

commentary

In time you may discover all there is to discover — but your progress will only be progress away from mankind. The gulf between you and the people will become so great that one day you will cry out in jubilation over a new achievement — and be greeted by a cry of universal horror.

Bertholt Brecht, *The Life of Galileo*¹

In an event little reported in the media during the recent Iraq war, a demonstration was held outside the U.S. Defense Mapping Agency in St. Louis. It concerned the crucial role of maps in our ability to wage modern warfare: official estimates stated that by 2nd January 1991 some 35 million maps had been shipped to some 300,000 U.S. troops stationed in the Persian Gulf area.² Whatever our views about the morality of war, the incident serves to remind us that the making of maps can raise profound ethical issues. In my case, it led me to reflect on the apparent lack of ethical discussion in the professional literature of cartography. Search long among the key words of periodical articles or books and "ethics" is usually missing. This means that in its failure to engage in a full and frank debate about ethics, cartography is out-of-step with other academic disciplines and professions. On the contrary, the discipline could be accused of complacency. Cartography seems to be uncritical of its own practices, and both their intentional and unintentional consequences. It certainly lacks a substantial literature in applied ethics comparable to that generated by many of its peer professions in science and technology. There is no group in cartography comparable to, for example, "Computer Professionals for Social Responsibility" founded in 1984. And there are no, or few features such as the "Legal and Ethical" case notes, now published in the *ACSM Bulletin*, in cartographic journals. In short, for many map-makers ethics remains a gray area, lost somewhere in the abyss that separates logic from the swamp of subjective opinion.

All this surely has to change in the next few years. I am writing this essay in response to a pioneering "roundtable commentary" on "Ethical Problems in Cartography" — the first of its kind — published in the Fall 1990 issue of *Cartographic Perspectives*.³ Ethics was defined there as the "principles of conduct guiding the practices of an individual or professional group." Among the varied issues raised at the roundtable were some which may not immediately have struck all readers as obviously ethical problems. For instance, while the so-called "ethic" of being "precise, accurate, and exact" was plain enough, the moral aspects of the perennial copyright problem or the impact of new technology on the ability to maintain traditional standards and values raise finer points of definition. What, for a start, are the "traditional standards and values" and have they ever existed except as a social construction of cartographers? Or why should commercial cartographers feel threatened by copyright violations other than for reasons of profit which may or may not be an ethical question? Other issues considered are the claim that some aspects of cartographic practice — such as the design and choice of symbols — are ethically neutral, and that "the false impression" that is sometimes given "that cartography is a science, based on objective principles and criteria," is also ultimately a matter of ethics.

I did not find myself in agreement with all of the contributors and here I take issue with certain stated viewpoints. For example, the emphasis on the copyright question as a major ethical issue seems to be misplaced.

Can There Be a Cartographic Ethics?

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The old English rhyme tells us

The law locks up both man and woman
 Who steals the goose from off the common
 But lets the greater felon loose
 Who steals the common from the goose⁴

I suggest that the individual who "steals" the information on a copy righted map may be stealing the goose, but the greater moral dilemma is that the map, when it fails to be anything less than a socially responsible representation of the world, is being stolen from everyone. This is to put the issue rather starkly but I feel **strongly** that some different questions should be squarely posed. Can there be an ethically informed cartography and what should be its agenda? How can we go about formulating principles and rules that would allow us to arbitrate moral judgments in particular cartographic circumstances? Can we debate cartographic ethics in the narrow arena of internal practice, looking for a pragmatic code of professional conduct, or should we be concerned with transcendental values that go to the heart of social justice in the world at large? Rather than engage in generalities at this stage, I confine myself here to addressing these three questions, taking the last first.

The debate opened in *Cartographic Perspectives* is based, in my view, on a fundamental fallacy. This is the "cartographers know best" fallacy, the notion that over the years cartographic practice and experience has resulted in normative rules and principles that are, because a consensus exists about their value, in themselves ethical. If they are widely accepted, and so long as they are followed, the profession is "clean," and there will be no need to ask questions in an ethical context such as "What kind of map is good?" or "What sort of cartography is just?" Michael Dobson produces an argument that enshrines this fallacy. He writes

... in my opinion ... most of the substandard cartographic products [substandard here is equated with unethical] are the result of individuals who have not been properly trained and not the work of individuals who are consciously trying to mislead their audience.⁵

However, such a premise, far from addressing fundamental ethical questions, bypasses them entirely. Questions about the rightness of technical practice are being confused with questions about the rightness of the social consequences of map-making. While there may be moral aspects to both cases, I would argue that it is the ethics of the latter that should be addressed rather than value judgments concerning the permissibility or impermissibility of this or that technical practice. For instance, in every map made by a professional cartographer, some sort of judgment has to be made as to how to represent the world. Yet cartographers, though they are fully aware how maps **must** distort reality, often engage in double-speak when defending their subject. We are told about the "paradox" in which "an accurate map," to "present a useful and truthful picture," must "tell white lies."⁶ Even leaving aside the element of special pleading in this statement (the map can be "truthful" and "accurate" even when it is lying), there is the corollary that cartographers instinctively attribute the worst forms of "ignorance," "blunders," and "distortions," and so on to non-cartographers. For instance, when they come to talk about propaganda maps or the cartographic distortions presented by the popular media, a quite different order of moral debate is entered into. The *cause célèbre* of the Peters projection led to an outburst of polemical righ-

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teousness in defense of "professional standards." But ethics demand honesty. The real issue in the Peters case is power: there is no doubt that Peters' agenda was the empowerment of those nations of the world he felt had suffered an historic cartographic discrimination. But equally, for the cartographers, it was their power and "truth claims" that were at stake. We can see them, in a phenomenon well-known to sociologists of science, scrambling to close ranks to defend their established ways of representing the world. They are still closing ranks. I was invited to publish a version of this paper in the *ACSM Bulletin*. After submission, I was informed by the editor that my remarks about the Peters projection were at variance with an official ACSM pronouncement on the subject and that it had been decided not to publish my essay! Cartography will be unable to engage in an ethical debate while it continues to appeal only to its own internal standards yet is morally blind to issues in the world outside.

A similarly introspective technophilia is enshrined in the view that some aspects of cartography lie beyond the need for ethical consideration. In the roundtable discussion it is suggested in the context of cartographic education that

The majority of information we impart to students . . . has little to do with ethics. Recommendations on what line widths or what lettering sizes are harmonious or discriminate from one another are perceptual and aesthetic issues, not ethical ones. Suggestions on title placement is a design issue, not an ethical one. Conventions on coloring a forested area green, or a water body blue are iconicity issues, not ethical ones.⁷

But is this really the case? It is well known — not the least in advertising — that every map represents a world view in miniature and its design is fraught with potential ethical consequences. Aesthetics is not a value-free science and it is as much a prisoner of ideology as the empirical content of the map.⁸ The way a word is written, the choice of name size, the selection of a color to represent an area, or the type of point symbol employed, are all part of the persuasive rhetoric of map-making. They may wield considerable power over the way we understand the world. For example, the symbols designed to represent towns or villages on a map may privilege some settlements while discriminating against others. In a recent study of small-scale South African mapping we are told how policies of apartheid have "created dormitory Black townships adjacent to practically every White town in the country" and also a cartography that naturalizes this discrimination:

With the prevalent design approach used by cartographers, many of these Black settlements have been made invisible. This process of subjective generalization has been achieved subtly in recent years by mapping a selection of Black settlements for which the style of symbolization used to mark them is downgraded.⁹

Here is a clear instance of where design and a moral judgment are inseparable. Though it is claimed that such maps were "more an act of negligence than a deliberate attempt to deceive,"¹⁰ from an ideological standpoint the map supports the powerful against the disenfranchised and makes notions of white supremacy seem more legitimate.

It is the apparent ethical innocence of map design that can be so misleading. Mark Monmonier has reminded us about the "seductiveness of color" but he cannot blame it all on "misuse by cartographically illiterate commercial artists."¹¹ Thus, despite his assertion that "the blueness of the water might exist largely in the minds of wishful environmentalists, self-

serving tourist operators, and gullible map readers,"¹² it is also a perception traditionally perpetuated by cartographers more than anyone else. So too is the decidedly Eurocentric convention that brown is the best color for terrain, contours, and land representation. It is a dubious logic that brown is assumed to be "the fundamental color of soil . . . evident in fresh tilled soil in spring," a statement that might apply to middle latitude humid forest and steppe-land soils but is untrue for much of the rest of the world.¹³ Once it is accepted that certain conventions are "natural" or "normal," the danger is that they acquire a coercive and manipulative authority. The simplistic belief that "graphical excellence" and "graphical integrity" can be achieved by the application of hard-and-fast design rules¹⁴ similarly lessens cartographers' maneuverability to portray the world ethically, that is to say, in ways that are sensitive to social needs. I am not advocating a form of design anarchy here, but merely suggesting that cartography runs the risk of being reduced to a series of graphic formulas detached from the consequences of representation.

With the development of new institutionalized technologies such as Geographical Information Systems and automated cartography the likelihood increases that this will occur. The drive for standardization becomes ever more crucial to allow interchange between systems and to reduce confusion over technology. With this in mind, the U.S. Geological Survey is developing a national cartographic data standard.¹⁵ Yet is this entirely a step forward? It could result in a further narrowing of the ways in which the diversity of local landscape is mapped and it is saying, in effect, that there is only one way of showing a particular geographic feature despite any potential insensitivity to social and environmental issues in that form of representation.

"Method" has thus become a main criterion for truth; moreover, it becomes in itself a specific category of truth, that of "cartographic truth." Invented by cartographers, map "truth" runs the danger of becoming a knowledge available **only** to the technical specialists and this (as Einstein once put it) "is almost as bad for art as for the artists, or religion for the priests."¹⁶ It is thus clear that the debate must be moved beyond a narrow internalist formulation of what is ethical in cartography. If we are truly concerned with the social consequences of what happens when we make a map, then we might also decide that cartography is too important to be left entirely to cartographers.

How can we go about formulating principles and rules that would support moral judgments in particular cartographic circumstances?

I find two fundamental issues in the second question: how can we go about formulating principles and rules that would support moral judgments in particular cartographic circumstances? The first concerns the philosophy of cartography; the second the content of maps. The basic philosophy of many cartographers, as Sona Andrews points out in the roundtable discussion, would probably be that they are "doing a science" that is correct, accurate, and objective.¹⁷ I agree that this is a key ethical issue and, indeed, it is this positivism, fueled by recent technological developments, that is beckoning cartographers away from the very ethical issues now espoused by other professions. Even as the twin themes of innovation and technological revolution are loudly proclaimed (the latter with almost Maoist fervor)¹⁸, so the social implications of the cartographic Prometheus unbound — such as increased surveillance of the individual — are largely overlooked. The tendency is to shrug off alternative views of the nature of maps, especially those that open up humanistic perspectives. The result is the sort of tunnel vision that must have led Duane Marble to remark of map projections, which he sees merely as a mathematical transformation, that "It escapes me how

politics, etc. can enter into it."¹⁹ With views like this, there will be no truly open debate until cartographers shed at least some of their notions of scientific essentialism. My argument is that this traditional philosophical foundation should be critically examined. Alternative views about the nature of maps need to be seriously evaluated. Could it be that what cartographers do, albeit unwittingly, is to transform by mapping the subject they seek to mirror so as to create not an image of reality, but a simulacrum that **redescribes** the world?²⁰ This alternative view of what a map is would allow us to embrace a much more open, self-critical, socially-sensitive, politically street-wise approach to the practice of map-making and the objectives of cartographic activity.

Thus even the apparently arcane ontological and epistemological questions must be part of the debate. They too raise issues of practical ethical concern. Our philosophy — our understanding of the nature of maps — is not merely a part of some abstract intellectual analysis but **ultimately** a major strand in the web of social relations by which cartographers project their values into the world.

Second, there is the content of maps. Not only how cartographers believe they represent the world, but even more what they emphasize and what they silence, and how features are classified and given hierarchy, adds up, in effect, to a moral statement. Each map is a manifesto for a set of beliefs about the world. In many unremarked instances a map may be an act of empowerment or of disenfranchisement in the construction of social relationships. Thus, the content of maps will increasingly become a moral dilemma for cartographers if they accept their responsibilities for reconstructing the world that the surveyor has deconstructed. Whether through choice or through the "advance" in technology we are increasingly witnessing the death of the map author, a situation in which the cartographer, in most cases, has ceased to be the initiator of the map.²¹ This is largely related to what Patrick McHaffie defines as the organization of the cartographic labor process.²² But it is also ironic that this loss of cartographic autonomy has been promoted by the cartographers' own narrowing of their field of operations, designed to enhance their image as an independent profession, but effectively confining their role to the design and generalization of **other** people's data. Apart from the fact that this undermines cartography's claim to be a science even in any normal understanding of that word, it embodies an ethical dimension. Maps, rather than resulting from primary observations of the world, are increasingly derived from secondary packages of predetermined information. Thus, when the data arrives in the cartographer's hands the map is already "pre-censored;" it is often too late to challenge its content from an ethical standpoint.

Such restrictions placed on what a map can show is a key ethical issue. If the moral contours of the shape of the world have already been drawn by others — usually those in positions of power — then the danger is that the cartographer is relegated to becoming a robotic arm of an institutional or commercial patron. Map-makers have to ask themselves how, if they so desire, they can recapture control over the morality of the map, so that the cartographic author is able to exercise ethical judgment. Otherwise we may create a design masterpiece but it will merely be a projection of an unethical landscape in whose making we have no part and for whose social consequences we have abrogated responsibility.

Finally, an answer to the first question, "Can there be an ethically informed cartography and, if so, what should be its agenda?" is more difficult to arrive at. As I hope I have made clear, from issues that are

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already surfacing, the answer to the first part is "yes." Where to go next is less clear. What cartographers most earnestly seek is probably not so much a theoretical as a practical ethics, a set of principles that can be used to clarify moral disagreements or conflicts with the goal of resolving them. It would certainly help, as a first step, to have more **documented** facts about ethical issues in cartography.²³ What are the motives and personal engagements of cartographers with the maps they make? What are the relationships between production and consumption in cartography and GIS? How do practices such as the limitation of access to official information (through the policies of secrecy or pricing it beyond the means of ordinary citizens),²⁴ the omission of toxic waste sites from USGS maps, the inclusion of pejorative ethnic names on maps,²⁵ or the Eurocentrism of many maps and atlases,²⁶ actually influence the way people think about and act upon social issues in a democracy? What are the moral benefits or deficits of particular ways of mapping the world? This should be the bottom line of the balance sheet of cartography, and the time may be overdue when such questions about the human consequences of making particular kinds of maps are researched in our graduate schools.

A second step would be to try to resolve underlying conceptual disagreements about the claims to truth of cartography. This would involve a reexamination of the nature of maps along the lines I have suggested. But, thirdly, there should be an effort to link cartographic ethics to wider social questions. What are the principles of social justice that ought to be endorsed by cartographers? Should maps merely be an inert mirror of majority values or can they play a wider role in the struggle for social improvement? Can there be a normative ethics or do we slide into a cozy relativism in which cartographic values vary with different societies, generations, social groups, or individuals? Can any of us have a privileged claim to ethical truth or must we accept the idea that what might be a good map for one society, culture, or group might be harmful for another? Where such conflicts occur is there a principled way of judging between them if there are no transcendental or absolute moral values?

Cartographers have yet to grapple with these difficult questions. Many are likely to be resolved only at the level of social policy. Indeed, the final ethical question may be one of just how far cartographers of all shades of opinion are prepared to be politically active in altering the conditions under which they make maps. How much do they care about the world they portray? Institutional rules, regulations, and laws (such as those that govern federal or corporate cartographers), all have an ethical dimension that may clash with the individual conscience. Those who believe that the map is impartial and value-neutral may argue that cartographers — as befits a "scientific" profession — must remain neutral at every cost. Yet this reminds me of a remark made by the video-cult personality Max Headroom, who says "I only invent the bomb, I don't drop it."²⁷ We could paraphrase this for those cartographers who say "I only draw the map, I'm not responsible for how it's used or what it does."

For others, however, there is a different moral position. It involves accepting the linkage between knowledge and power. Only then will we agree with those who have already pointed out that cartography is politicized and it always has been:

We will only be able to **think** clearly about our situation once this is recognized. We will not be able to make intelligent choices until, having accepted our political instrumentality, we fully debate our situation with this in mind. There will materialize Cartographers for Peace and Cartographers for a Strong Defense, but at least we will be through pretending that we are not completely involved.²⁸

Being involved on matters of conscience is an important aspect not only of social responsibility but also of true professionalism. At a moment when global technology is weaving an ever more impenetrable curtain between the makers and users of maps this has become urgent:

... we have to learn new standards of responsible conduct in our use of information technology; we need to reformulate what's right and what's wrong, especially in a world in which human and social relations, increasingly, are endlessly reprogrammable, after the fashion of human/machine interfaces. Ethics is very much back on the agenda for intellectuals in a technocracy where efficiency and rationality are seen as presiding, without passion, over a regime of instrumental problem-solving.²⁹

Can there be a cartographic ethics? It is doubtful if either more internal design "solutions," or the unfettered working of a free market in commercial cartography,³⁰ will result in the truly ethical map. Ethics cannot be divorced from questions of social justice. To do nothing would be to sanction a world closer to Bertholt Brecht's vision of the future than one in which morally responsible cartographers would choose to live. ☐

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ACKNOWLEDGEMENTS

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2. "Agency Shows Way for Gulf Forces," *The Washington Post*, Wednesday, January 2, 1991, A13.
3. Patrick McHaffie, Sona Andrews, Michael Dobson, and "Two anonymous employees of a federal mapping agency", "Ethical Problems in Cartography: a roundtable commentary," *Cartographic Perspectives* 7, (1990), 3-13.
4. Quoted in Martin Wachs, "Introduction," in *Ethics in Planning*, ed. Martin Wachs (Rutgers Center for Urban Policy Research Institute, 1985), xiii.
5. Dobson, "Ethical Problems," 4.
6. Mark Monmonier, *How to Lie with Maps* (Chicago: The University of Chicago Press, 1991), 1.
7. Sona Andrews, "Ethical Problems," 8.
8. For ways in which aesthetics in general is a socially constructed and historically contingent set of values see Terry Eagleton, *The Ideology of the Aesthetic* (Oxford: Basil Blackwell, 1990).
9. P.J. Stickler, "Invisible Towns: A Case Study in the Cartography of South Africa," *GeoJournal* 22, 3 (1990), 329-33.
10. *Ibid*, 333.
11. Monmonier, *How to Lie With Maps*, 147.
12. *Ibid*, 154.
13. Arthur H. Robinson, *The Look of Maps: An Examination of Cartographic Design* (Madison: The University of Wisconsin Press, 1952), 12.

NOTES

14. Edward R. Tufte, *The Visual Display of Quantitative Information* (Cheshire, Connecticut: Graphics Press, 1983), *passim*, epitomizes the positivist belief — adhered to by many cartographers — in the power of graphic representation to “tell the truth” with “clarity, precision, and efficiency,” and with violations of the rules being measured in such meaningless statistical abstractions (from an ethical point of view) as the “Lie Factor.” (pp 57-8).
15. Michael F. Goodchild, “Geographic Information Systems,” *Progress in Human Geography* 15, 2 (1991), 194-20.
16. Quoted without citation in Gerald Holton, *The Advancement of Science and its Burdens. The Jefferson Lecture and Other Essays* (Cambridge: Cambridge University Press, 1986), 294.
17. Sona Andrews, “Ethical Problems,” 8.
18. The International Cartographic Association, for example, often seems to view the history of map-making in these terms: a recent example is Joel Morrison, “The Revolution in Cartography in the 1980s,” in *Cartography Past, Present, and Future. A Festschrift for F. J. Ormeling*, ed. D.W. Rhind and D.R.F. Taylor (London: Elsevier for the International Cartographic Association, 1989), 169-185.
19. Duane Marble. (Computer Network Conference *Geography*, January 31, 1991).
20. I have explored this question more fully in a number of recent essays: J.B. Harley, “Silences and Secrecy: The Hidden Agenda of Cartography in Early Modern Europe,” *Imago Mundi* 40 (1988), 57-76; J.B. Harley, “Maps, Knowledge, and Power,” in *The Iconography of Landscape*, ed. Denis Cosgrove and Stephen Daniels (Cambridge: Cambridge University Press, 1988), 277-312; and J. B. Harley, “Deconstructing the Map,” *Cartographica* 26, no. 2 (1989), 1-20.
21. For a discussion of this point, critical of the assumption that the cartographer — as in the traditional communication model — controls the selection of “reality” to be included in the map, see J.S. Keates, *Understanding Maps* (London and New York: Longman, 1982), 101-106.
22. Patrick McHaffie, “The Creation of Public Cartographic Information: ‘Penciling in’ the Nexus,” Paper presented at the Miami meeting of the Association of American Geographers, April, 1991.
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24. On the problems of the increasing commodification of computer-based geographic and land-information systems see Earl F. Epstein and John D. Mc Laughlin, “A Discussion on Public Information. Who owns it? Who uses it? Should we limit access?,” *ACSM Bulletin*, October 1990, 33-38.
25. For some examples, see J. B. Harley, “Cartography, Ethics, and Social Theory,” *Cartographica* 27, 2 (1990), 1-23.
26. The implicit discrimination in maps has now become an ethical issue for educators: see Keith Hodgkinson, “Standing the World on its Head: A Review of Eurocentrism in Humanities Maps and Atlases,” *Teaching History*, 62, (1991), 19-23.
27. Quoted in Andrew Ross, *Techno-Ethics and Tele-Ethics: Three Lives in the Day of Max Headroom* (Milwaukee, The University of Wisconsin-Milwaukee, Center for Twentieth Century Studies, Working Paper No. 8, 1988), 4.
28. Denis Wood, “Responses” to “Cartography, Ethics and Social Theory,” *Cartographica*, 26, 3 & 4 (1989), 117-119.
29. Ross, “Techno-Ethics”, 3.
30. The latter is implied by Dobson, “Ethical Problems,” 4.