital) (Harley 1989b: 14). In particular, this authoritarian nature of the map had to do with the service to the state provided by cartography as a power-knowledge: 'As cartography became more "objective" through the state's patronage, so it was also imprisoned by a different subjectivity, that inherent in its replication of the state's dominant ideology' (Harley 1988a: 71). As a result, the history of cartography is to be both an uncovering of hidden agendas, silences, elisions *and* ideology critique. It is part genealogy of the power-knowledge that cartography constructed around its practices, and part a deconstruction of the demarcations and delimitations that found cartography's own claims to objectivity and science (see Editorial comment 1992: xx).

MAP-READING

As we have seen, traditional theories of maps and map-reading are of little use to us when we push them to incorporate propaganda maps and the broader socio-cultural contexts within which maps crystallize determinate meanings. Without the foundation of an unproblematic theory of representation to fall back upon, cartographers retreat to the position that all maps are distorting and hence all maps function as propaganda maps. But as we have also seen this is merely to sidestep the issue and raises other serious questions about the sorts of claims we can make and the work we can do. Both approaches do not adequately address the textual qualities and commodified nature of maps. In this section, I unpack the textuality of maps in three ways: the world and the text, the text in a text, and the analysis of the work itself.

We encounter ambiguity the moment we ask: what is the content of a graphic image? Clearly it is the real world, the real situation, the landscape, the scene. The map-maker reduces this object-field according to established principles of objectification, abstraction, reduction and idealization to create the map. In this sense all maps are thematic abstractions

involving reduction of one form or another (see Harbison 1977 quote at the beginning of this chapter). In ways quite different from the photographic image, however, this reduction is a particular form of transformation. In order to move from the real situation to the map it is necessary to divide up this reality into units and to constitute these units as signs substantially different from the object they communicate (as the Harbison quotation suggests). The map is thus a coded message whose relationship to the object-world it evokes is particularly complex. While photographs are also complex recordings of visual schemas, objects and contexts, the map requires additional projections, symbols and codings.

What is the nature of these codings? The map is a message. As the previous discussion suggests, cartographers and geographers have traditionally taken this message to involve a source, a medium and a receiver. The source is the cartographer (and his or her body of received techniques and style), the medium is the map (and the often ignored immediate contexts within which the map is embedded) and the receiver is the map-reader (as a public or professional 'readership'). But as we have also begun to see, this view construes the map too narrowly. It ignores the other texts within which the map is itself embedded and with which it is codetermined. It ignores the context into which the map is projected and of which it is a projection. It one-sidedly places emphasis on the intended message and fails to consider possible unintended meanings. Finally, it has no way of accounting for the ability of graphic images to conjure up other texts (maps, photographs, books, etc.) and embed them in any reading of their own codes. By way of illustration, let us ask, what is the medium of the map's message? In the communication models discussed above, the medium is the map. But how can this be? The medium is the report, the article, the book, the magazine, within which the map appears. More precisely, as Barthes (1978: 15) says of the photograph, the medium is 'a complex of concurrent messages with the photograph as centre and surroundings constituted by the text, the title, the caption, the lay-out and, in a more abstract but no less "informative" way, by the very name of the publication.'

We are faced with layers of textuality: the map itself, the immediate context of the map (its caption, the chapter and the work of which it is a part) and the wider context of the map (the opus of the individual cartographer or school, the opus to which the text itself belongs, the socio-cultural context of the work). But although the map is an embedded figure, the map is also an object that has a structural autonomy independent of both its production and its use, and thus requires an analysis of the work itself. This will not be definitive, but will always have to be situated alongside sociological, historical and geographical analyses of text and context of production and use. Even an analysis of the work itself cannot divorce the map entirely from its context, for the map is not an isolated object. It has a title and fits within the body of a text, along with a set of other maps, or, if it is a single map, it is framed and displayed in some manner.

In terms of the internal construction of the map, the message of the map is carried by at least three different structures, one of which is graphical, one is mathematical, and one is linguistic. Yet the consideration given to the linguistic components of the map has been mainly restricted to the design and effectiveness of the graphuality of lettering (size, print style, placement). While in other graphic forms (photography, painting) the graphical and linguistic elements are complementary, in the map they operate almost uniquely as inseparable from each other. This inseparability is also typical of certain forms of advertising, poster art and modernist art forms such as Dadaism. Here the linguistic elements are embedded within the image, not incidentally but as intrinsic components of the whole picture (Figure 2.7).

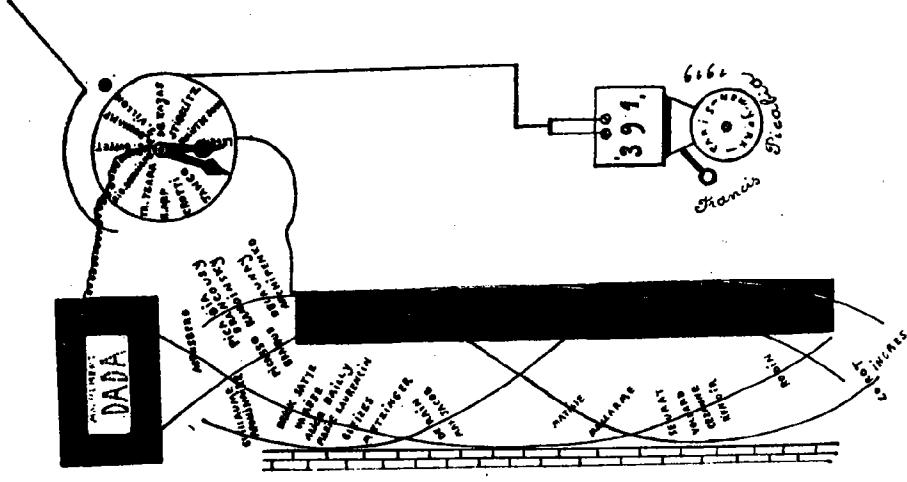


Figure 2.7 Dada Movement, 1919, by Francis Picabia (with permission of Museum of Modern Art, New York)

In describing the linguisticity of the title of the photograph Barthes (1978: 16) says:

The two structures are co-operative but, since their units are heterogeneous, necessarily remain separate from one another: here [in the text] the substance of the message is made up of words; there [in the photo-graph] of lines, surface, shades. Moreover, the two structures of the message each occupy their own defined spaces, these being contiguous but not 'homogenized', as they are for example in the rebus which fuses words and images in a single line of reading. Hence, although a press photograph is never without a written commentary, the analysis must first of all bear on each separate structure; it is only when the study of each structure has been exhausted that it will be possible to understand the manner in which they complement one another.

But this position is untenable for the theory of maps. In the map, the symbolic graphic image is embedded in a written text (a paper, a book, an atlas) and rarely has an existence beyond the body of the text and the discursive aims of the research of which it is a part. Moreover the symbols and words in the map are interbedded: the names of places, features and other descriptors are integral to the visual image, and call for a special form of construction and present specific difficulties for analysis. In particular, such interbedded texts (maps, poster, commercial and Dadaist art) are correspondingly much closer to the tract: the commercial, political poster or artwork. It is in this intersection that much of what has been called propaganda mapping arises. The issue becomes clearer on closer analysis.

For Barthes, all 'imitative' arts comprise two messages: a denotative message and a connotative message. The realist painter and photographer stake their reputations on their work being predominantly denotative, in the sense that the representation of the objects is a representation in which the objects represented are objects from the world, without obvious transformation. Where such transformations are integral to the image they build on some expectation of verisimilitude. Traditional cartographic theory presents the map as a purely denotative message. But, as we have already seen, in the mapping process objects are transformed and reconstituted as signs and symbols substantially different from the objects they communicate. That is to say, the map is a coded message.

There is another important sense in which the map differs from the photograph. In most photographs (except where the object of the photograph contains language), the caption constitutes a parasitic message that adds to and circumscribes the meaning of the photograph. In the map the issue is more complicated. The caption here is also a parasitic, albeit essential, part of the map. First, it merely illustrates the image, often through a repetition of the more obvious content of the map image itself. Second,

'the text loads the image, burdening it with a culture, a moral, an imagination' (Barthes 1978: 26). The caption also reinterprets the map and points us to specific or specified meanings; the caption circumscribes our reading of the map. Third, the map image itself is also linguistic. Here the interplay of codes and words constitutes a distinctive image form in which the message is achieved largely in terms of the interplay and duality of graphic and linguistic meaning.

The transmission and reception of the map image are not the straightforward, linear process presumed in the communication model. The coded image (the map, linguistic and graphic) is also connotative. Through the fusion of horizons between the reader's world and the world of the map (and the map-maker) the map connotes a variety of meanings. Thus the reading of the map is always historical and 'depends on the reader's "knowledge" just as though it were a matter of a real language, intelligible only if one has learned the signs' (Barthes 1978: 28). The map is a purposive cultural object with reasons behind its construction and values associated with its reading. To suggest otherwise is to fail to see its status as made object. The map is always and necessarily an expression of an idea. In mediating the transformative processes of abstraction, reduction, thematization and idealization, the cartographer selects, sifts and emphasizes this or that aspect of the world under consideration, and articulates an image in the rebus linking graphic and linguistic codes.

If Barthes's distinction between denotative and connotative meaning allows us to open a first step in the analysis of the work, further reflection on the distinction forces us to abandon it. The experience of modern art forces us to rethink the very nature of this distinction. John Berger (1965: 55) explains this change in showing how the revolutionary vision of Cubism arose out of an inheritance passed to us from the nineteenth century:

Nature in the picture is no longer something laid out in front of the spectator for him to examine. It now includes him and the evidence of his senses and his constantly changing relationships to what he is seeing. Before Cézanne, every painting was to some extent like a view seen through a window. Courbet had tried to open the window and climb out. Cézanne broke the glass. The room became part of the landscape, the viewer part of the view.

Thus the challenge of modern art and modern science is to work through the implications of accepting the inevitability of our participation. For Heisenberg (1959) this meant that 'Natural science does not simply describe and explain nature; it is part of the interplay between nature and ourselves; it describes nature as exposed to our method of questioning.' Failure to come to terms with this participation has serious consequences. It was the power of Cubist painters before 1914 that they were able to link Courbet's materialism with Cézanne's dialectical view of

the image. But one without the other would have led and did lead to a sterile art. Materialism became literal and mechanical. An ungrounded dialectical view became disembodied and overly abstract. The danger for a theory of maps/texts is obvious. A representational view of the image divorced from an investigation of the role of the one who constructs the image becomes literal and mechanistic. Conversely, overemphasis on the viewer and the viewer's responses becomes idealistic and equally reductionistic.

The question arises, then, where will we find a theory that can deal with maps as texts, without reducing all map forms to forms of propaganda maps? A preliminary answer might be found in a reconsideration of critical hermeneutics.

HERMENEUTICS

In the nineteenth century, the clock became the metaphor for mechanical approaches to the social sciences. In the twentieth century, the electrical circuit became the metaphor for systems approaches in the social sciences. These and related metaphors have left lasting impressions on twentieth-century social science. Yet in the second half of the twentieth century a new metaphor – the text-metaphor – emerged as the template for understanding and framing social life. In this period the text-metaphor has colonized certain domains of study – painting, film, landscape and most recently social life.

Extensive use has been made of the analogy of reading and the text-metaphor throughout the history of modern geography: Sauer's reading of the origins and development of past landscapes from the tracings and antecedents in the contemporary landscape; Lewis's axioms for reading the landscape; Samuel's biography of landscapes; Meinig's symbolic landscapes; Jackson's close interpretation of vernacular artefacts as symbols that reflect broader social changes; Sitwell's equation of elements of landscape with figures of speech; Duncan's studies of the language and semantics of cultural and symbolic inscription; and, of course, the map as an encoded artefact.

How, then, do we read maps, especially those in which problems of interpretation are compounded by distortion, error and lies? More generally, how do geographers read texts? Like the map, the landscape is a particularly good example of a 'text' which has been presumed to require a straightforward literal reading, but which actually poses great problems of interpretation and understanding. Map and landscape each present specific problems of authorship, syntax and structure by which to read (and knowing what not to read), and distinguishing and relating the various levels of determination that historically constituted any particular map or landscape. In the case of the propaganda map an additional problem is

always apparent (although it may not always be absent from the landscape, the film or the novel). From its conception, the propaganda map aims to be a convincing distortion. Hermeneutics is the theory of interpretation that deals with problematic texts (their origin, correct ascription, intended meaning, received meaning, etc.). The propaganda map is thus the archetypal problematical text requiring hermeneutic interpretation and provides a potentially good starting point for elaborating the methods of interpretation; philology, hermeneutics and criticism. The previous sections of this chapter have attempted to begin the process of hermeneutic analysis. This section will abstract the lessons and principles of that analysis and generalize hermeneutics to all interpretative acts.

Philology places strong demands on the act of interpreting texts (be they poems, landscapes, maps or social actions). Is the text the one it is claimed to be? Is the ascribed authorship correct? Did the text fulfil the role it is claimed to have filled? Is it a coherent whole? What does the text say about its own world? What does the text now mean? What is the relationship between the meaning of a text and the intention of the author in creating it? Given that some of these texts may have been authored by people who are no longer known or who were anonymous at the time of production, that they may have originated in worlds about which we now know little or nothing, and that only fragments may now be extant, are we really able to retrieve the *mens auctoris* (the author's intention)? And if we are, then in what sense can we claim to have access to the *mens auctoris*? Does the work constitute something independent of and different from that intention? And, if we cut our interpretation loose from the author's intention, how do we understand the meaning of a map?

Strict concern for the *mens auctoris* would, of course, place us in an untenable position as social scientists. The antiquarian may claim to bracket his/her present world and become immersed 'fully' in the world of the other, of the past, of the author. This option is not open to the social scientist (nor, practically, even to the antiquarian). We ask questions from the standpoint of the present, and we carry out a retrieval of the author, his/her intentions, and the work, in order to make them meaningful in our present worlds (be they conceptually, temporally or geographically removed). In this interpretative process there is no essential core of meaning or intention in the text to be uncovered. While all texts have an autonomy of their own even beyond the intentions of their author(s), and while the author undoubtedly retains a claim on the surface details of the work: the site, the literal and symbolic content intended, the date of production, the materials and techniques used in production, interpretation is always a project of innovation and creation. Neither the content of the text nor the author's intention are fully determinate of the meaning of the text. Instead interpretations resituate the work and rearticulate it in different contexts. The philological concern thus corresponds to a lower

hermeneutic, which is concerned to establish a critical edition of a text, to verify that the text is the text it is claimed to be, that it has not been falsified, that it is (or is not) a coherent whole and is not (or is) a pastiche of several authors, that it is authentic and that it is complete. Higher hermeneutics takes as its task understanding the meaning of a text, how it related to its own world (and subsequent worlds in which it has had an existence) and how it is to be related to our present world.

These claims become clearer when we think of symbols in each of two ways: univocal or equivocal. Like symbols in symbolic logic or mathematics univocal signs have one designated meaning. In a limited sense cartographic symbols (church, castle, urban area) have often been seen to be univocal symbols in this manner. However, their correspondence is not of the same kind as that of those symbols of logic or mathematics where the equivalence is complete. In the case of the symbol 'church' the equivalence, as with mathematical notation, is purely formal. Except in this trivial formal equivalence the symbol is actually equivocal: the age, style, denomination and size of the church remain open to interpretation from the context of the whole map and the text within which it is embedded, the choice of warranting the church instead of some other type of building, the privileging of buildings over non-built forms, all require broader social analysis. Univocal symbols may have several layers of meaning and are a key focus of hermeneutics (Ricoeur 1971).

At least in principle, several conditions guide all interpretations. Interpretation assumes that the integrity of the meaning of the text must be preserved in such a way that meaning is derived from, not projected into, the text. That is, for meaningful discussion about a text an interpreter must first bring him/herself into attunement with the text. This is not a slavish adherence to the text or the tradition to which it belongs. Indeed, as Foucault and others have suggested, the attunement might well be one of seeking the absences, fault-lines, and erasures in the text. But in whatever way the attunement is achieved, the text must be present as a necessary condition for any interpretation.

Of course, the difficulty is precisely where to begin and where to end in reconciling these various responsibilities: how do we understand a text as a whole and how do we understand its parts since all texts have a certain anticipation of their parts from the whole, yet the whole is composed only of parts? Image-event, line-meaning, object-relation, sign-signified, map-world; all are parts-whole complexes of relation and meaning. Part-whole relationships permeate all readings of texts at all levels of analysis and critique, and specifically include:

- a the relationship of the text to its own intrinsic parts;
- b the relationship of language-text-language;
- c the relationship of cultural context-text-cultural context;
- d the relationship of author and his/her world-text as part of this world.

Moreover, since clear and unambiguous texts are indeed rare, all texts must be complemented with suitable assumptions in order for the interpreter to make things explicit that the author and traditions of subsequent reading left implicit. In this way we can say that the interpreter always understands the text in ways different to the author; and there goes the scientific cartographer's attempt to control the process of communicating of meaning through the map! The theory of interpretation as 'the communication of information' predicated on the notion that symbols have determine, even univocal meanings, that they are 'transmitted' like boxes of chocolates, and that they mirror the world in determinate ways has produced a theory of cartography too one-sidedly concerned with the *mens auctoris*, map objectivity and the technical alignment of the map user with the map-maker. It has centred itself in a technical rationality of cognitive engineering and divorced itself from the broader debates about meaning that might reshape a theory of maps.

THEORY OF MAPS? THEORIES OF READING AND WRITING?

How, then, do we read maps? In particular, how do we answer our initial question: how do we read propaganda maps? Propaganda maps are not a separate category of text and they cannot be accounted for adequately by traditional theories of maps. Instead, an effective critique of the distorting and ideological nature of propaganda maps must be based on a wider conception of what constitutes both propaganda and science. That is, the ideological and propagandistic elements of contemporary 'scientific' maps must also be assessed at those points where the cartographer shares the ideology of his/her age, where accepted practices are founded on particular ideologies, and where unchallenged interests influence the form and content of the theory and practice of mapping. Examples of the ways in which cartography shares and reproduces the values of the age are numerous and some are well known: the continued public use of the Mercator and adapted Mercator projections, the ideological fixation on 'north at the top' maps, and the polite laughter which greets, for example, 'the Australian's view of the world'. Other examples are less well recognized: the focus in western cartography on private property boundaries and lines and the failure to give equal form to public rights of access and usufruct; or the focus of mapping convention on natural and built physical objects, rather than developing universal conventions dealing with symbol, affect or movement.

Interpreting the meaning of maps also requires that other issues be considered. Two symbolic systems are involved: graphical images and writing systems. Not only does the image exist in a reductive relationship to the world, but graphical systems always also exist as interplays between

images, linguistic texts and broader social contexts. As a writing system, maps contain within them the spoken and written in a relationship which is never exactly correspondent (i.e., maps 'play' in at least two registers). For cartographers, this complexity of meaning has generally been seen as a technical problem to be either dissolved by careful adherence to established mapping practices or explained in terms of the creative ability of the map-maker. For Thomas (1949: 76):

Regardless of the objectivity with which they were prepared, a great percentage of existing historical maps present some information which some individuals honestly consider 'propaganda'. For certain areas, the historical issues are so complicated and the record goes back so far that an unbiased map presentation becomes almost impossible.

The issue has only become more complicated not less. Modern cartography is now completely bound to new technologies and practices of computer-assisted information storage and retrieval, graphic display, image production and electro-digital communication. That this has changed both the character of the map and the nature of the map-makers' craft seems undeniable. We must understand what it means for a theory of maps (see Derrida 1981: 13).

In traditional theory, the inscription itself has no intrinsic value, only serving to record a discourse that has already taken place or an idea already formed (either in speech, in the mind of the author or in action). It is therefore testable in terms of accuracy or truth – as an accurate portrayal or resemblance of what is 'engraved on the psychic surface' (Derrida 1981: 184–8). Here inscription is a representation or copy of the *mens auctoris*. This instrumentalist and technicist view of writing valorizes essence over the written form, and is to be overcome by focusing on the exteriority of the written work. In this view, writing is merely the external expression of speech, and writing and speech are merely the external expression of thought (Ulmer 1985: 7).

Can a theory of writing and reading move us beyond such logics and in ways that do not trivialize or literalize the tracings and inscriptions of culture? Can we conceptualize of a broader conception of 'writing' which

gives rise to an inscription in general, whether it is literal or not and even if what it distributes in space is alien to the order of the voice: cinematography, choreography, of course, but also pictorial, musical, sculptural 'writing' [?] One might also speak of athletic writing, and with even greater certainty about military or political writing in view of the techniques that govern those domains today. All this to describe not only the system of notation secondarily connected with these activities but the essence and the content of these activities themselves.

(Ulmer 1985: 9)

In the age of techno-political writing – the age of electronic media – the modern techno-sciences have fragmented eye, hand and ear and organized them hierarchically in their own institutionalized analytical frameworks. At the same time, techno-politics manipulates the media in a total onslaught which demands a different reading; one in which text and context take on very different meanings. Specifically we need a grammar that transcends, and opens up, the various specialized 'grammars' of the sciences – speaking, writing and mapping. In this sense, propaganda maps are not merely one more medium or form to be interpreted, but are in many ways an archetypical form of the age of technicity. They are exemplars of the manipulation of symbols and writing. They cannot be read without a broader grammarology than the one provided by 'map-reading skills'. It is to this broader grammarology of mapping that we now turn.

3 Situated pragmatics Maps and mapping as social practice

One great dark secret of the history of cartography, barely hinted at in most accounts, is that every map has to emerge from some determinable social and economic milieu. Moreover, the shape the map will take will largely be formed by the needs, tastes and technical accomplishments of that milieu. Frequently, authors write about ... [maps] ... as if they have come into existence in a sort of social and economic vacuum, as if they were the expression of some Blake-ish pure spirit.

(Buisseret, *Rural Image: The Estate Plan in the Old and New*)

THE POWER OF MAPS

For over twenty-five years, Denis Wood has been provoking us to think differently and critically about maps and map use. In *The Power of Maps* Wood challenges the pretence of professional cartographers to be the objective/scientific producers, readers and interpreters of maps. Instead, he insists, we need to pay attention to the legion of map-makers and map users that is not part of the professional cadre of expert cartographers and to understand the ways in which all maps function in terms of specific sets of social interests. In particular, Wood argues, we must recognize that map-making as such (and as distinct from the general ability of mapping and way-finding) emerged historically in conjunction with capitalism and the state. The essays in *The Power of Maps* elaborate these themes and in them we see the wit and insight of one of geography's best readers of maps and the cartographic enterprise.

The central thesis of *The Power of Maps* is that maps work in the sense that they present the accumulated thought and labour of the past. As repositories of what John Berger would call 'ways of seeing', maps are both selective and interested; what Wood calls 'interested selectivity'. As we have seen in the previous chapter, through inscriptions of presences and absences maps conspire to inscribe and then to mask their own interested nature. Maps work by naturalizing themselves by reproducing a particular sign system and at the same time treating that sign system as

natural and given. But, map knowledge is never naïvely given. It has to be learned and the mapping codes and skills have to be culturally reproduced so that the map is able to present us with a reality that we recognize and know. This known reality is differentiated from the reality we see, hear and feel, and this is the magic and the power of the map. The map does not let us see anything as such. Instead, it lets us see the world how others have seen it and how they want us to see it. The map opens a world to us through systems and codes of sedimented, acculturated knowledge. In this view, the map is never a representation of the real, but always a 'stretch' from the real (as that known by us in our daily life) produced by systems of abstract symbols. The map points us to a world that we might come to know provided we are willing to learn and accept – to 'buy into' – this system of symbols and icons, a coded world in which particular meaning and information is presented.

The myth of the dispassionate neutrality of the map hides the socially constructed nature of the image. In this view, the map is a transparent object that reflects like a mirror that which is real: the map is the 'mirror of nature' in which the real is represented transparently as objective, neutral and accurate. And it is this view of the map as a technical and scientific tool whose principal characteristic is its ability to represent the earth accurately, objectively and neutrally, that stands in the way of a critical theory of signs and representation. In this context, Wood (1992: 45–6) argues, the history of cartography becomes clearer: 'Transfixed, as professional cartographers so often are, by the minutia of projection and scaling, generalization and symbolization, it must be tempting to view the history of cartography as nothing more than a halting but unstoppable progress toward an unachievable Nirvana of perfect accuracy.'

David Livingstone (1992: 4–5) has referred to this type of history as Whiggish history. It is presentist in that it interprets the past from the perspective of the present. It is linear and often serves as a 'textbook chronicle' written to 'inaugurate [scientific] apprentices into the mysteries of their chosen craft' and provide students with a series of exemplary historical spectacles. Such chronicles and spectacles have the primary function of making the present state of the field fit into a plan. But such representations of disciplinary history tend to write the history of science and technology as the history of great men and women, parading these 'great figures' to plot the progress of the field from an 'unenlightened past to a glorious present'. This kind of hagiographic and progressive disciplinary history has at least three other consequences: it tends to see the history of ideas as a dredging of the past to search for precursors, looking in archival materials for what Livingstone (1992: 7) refers to as anticipations, premonitions and foreshadowings of current wisdom and practice; it tends as a result to be 'internal' to the discipline, paying little attention to the wider contexts within which ideas and practices were conceived, communicated, received and implemented (p. 9); and it writes out of the

history of ideas and practice all those attempts and contributions that did not become accepted, were not followed up on, or no longer fit within the scope of what we think of as modern science and useful technology.

The Power of Maps also seeks to disrupt hagiographic historiographies and offers a different history of maps; not a dry account of the cartographic process and the mapping industry, but a lively – some might say at times outrageous – interrogation of mapping games. Mapping may mask the conditions of its own production and the contingent nature of its own constructions, but it is a serious enterprise with material consequences: ‘It really is a shell game. When the aesthetic issue gets hot, switch to science and talk about accuracy, but when that bluff is called, bring on the “wet, ragged, long underwear”’. But as Brian Harley has testified, it’s a shell game that is played for keeps’ (Wood 1992: 60).

Throughout the book, Wood provides many fascinating examples to illustrate his arguments. He develops a particularly interesting discussion of the ideological nature of debate surrounding the development of the Van Sant map – the cloud-free ‘photo-image’ of the earth distributed by the National Geographic Society as a poster entitled *A Clear Day*. In Wood’s reading, the Van Sant map is more real, more accurate, and more true to life than the earth itself, having been engineered to this stage of hyperreality; a composite of 35 million pixels were carefully selected over long periods of time and carefully pieced together to represent the earth without atmospheric ‘interference’. The realistic qualities of the resulting photo-map have been widely lauded for their clarity and accuracy. Wood mercilessly unmasks this ideology of visual purity: of a message without a code, in which the impression is given of a pure reflection of something that never existed (a simulacrum). He saves some of his most vituperative language and criticism for the supporters of this map, this type of map interpretation, and the ideological project of objectivist science of which it is a part.

Against this view Wood argues that the map does not represent the terrain as such. Instead, all maps represent a particular image of the world that reveals the agency of the map-maker, usually reflecting the interested selectivity of the state. Either directly or indirectly through its support for major research organizations, the state is the major producer of maps. And so, following Brian Harley, cartography is for Wood (1992: 43) ‘a form of political discourse concerned with the acquisition and maintenance of power’ and has been part of the expansionist histories of *map-making states* for generations. Even when he turns to the uses of the Van Sant photo-image to support environmental awareness, Wood’s (1992: 69) critique remains direct:

Acme of cartographic perfection though it is, the map thus emerges in the context of a map-making society *struggling with its future* to serve an interest, that of those committed to ... a certain vision of what it

means to live. You may share this vision – I do – but it serves *no* interest at all to pretend that it is the planet speaking through the disinterested voice of science, instead of me, Tom Van Sant – or you.

How then are we to understand and interpret the map as a product of situated interestedness? Wood calls for a broader concept of mapping which recognizes the role of political and economic factors in defining and determining which features should be characterized as ‘permanent’ and hence included as features of interest on a map. These are primarily features of interest in the informational economy of the state and a capitalist economy (boundary lines, property designators, primary routes, forest cover, campsites, picnic sites, exposed wrecks), while features not of such central interest are characterized as ‘impermanent’ and hence excluded from the map, despite their centrality and permanence as elements of everyday life (as Bill Bunge has shown, abandoned automobiles, green trees and shrubs, dead trees and shrubs, rubbish, broken bottles). Wood’s point is that such questions must always be asked again and again as new and different ideological constructions and material interests are asserted under the guise of the natural and objective representation – the map. The map as a product of an interested project, with specific contexts of production and underlying material interests, is always changing.

I have been tempted to say that *The Power of Maps* illustrates how the map and mapping project can be deconstructed. Certainly this kind of map criticism is increasingly being characterized as deconstruction. But *The Power of Maps* is grounded in the ideas of Roland Barthes not Jacques Derrida. At times, the two projects have much in common and both would accept Barthes’s injunction of the necessity to ‘track down, in the decorative display of *what-goes-without-saying*, the ideological abuse which, in my view, is hidden there’ (quoted in Wood 1992: 76–7). *The Power of Maps* is primarily focused on unmasking the activities of map-makers, the reasons they made the choices they made, and the interests that those choices and actions served; its goal is to unmask ‘the ideological abuse which ... is hidden there’. In this reading, behind every map and sign system is an interest (or multiple interests) and a message about the role the image was intended to play. Map criticism is about making clear the embodied interest that drives selectivity. As a result, the interests Wood seeks to unveil are those that have been exercised and are knowable and expressible. The map is open to determinate and limited interpretations, determined and limited by the selective interestedness that gave rise to them. When these interests are unmasked, the map will become a [more] transparent object, able to resume its true character as a ‘particular view’: ‘Freed from being a thing to ... *look at*, it can become something ... *you make*. The map will be enabled to work ... *for you, for us*’ (Wood 1992: 183).

Since maps always and everywhere represent selective interests, *The*

Power of Maps offers a series of recommendations about how maps may be developed and used to serve more democratic interests: map-making technology can be decentralized and made more accessible to the people who need it (Wood 1992: 190); map-makers can be upfront about their sources, procedures, and choices made; map critics can challenge those 'map-makers maps' and map-makers who lavish skill upon skill by way of obfuscation (Wood 1992: 240, fn 19); and the map critic can challenge the arrogance of the expert (Wood 1992: 192). Presupposed in these prescriptive recommendations is the need to push the kind of advocacy exemplified by Bill Bunge's expeditionary mapping of Detroit into a kind of genuine professionalism, whose weighty responsibility is fully recognized and acted upon (such as occurred with Bunge's decision to produce 7,367 maps to evaluate the entire range of school redistricting options that had actually been available to the Detroit School Board (Wood 1992: 186–8)).

In this sense Wood is concerned less with developing a method and theory of map interpretation than with encouraging a broader and critical awareness of map production and use, with 'constructing and reconstructing the map' (Wood 1992: 187) in ways that reveal its hidden and naturalized choices and interests. Wood destabilizes the representational understanding of maps as mirrors of nature (as naturalized or ideological), and in its place he argues for a position of advocacy, map criticism, and alternative mapping strategies – a kind of nomad cartography.¹

Maps work by serving determinate interests, they are products of history and contribute to the construction of particular histories, they are partial representations, the interests they serve are masked, these interests are naturalized and generalized through the signs and myths of map construction and use, these signs and myths themselves have emerged historically, and (as a result of this contingent construction) we can carry out forms of ideology critique and (by appropriating the act of map-making) we can begin to think of ways in which maps can be used to empower different people and serve different interests.

Cartographers have long recognized the partial and selective nature of mapping, the close association between mapping practices and military, state and commercial interests, and the openness of any tool like a map to uses fair or foul. In a similar way, Brian Harley (1989b: xx) had drawn attention to the ways in which power functions in maps through the selection and omission of content, the deployment of unmediated cultural practices and symbols, and the normalizing and universalizing of culturally specific representational forms:

Cartography deploys its vocabulary ... so that it embodies a systematic social inequality. The distinctions of class and power are engineered, reified and legitimated in the map by means of cartographic signs. The rule seems to be 'the more powerful, the more prominent'. To those who have strength in the world shall be added the strength of the map.

In *The Power of Maps*, Wood takes this characterization to heart and asks us to think about the systemic context within which mapping functions as part of traditions and practices. One crucial context within which such map use occurs is that of the liberal state and liberal capitalism. But Wood also works with a broader conception of the power of maps in which a pragmatics of map use is being developed, and it is to this pragmatics of map use that I now turn.

'THE POWER OF MAPS': TOWARDS A SITUATIONAL PRAGMATICS OF MAP USE

We would like science to be free of war and politics. At least, we would like to make decisions other than through compromise, drift, and uncertainty. We would like to feel that somewhere, in addition to the chaotic confusion of power relations, there are rational relations ... To this end we have created, in a single movement, politics on one side and science or technoscience on the other. The Enlightenment is about extending these clearings until they cover the world.

(Latour, *The Pasteurization of France*)

In his 1993 *Cartographica* essay 'The fine line between mapping and map-making' Wood drew a sharp distinction between his own understanding of a new critical cartography and that called for by Brian Harley. The differences are epistemological, practical, and political. Wood began with the question: 'Why didn't Brian Harley write the history of cartography he wanted to?' He answers that Harley was a victim of his own idealist understanding of mapping and maps, a 'reactionary and superficial' reading that 'never penetrated to the map itself' (Wood 1993: 50).

The problem for Harley remained the bad things people *did* with maps, and ultimately this left the maps themselves out of the picture. Insulated by an idealist conception of knowledge, Harley was never able to conceive of the map as other than a representation of reality; was never able to grasp the map as discourse function; was never able to understand that the heart of the problem wasn't the way the map was *wielded* but the map function itself. His refusal to acknowledge the map as a *function* of social being – not just as something *colored* or *shaped* by this or that social vector – prevented him from seeing that map-making was *not* a universal expression of individual existence (like something we might call mapping), but **an unusual function of specifiable social circumstances arising only within certain social structures.**

(Wood 1993: 50) (Italics in original; emphasis (bold) added)

do? *what does it accomplish?*' (Wood 1993: 56). 'It is the inscriptive property of the artefactual map that permits it to serve the interests of the power elites who control the map-making process (as well as those who would contest them)' (Wood 1993: 53).

I believe people for millions of years have emitted map, and maplike and protomaplike, artefacts as natural consequences of their spatial competence working itself out in the context of human discourse about the territory and what comes with it; but I also believe that most of these have been one shots, squibs, duds. Or they've made their point ... but no one noticed. In neither case did they lead to map-making. Not until the demands of agriculture, private property, long distance trade, militarism, tribute relations, and other attributes of redistributive economies transformed the discourse environment in which these firecrackers exploded was the light they emitted apparent. But then maps must have seemed the answers to prayers (*why hadn't anyone thought of them before?*).

I began this book with Gunnar Olsson's critique of cartographic reason and with his provocative question: 'What is geography if it is not the drawing and interpreting of a line?' Perhaps now we begin to see more fully how important is Olsson's question. If we are ever to understand this process of 'drawing a line' and by extension the processes and practices of mapping, it will be useful to have some clear idea of what actually happens when lines are drawn and maps are made. In various ways, Harley and Wood have helped us to understand how lines are selected, drawn and accepted within a community of users. How are some symbol systems drawn into the domain of cartographic practice while others are not recognized immediately as being non-cartographic or bad cartography? How does the map get produced? Precisely how and under what conditions do particular mapping forms and conventions arise as standards for the social practice of mapping? And, how do these standards and practices get reproduced and normalized as 'sound cartographic technique'?

At stake is not merely an expansion of the self-understanding and practices of map-making and map use, nor is it merely a challenge to the traditional conceptions of 'objectivity' in mapping sciences. It is, beyond all these, a fundamental question of how maps work in practice; a situated pragmatics of map use that begins with the clear understanding that what the map represents and the ways in which it represents the world are not guaranteed by anything behind it. It is not a representation of the world, but an inscription that does (or sometimes does not do) work in the world (see Curry 1996). It is this that Wood points to when he says that maps are instruments of power embedded in and reflecting the social relations and interests that give rise to them. Here is not a functionalist reading of maps,

For Wood the practice of map use is not to send a message, but to bring about a change in the way another person, or group of people, see the world. It is 'out of their interaction in the social worlds they inhabit that people bring forth cultural products like maps' (p. 52), and such cultural products act to induce social, economic and political change as 'weapons in the fight for social domination'. Thus, for Wood, such a pragmatics of map use requires a more radical shift in cartographic epistemology than Harley was able to accept.

For all the political self-consciousness that is so exciting in Harley's late papers, there is still the same stuffy quality that Harley hoped he was opening the windows on. Despite, for example, the derivation of the title of 'Victims of a Map' from the title of a collection of poems by the contemporary Palestinian Mahmud Darwish (and others) there is no sense in the paper that Harley is dealing with a general problem of contemporary relevance, his history is not living ... his victims all turn out to be native Americans who died centuries ago, they remain sealed in the past, there is even little sense of the social construction of the New World.

(Wood 1993: 52)

In Wood's analysis, it was Harley's inability to shed the inherited idea of the map as a representation of the real world and his inability to accept really that the map was a social construction of reality that prevented the emergence of this new critical social cartography. He agrees with Barbara Belyea's (1992) reading that Harley remained an idealist and a British empiricist, despite his efforts to accept the discursive and deconstructive critiques of Foucault and Derrida. When Harley asked whether a normative ethics was possible or were we left with a 'slide into a cozy relativism in which cartographic values vary with different societies, generations, social groups, or individuals?' (Harley 1991: 14), he overlooked the fact that maps cannot but embody such social situations and desires. For Wood (1993: 53): 'writing is not captured speech, which was never *thought* put into words, behind which was *never* anything ... *real*, anything ... *true*. Nothing ... *behind* ... the map guarantees it. Or throws it into doubt.'

Maps are made because of the needs of particular social situations; they are made to fulfil a particular function. As a result, there cannot be a general theory of mapping and cartography, only a pragmatics of map-making and map-using. As Wood (1993: 53) argues, the map 'exists in its inscription. And it is the fine line of this inscription that differentiates something we might call mapping (but which is really just ... getting around [forms of spatial competence]) from map-making; and mapping societies from map-making societies'. This situational pragmatics of mapping focuses on the 'map's discourse function' (p. 56) asking 'not what does the map *show* or *how* does it show something, but *what does the map*

but a pragmatic reading of post-representational cartography – a pragmatics with political intent.

MAPS AS SOCIAL PRACTICE

It has always seemed that if a science were not independent of politics, something would be missing and the sky would fall on our heads. To show that the sky holds up perfectly well on its own, we have to be able to prove in a particular scientific discipline that belief in the sciences, like the old belief in God, is a 'superfluous hypothesis.' We have to give evidence that 'science' and 'society' are both explained more adequately by an analysis of the relations among forces and that they become mutually inexplicable and opaque when made to stand apart.

(Latour, *The Pasteurization of France*)

Because the technologies with which we live more or less work as they are supposed to, we tend not to ask why or how any particular technology or ensemble of technologies work, or why they came into being in the first place. Most of the time, most of us take them for granted.² We certainly tend not to ask about the design decisions, the logics and the rejected alternatives that went into the selection of particular paths to the construction of the technologies with which we work today. We probably think even less about the professional, political, economic and social contexts within which these decisions and choices were made, or about the ways in which they were put into practice. Even when a problem arises, our first response is more likely to be one that seeks a technical solution to fix the problem instead of asking about the broader context of origins, development and practice within which the technology works or doesn't work.

In this sense I am reading Wood's argument that nothing lies behind or guarantees the map as a radicalizing of the deconstructive impulse sought by Harley. Wood is correct, in my view, in recognizing the limits of Harley's actual 'deconstructions' and more successful, as a result, in destabilizing the ontological commitments of cartography to a representational epistemology. But he also takes us too quickly to a determinate (at times perhaps functionalist) reading of the power that shapes the pragmatics of map-making. His historical and institutional readings of maps are rich and provocative, but they too seek to uncover the shaper of the message and the power *behind* the map in much too literal a manner. As we move forward, I shall deepen this deconstructive turn on precisely this point, focusing more directly on the multiple and disseminated practices of mapping and map-making, and on what I hope will be a more articulated and contextual reading of the cultural politics of maps.

For the moment, we can perhaps evoke a stronger metaphor than that

of archaeology, of an unveiling or uncovering, which reduces modern cartography as a social practice to a single narrative. It might be better to understand cartography as more like a series of technological, scientific, and rhetorical trails in the woods. Like animal trails in the woods, trails emerge from the discrete choices and the concrete goals of walkers and/or animal. These choices are constrained by the prior uses of the forest and the ways in which others have previously passed through them. In choosing and hence building such pathways, animals might begin to consolidate their route-seeking along a central trail (the herd trail), while others might cut off in branches, create alternative trails or strike out in different directions. There is no necessity for such trailblazing to produce 'optimum' pathways, only pathways that succeed in getting from one point to another through the woods. Nonetheless, there is every likelihood that convergence around one or more central trails will occur, with gradual consolidation of that trail over time – the accepted trail to follow; the trail becomes naturalized.³ There is, in other words, a kind of path-dependent convergence of multiple forms around specific notions of efficiency and appropriateness. But there is also every good reason to believe that alternative paths are not only possible, but are already co-present in what appears to be a single 'standard' and dominant set of norms. In this 'ecological' path-dependent model there remain strong interests and an overwhelming presence and power of the state. But there are also minor chords, off-track paths and countervailing tendencies that must be incorporated into an understanding of the structures of power and influence. Perhaps we can think about mapping practices in these ways, and use such 'undeterrained' notions of technical and scientific change to think how we understand the history of mapping and cartographic reason. As we shall see, this question brings us to the heart of a series of debates about contemporary uses and practices of mapping and the use of the cartographic imagination.⁴

Like Denis Wood, cultural studies of science see science in terms of social practices. But in contrast to Wood's efforts to clarify the determinate interests that produce and are served by a map, science studies expresses caution in historical explanation that fixes responsibility too simply on any particular institution or interest:

Even if a few people still believe in the naïve view, courageously defended by epistemologists, that sets science apart from noise and disorder, others would still like to provide a rational version of scientific strategy, to offer clear-cut explanations of how it develops and why it works. They would like to attribute definite interests to the social groups that shape science, to endow them with explicit boundaries, and to reconstruct a strict chain of command going from macrostructures to the fine grain of science. Even if we have to give up our beliefs in science, some of us still wish to retain the hope that another science,

that of society and history, might explain science. Alas, as Tolstoy shows us, we do not know how to describe war and politics any better than we know how to explain science.

(Latour 1988: 6)

In this sense, science studies opens map studies to a much richer social and conceptual analysis than discourses of 'maps-as-power' have been able to do. Understanding scientific practice involves understanding how new 'machines' and disciplined human performances and the relations that accompany them are constructed and interactively stabilized (Pickering 1995: 21). This requires historicizing and contextualizing the universalizing claims of science to serve as a privileged form of objective reason within concrete geographical and historical settings, and showing how technological and scientific systems are outgrowths of human practices and decisions that are locally situated. It becomes important to trace the ways in which individuals, technological objects and institutional assemblages have functioned to naturalize one particular understanding of scientific practice. By so denaturalizing what counts as 'the history of the field', we seek to uncover paths not taken; to re-place the 'monolithic textbook chronicles' with a history enlivened by multiple actors (people, technological objects and institutional assemblages) and competing claims to truth, accuracy and use value. One task of deconstruction, then, is to write denaturalized concrete histories of multiple technological and scientific projects that on the surface appear as a unity (Haraway 1991).

As Ian Hacking (1982, 1992a 1992b) has argued, what counts as scientific reason is not constant, but changes throughout history. Different styles of reasoning become accepted as dominant and 'most reasonable' in different time periods. Reasoning based on statistics, for example, does not become 'reasonable' until the mid to late seventeenth century. In describing such grounded and bounded rationality Latour (1988: 15) urges us to 'follow scientists and engineers around' – to track them through time and space, and to map out the interconnections of the institutional, cultural, and professional strata they create and work with and within, and that others generate around them. Pickering (1995: 221) suggests that we 'explore the ways in which particular machines, disciplines, styles of reasoning, conceptual systems, bodies of knowledge, social actors of different scales, the inside and the outside of the laboratory, and so forth, have been aligned at particular times and in particular places.' In all such studies, the methodological injunctions guiding such work are: refuse analyses that become 'sociologising reductions' and that reduce science to its 'social conditions'; reject analyses that provide satisfactory analysis only of the applications of a science, but fail to address its technical content; and avoid all recourse to the 'folklore of the people studied (terms such as "proof", "efficacy", "demonstration", "reality", and "revolution")' (Latour 1988: 9). The challenge for such disciplinary histories is to understand at one and

the same time the *content* of science and its *context* in terms of specific practices, actors and institutions.

In *Pandora's Hope* Latour illustrates one such science study through an account of the way in which citations are circulated and consolidated as facts in science. He describes a situation in which a geographer (who is a geomorphologist), a botanist, a zoologist and an anthropologist (Latour himself) carry out fieldwork in the Amazon rainforest. From 'raw field' to 'completed categories' Latour describes the various ways in which what he calls the 'circulation of citations' begins to build up 'scientific' categories, to render literally and map the 'raw field' as a map of discrete and relational objects for scientific investigation. In this process, labelling, annotation, categorizing and mapping literally circulate among the participants, at first through their notebooks and later among their laboratories. Circulation generates eddies of attention, commitments to specific abstractions, and fixations on one particular rendition of categories or mappings. It is to these processes and practices by which cartographers produce the real as a historical and social process of circulating and adjudicating citations and inscriptions that we now turn.