Science, Conservation and the Tatshenshini Controversy

By Anne Bell

One of the more celebrated conservation success stories in recent Canadian history was the protection of the British Columbian portion of the Tatshenshini watershed. Plans to mine a copper deposit at Windy Craggy Mountain, near one of the river's tributaries, were brought to an abrupt halt after the provincial government decided to set the area aside as a Class A Provincial Park in June, 1993. The decision was the result of intensive lobbying efforts on the part of groups and individuals who feared the impacts of mining on wildlife and on a place otherwise unmarred by roads, dams and industrial development.

Prior to the resolution of the issue, I spent a month on the Tatshenshini as part of an ecological research team sponsored by the Sierra Club of Canada. With a few companions, I explored the river's shoreline and tributaries in an effort to collect baseline data for use in the ongoing conservation campaign. Afterwards I sifted through all manner of articles, letters, pamphlets and reports on the Tatshenshini with the intent of examining and clarifying the terms of debate. It was the stories about nature, and the shape that they gave to people's understanding and experience of the river which interested me.

While my interpretation of these accounts is presented more fully elsewhere,[1] here I would like to focus specifically on the ways that science was brought to bear by stakeholders on both sides of the controversy. Just as conservationists pointed to the significant scientific values of the area, the mining faction argued that research into mining management could reduce or eliminate environmental risks. Common to both groups was their desire to have, or at least to appear to have, science on their side. As is often the case in conservation/ development disputes, evidence and arguments based in science were central to the decision-making process.

The Authority of Science

Given Western society's predilection for scientific accounts of reality, it should come as no surprise that conservation relies heavily upon the life sciences. Just as scientists generally have been "authorized to name what can count as nature for industrial peoples," (Haraway, 1988:79) so biologists and ecologists are called upon to identify, explain and solve conservation problems. They have a privileged role in defining the parameters of conservation debate, and in determining what ought to merit society's concern. This special charge has been allotted, as Donna Haraway explains, on the basis of science's unique claim to objectivity:

> *A scientist "names" nature in written, public documents, which are endowed with the special, institutionally enforced quality of being perceived as objective and applicable beyond the cultures of the people who wrote those documents (1988:79).*

Scientific accounts of nature are considered to be true, that is, to be accurate and unbiased depictions of what is *really* out there. They present *facts* which are explained in language that is "exclusively descriptive and avowedly neutral" (Evernden, 1992:85).[2] Their narrative dimension, veiled by an aesthetic of realism,[3] is rarely acknowledged. Biologists, says Haraway, "tend not to see themselves as interpreters but as discoverers moving from description to causal explanation" (1988:89).

We forget that science is the product of culture because we experience the knowledge that it produces as an objective reality. Mistaking the explanations for that which they describe, we lose sight of the fact, for example, that "biology is an analytical discourse, not the body itself" (1988:85). Or we speak of studying the "ecology" of an area, or of protecting an "ecosystem," as if as if the words corresponded to tangible things, rather than to theories and abstractions.

This objectivation of scientific narrative endows it with extraordinary power, for as a result it appears to merge with the world of nature (Berger and Luckmann, 1967:90). As Roland Barthes explains "the impression of human agency" is removed from such descriptions, so that we seem to be "dealing with indisputable facts" (quoted in Evernden, 1992:23). Science, consequently, is upheld as a universal authority, because its historical and cultural specificity is either denied or undetected by both its practitioners and their audiences.

Conservationists use science to better understand the issues at hand as well as to validate a desired version of events. "The environmental facts must be heard," we assert: "We must show the government that our criticisms are corroborated time and again by scientific research..." (TW, 1993). We cite the opinion of "experts" when describing the risks of development, just as we rely on biologists to describe the ecological significance of the places we are trying to protect.[4] When finances permit, we sponsor or undertake our own research to "get very solid scientific evidence" that will "prove once and for all" that areas, like the Tatshenshini, "must be preserved in perpetuity" (Ric Careless, quoted in Davison, 1992; and in Chard, 1992). Whenever possible, we also resort to science to discredit our opponents by showing their story to be out of touch with reality.[5]

They, in turn, employ similar tactics. Pointing to the extent and cost of studies which they have undertaken to protect the environment, they seek, through science, both to prevent and mitigate undesirable impacts,[6] and to vindicate their projects. They also aim to refute their detractors by demonstrating that technical solutions to environmental problems can be discovered and made available through scientific research: "legitimate concerns" (says Gerald Harper, former President and CEO of Geddes Resources) can be addressed (quoted in Reid, 1990). Meanwhile, the evidence presented by conservationists is dismissed as "romance," "misinformation," "conjecture," "myth" and a distortion of the "facts" (Haraway, 1988:577).[7]

The strategic importance of scientific argument in conservation/development disputes cannot be overstated. As stakeholders vie for public attention and control, their ability to impress decision-makers rides, more often than not, on the authority of science. Science, in other words, is inherently political, both in terms of the information that it provides and in terms of the way that information is subsequently deployed. Though it is widely regarded as neutral, science is in effect "a contestable text and a power field" (1988:577). It is a means of advocating and implementing social goals.[8]

Conservationists, like society at large, have invested heavily in science because it is believed to be an objective and therefore reliable guide to action (Evernden, 1985:88). It appears to free us from our emotional, impressionable and ultimately untrustworthy selves. This faith is expressed, for example, in Bill Devall and George Sessions's call for "more objective ecological criteria" in decision-making.

They point to the need "to move away from policy decisions based on subjective criteria such as 'public opinion' to more objective criteria based upon sound ecological principles" (Devall and Sessions, 1984:314). What these authors fail to acknowledge, however, is that the criteria and principles themselves are far from neutral. It is no mere coincidence, no simple matter of fact, for example, that ecology describes the world largely in terms of producers, consumers, productivity, competition, efficiency and (energy) exchange: according to Donald Worster, "in their most recent theoretical model ecologists have transformed nature into a reflection of the modern corporate, industrial system."[9] The economic metaphor reveals the driving resourcist assumptions of Western society.

"Science is a quintessentially human activity, not a mechanized, robotlike accumulation of objective information, leading by laws of logic to inescapable interpretation," asserts Stephen Jay Gould (1979:161). It is "always, in some measure, involved in matters of value and moral perception" concurs Worster (1985: xii). What these and other writers argue is that the facts of science are unavoidably coloured by the theoretical frameworks within which they are presented, and, further, that these frameworks are themselves socially constructed and therefore value-laden (Gould, 1979:161; Haraway, 1988:80).

"The detached eye of objective science is an ideological fiction, and a powerful one," says Haraway (1989:13). It is powerful primarily because we who live by it never think to question it. An integral part of our belief system, it passes for the most part uncontested, as does the world-view which it implies.

The Objectivity Imperative

In its official submission on the Windy Craggy proposal, the Sierra Club of Western Canada called for "an assessment of the ecological consequences of the project by an independent body of well recognized biologists" (SCWC, 1990). The request was indicative of the confidence with which most of us, I suspect, typically regard scientific evidence. It is presumed to be unbiased, and therefore indispensable to fair and impartial decision-making. Since the mandate of the decision-making body in this case, the provincial Commission on Resources and Environment, was to "neutrally administer" (CRE, 1992:16) land use allocation throughout British Columbia, the testimony of biologists, ecologists and other scientists was bound to play a key role. In its efforts to provide "information in which all parties have confidence," to "build agreement based on objective criteria," and to avoid disagreements over the "credibility and neutrality of information," (ibid, 20, 21, 29) the commission had little choice but to look to the authority of science to consolidate its own. In turn, the credibility of the decision-making process was linked to that of the Provincial Government which was likewise "committed to a careful, reasoned approach to difficult land use and resource development issues, based as far as possible on an objective evaluation of factual information as well as stakeholder views" (BC, 1992). Legitimacy and power at all levels rested on a convincing display of neutrality.

In order to be heard, Tatshenshini supporters had to demonstrate a similar commitment to objectivity. In many respects, this parameter was helpful, for it provided a platform from which to mount a persuasive yet seemingly disinterested defence. It allowed us to argue, for instance, in the name of a "biological imperative" which dictated that large tracts of wilderness had to be protected if biodiversity were to be preserved (SCWC, 1990). We were able to step outside a strictly utilitarian paradigm and to advocate impartially on behalf of species, populations, ecosystems, landforms, water quality, habitats, migration corridors, and so on. Of equal tactical importance was the fact that we could plead in the interest of science itself.

Ric Careless, a founding member and executive director of Tatshenshini Wild, used precisely this approach when discussing the issue in an interview with the *Whitehorse Star* (Davison, 1992).[10] Distancing himself from the more self-interested wilderness recreation arguments, he redefined the stakes in terms of their scientific significance:

> *When we first got involved in this issue, we thought we were dealing with the protection of a spectacular river, spectacular mountains and big ice fields [...] what we've come to realize is that the wildlife and biodiversity values in there are exceptional.*

The Tatshenshini was portrayed as a "major wildlife corridor" through the St. Elias Mountains, which provided critical denning habitat for grizzlies. It would be an ideal site for a permanent research station, maintained Careless, and regardless of the land use dispute, represented a golden opportunity for science:

> *Even if we didn't have a wilderness proposal, even if we didn't have a Geddes proposal, this area would still be top-rank to find out how this planet of ours operates [...] there is hardly any other opportunity to study an area that is so intact with the diversity of biological systems we have in there.*

The underlying thrust to his argument was that society could not allow this unique place, nor this rare chance to further human knowledge to be jeopardized.

Implications of Objectivity

The story of objective science, which has dominated scientific thought and practice since the Renaissance, is based on the Baconian understanding that reality is made up of physical objects which behave and interact in accordance with natural law.[11] In this material world, humanity's place is that of the knowing subject whose role it is to measure, manipulate and master the "mass of miscellaneous stuff" (Worster, 1985: xi) known as nature. Through the application of reason and technique, we describe, quantify, then commodify and exploit a world devoid of agency and spirit (Worster, 1985: xi).[12] In our quest for control we adopt a posture of detachment and dominance over the object - nature - which we meticulously "scour" of projected normative qualities (value, meaning, mood) (Evernden, 1992:39).

Inherent in this world-view is the absolute separation of human from nonhuman nature, of subject from object. As Charles Bergman explains, "knowing animals objectively" means "distance from and power over nature" (1990:228).[13] Indeed it is this unbreachable, institutionalized gulf between *us* and *them* which gives science its credibility. According to Evernden:

> *To be objective in this sense, is to be uninvolved – to be the neutral observer who is believed to be the most reliable guide to action. Since by this understanding the objective person is not personally committed, he has no vested interest in that which he views. Neither does he have any obligation towards it (1985:88).*

Sandra Harding likewise argues that scientific authority is based on the effective policing of the boundary between rationality and social commitment (1986:124). It relies on the assumption that feeling and ethical judgement can be suspended by describing the living world solely in terms of its quantifiable, material manifestations.

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This perspective is particularly well-suited to the designs of industry, for it facilitates an imperialistic stance towards nature, where the desired end is not so much knowledge as control. Barry Lopez makes the following comment, for instance, regarding scientific/industrial exploration in the Arctic: "Whenever we seek to take swift and efficient possession of places completely new to us, places we neither own nor understand, our first and often only assessment is a scientific one" (Lopez, 1987:204).

Not surprisingly, proponents of the Windy Craggy project were hoping to advance their cause by restricting the scope of environmental debate. Anxious to narrow the focus of discussion, the mine developers, Geddes Resources, criticized government review comments for being "too broad-based to be realistically answered" and for not "sufficiently defin[ing] the scope of the work" to be done. Of special concern was the extent of wildlife studies required, and whether these should not be limited to direct mine impacts (Hendrick, 1991). It was in the company's interest, of course, to limit debate to matters of science and technology, and in so doing to marginalize or exclude the emotional and ethical arguments which might sway opinion towards the preservation option. It was for this reason, I suspect, that Geddes announced "a series of open house events at which scientists [were to] be available to discuss some major areas of interest" (Morphet, 1990). These included acid mine drainage, water quality, hydrology and glaciology, all of which fit safely within the parameters of "objective" science.

Such technical issues dominated the official review of the mine and as a result, Tatshenshini advocates devoted considerable time and effort to developing expertise in each. For strategic reasons, it was deemed necessary to enter into the prevailing mindset and to be able to converse on those terms. In this, science served as both a tool and ally, furnishing the data, the objective outlook and the requisite air of authority. Proceeding on the assumption that scientific evidence would favour the preservation option, conservationists also insisted that further studies be conducted in virtually all aspects of the mine proposal, and that it be subjected to rigorous environmental reviews in both Canada and the United States.[14]

Given the final outcome of the dispute, our confidence in this regard seems to have been justified. Yet as Evernden, David Ehrenfeld and others have shown, science can be used in any number of ways: it has no inherent bias towards nature preservation (1992:9; 1981:199). On the contrary, science is committed to progress and problem-solving, which is the antithesis, really, of the "deeply conservative feeling of distrust of irreversible change" that motivates the preservationist (ibid.,178). Science favours a more "optimistic" perspective, one based on the belief that, with time and ingenuity, humans can come to a "fully accurate understanding of nature," and thus master all obstacles.[15]

The reluctance of decision-makers to reject outright the Windy Craggy proposal, despite almost unanimous "expert" agreement about its serious technical flaws,[16] testified to society's unwavering faith in the capacity of science to overcome all difficulties. Additional research into mining and mine impact management was urged by business and government alike in the hope that it might be possible to "reduce or eliminate inherent risks" (CRE, 1993:101-105). In that event, CORE could conceivably have recommended the mining option since it would have satisfied most, if not all of its land use objectives. Specifically, environmental impacts could, theoretically, have been "minimized" while market-related economic benefits were "maximized."

Tatshenshini advocates were reluctant to even contemplate such a possibility, however, since outright preservation was the goal. Most of us seemed to agree that if the mine were developed, wildlife impacts, habitat damage, spills of toxic substances and other accidents would occur. We pointed to the "unproven" technologies, the "experimental" methods and the "serious risks" that Windy Craggy entailed, and called for "prudence", "adequate assurance" and "absolute guarantees."[17] It is ironic though, that even as we asked for proof and further research, we denied that this could ever make the mine acceptable. "It's impossible to have a huge industrial complex in the middle of a wilderness - the two are not compatible," stated Haines lobbyist Peter Enticknap (quoted in Ripley, 1991). You cannot be "half pregnant," concurred Careless (quoted in Hendrick, 1991). Perhaps then, we were being somewhat less than consistent in our demands for additional studies of the Windy Craggy proposal and of the Tatshenshini area. If it were true that we had no intention of accepting a compromise, then it seems we were resorting to a subterfuge.

The objective science subterfuge proved undeniably useful. Its metaphors and explanatory frameworks were well-suited to the institutional context within which the matter was debated. In retrospect, however, as a key argument in our rationale for conservation, it strikes me as both confusing and disturbing. For one thing, it implied that we shared with Geddes, CORE and other stakeholders a common understanding of what constituted *conservation*: in this case, the prevention of acid mine drainage and the mitigation of road impacts on wildlife, particularly fish and game. The question then is whether our understanding did indeed fit this neat and narrow interpretation. Would we have been satisfied with a "clean operation," an "invisible" access road, and "measures to protect and assist the wildlife populations," (Harper, quoted in Reid, 1990) if this had been possible?

On the contrary, it seems that few if any of us equated protection of the Tatshenshini with feats of engineering. We were moved to defend the whole, not just isolated parts or percentages. We feared that the mine would "desecrate", "scar" and "violate" a "temple of rock and ice," a "world treasure," a "magical" place of "untouched beauty and boundless nobility," and the fervour in our language testified to the moral and emotional dimension of our commitment.[18] The distance suggested by an objective approach to the issue belied the great importance that we attached to the meaning of the place, and to our relationships with it. Evernden writes that environmentalists are defending cosmos, not scenery, and I believe that this was the story of most Tatshenshini advocates (1985:124).

Science and Partial Perspective

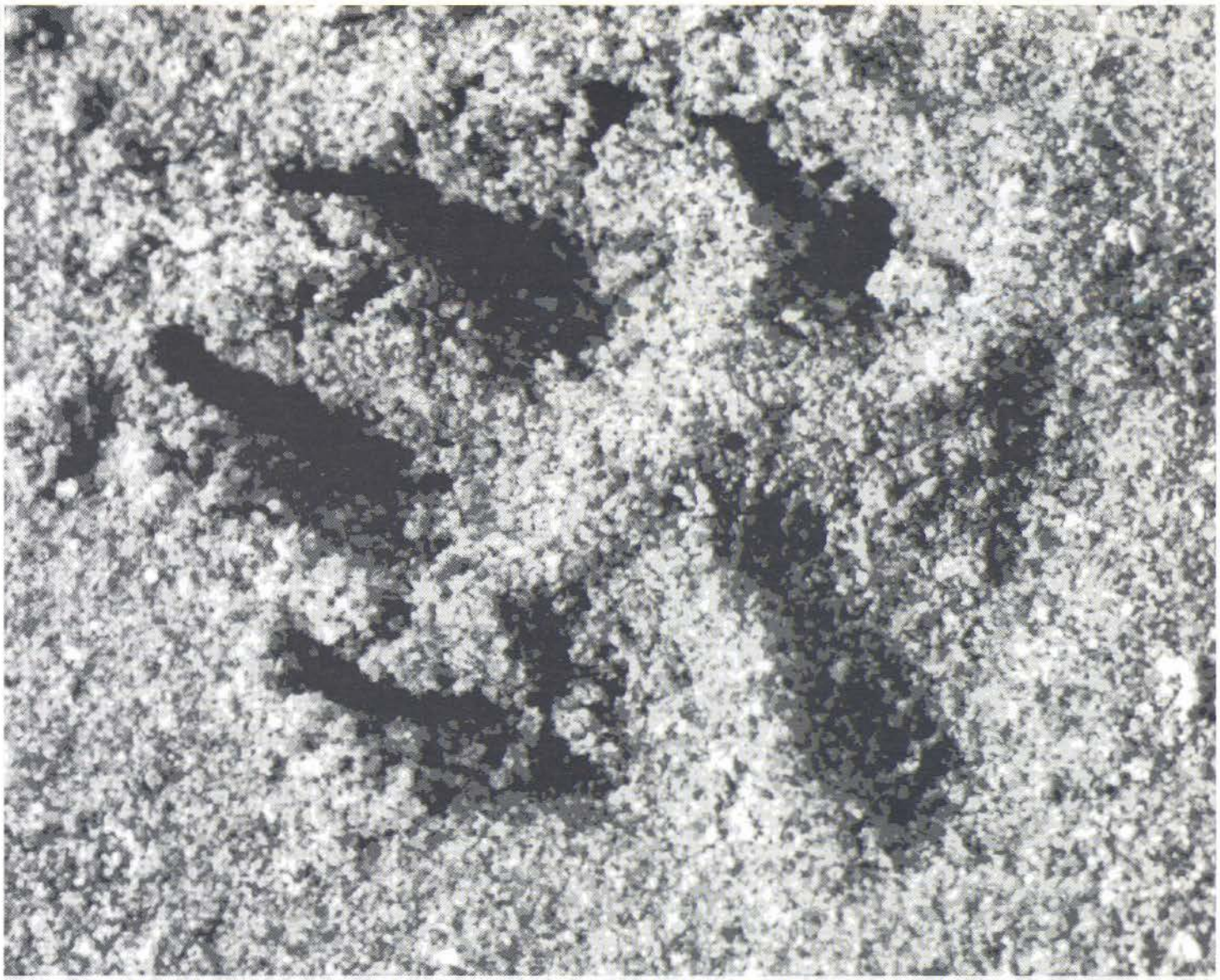
The role of science in conservation is fraught with ambiguity. Reflecting on his involvement in a biological study which required the killing and dissecting of seals, Lopez discusses his feelings of ambivalence:

> *I understood some of the extenuating circumstances, and that, ironically, environmentalists would have these data to stand on in a court of law. But I had no finished answer. I stood uncomfortable, like so many, in the middle of the question (Lopez, 1989:161).*

Science cannot possibly capture the complexity (social, ethical, spiritual) of the problems we face, nor even necessarily those aspects we regard as most important,[19] yet it commands staunch and uncritical allegiance. The scientific perspective, like all human perspectives, is partial, as Lopez suggests in the following:

> *It is hard to say exactly what any animal is* doing. *It is impossible to know when or where an event in an animal's life begins or ends. And our human senses confine us to realms that may contain only a small part of the information produced in an event (1989:201).*

Conservationists seem most reluctant to admit or address the limitations of scientific knowledge. Perhaps we are afraid to challenge its authority for fear of jeopardizing our own credibility.



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Perhaps, as products of our culture, we simply fail to see that science is indeed a "story-telling practice" (Haraway, 1989:4). Whatever the reason, the result of our unquestioning compliance has been limited understanding and the concentration of decision-making power in the hands of an "expert" elite.

Commenting on the cultural and historical specificity of primatology, Haraway remarks that the scientific way of looking at monkeys and apes has been "inconceivable to most men and women" (1988:78). Indeed, scientific accounts have been given special privilege at the expense of the vast majority of humankind whose testimony and experience are relegated to the periphery. In his critique of "radical" American environmentalism and wilderness preservation," Ramachandra Guha relates, for example, the anecdote of an American biologist in India who declared that "only biologists have the competence to decide how the tropical landscape should be used" (1989:75).

With respect to research that needed to be undertaken on the Tatshenshini, consultant Juri Peepre discussed the privilege and limitations of the Western scientific perspective. Basing his comments on the work of J.A. Cruikshank, he explained that science is seen, mistakenly, to be a "superior model of explanation," and that the oral tradition of aboriginal cultures is considered useful only if it "confirms views put forward by scientists." He warned that scientists were ill-equipped to understand traditional aboriginal knowledge because of their narrow epistemological framework, and concluded that "our usual scientific approach to inventorying wilderness resources is not good enough" (1992:93).[20]

Critical views, like those of Peepre, are becoming increasingly familiar in conservation circles today, and yet how we might move, as he recommends, beyond narrowly scientific approaches to accommodate other knowledges remains unclear. Alternative perspectives continue to be marginalized, in part because of societal expectations and institutional givens, but also because conservationists are willing to fashion their efforts to suit accepted story-lines. Such conformity is understandable. Being practical, reasonable and efficient means amassing and making use of the facts and figures that will win the day, including those provided by science. As a result, however, dominant understandings assume a self-fulfilling potency, their short-comings and questionable implications neither acknowledged nor dealt with.

While I do not wish to suggest that conservationists should or could afford to do without science, I do think we might call the bluff of those who pretend to objective, value-neutral information and argument. The point of doing so would not be to dismiss science, but to challenge its prerogative. As Evernden suggests, we must look for "a new conversation, one in which the 'voices' permitted are not limited to those of practical activity and science" (1992:102). Despite the great range of human inquiry, writes Lopez, no one thinks to call in painters, musicians, novelists, historians, philosophers or theologians to comment on or respond to the issues which confront us (1989:146; 1987:24). It is time for conservationists to contest this imbalance and the restrictions that it places on environmental debate.

Notes

1 Anne Bell, *Conservation Stories: Protecting the Tatshenshini*, (Unpublished Major Paper submitted to the Faculty of Environmental Studies, York University, 1993).

2 See also Morris Berman regarding the split between fact and value that characterizes the modern age, in *The Reenchantment of the World*, (New York: Bantam, third printing, 1989) 4.

3 Regarding the aesthetic of realism, see Donna Haraway, *Primate Visions: Gender, Race and Nature in the World of Modern Science*. (New York: Routeledge, 1989) 4.

4 See, for example, Canadian Parks and Wilderness Society, fund-raising letter, (Fall 1992); Western Canada Wilderness Committee, "Save the Tatshenshini...The Wildest river in North America," 11:2 (Vancouver: Spring 1991); World Wildlife Fund, "Endangered Spaces" (Toronto: Summer 1991).

5 See, for example, the Sockeye Society of Haines Alaska, memo to Michael Dunn, Environment Canada, and *Response: Windy Craggy Project: Revised Mine Plan: Stage 1, Environmental and Socio-Economic Impact Assessment*, (Haines, February 1991) 4,6,16.

6 See "B.C. mine official denies claim project a threat to wilderness," *The Vancouver Sun* (03/22/90); Mark Hume, "River of conflict," *The Vancouver Sun* (04/28/90); Geddes Resources Limited, "Windy Craggy Project Public Information Meetings," report prepared for the Mine Development Steering Committee, Government of British Columbia, (Vancouver: May 1990) 63; and "Ore in abundance, Geddes says", *Chilkat Valley News* (10/04/90).

7 See, for example, B.C. Environmental Information Institute, "Member's Bulletin," (Vancouver: 12/13/91) 2; John Schnabel, "Benefits abound if mining done in environmentally sound manner," *The Anchorage Times*, (03/12/92); Harper, "Presentation on Windy Craggy", (Whitehorse: 10/12/89); and "B.C. mine official denies claim project a threat to wilderness," *The Vancouver Sun* (03/22/90).

8 See Evernden (1992) 15.

9 See Donald Worster, *Nature's Economy: A History of Ecological Ideas*, (Cambridge: Cambridge U.P., 1985) 292-294, 311-315; see also Berman, 37.

10 Careless uses the same approach in Chard (07/08/92) and in the Tatshenshini Wild fund-raising letter (June 1992).

11 See Berman, 2, 15-17 as well as Worster's discussion of the "imperial" tradition in ecology; See also Evernden (1992) 99.

12 See Haraway, "Situated Knowledges", 592 regarding the denial of agency in the analytic tradition; and Berman regarding "the mechanical philosophy", 2.

13 See also Berman, 15-21.

14 See Mark Hume, "River of conflict," *The Vancouver Sun*, (04/28/90); Glenn Bohn, "U.S. groups join fight for B.C. river," *The Vancouver Sun*, (10/29/91); and literature from such conservation groups as the Canadian Parks and Wilderness Society, Lynn Canal Conservation Inc., Western Canada Wilderness Committee, World Wildlife Fund Canada and Tatshenshini Wild.

15 See Ehrenfeld regarding optomistic assumptions; Haraway regarding "commitment to progress" (1989) 4; and Berman regarding the myth of progress, 75.

16 See, for example, J.C. Errington and F.J. Hall, Ministry of Energy, Mines and Petroleum Resources, Memo to Norman Ringstad, Mine Development Steering Committee (03/26/91).

17 See the submissions of the National Audubon Society (Memo to Norman Ringstad, Mine Development Steering Committee, Washington: 12/01/91), the Sierra Club of Western Canada, the Sockeye Society of Haines Alaska, the World Wildlife Fund, Western Canada Wilderness Committee, and Tatshenshini Wild (press release, "Revised mega mine plan poses even greater environmental threat to world class Tatshenshini wilderness" (01/28/91).

18 What understandings of conservation do these expressions evoke? See Bell regarding preservationist and wilderness stories, 39-66, 86-100.

19 See Jack Turner regarding conservation biology, "The quality of wildness: preservation, control, and freedom," in Dacid Clarke Burks, ed., *The Place of the Wild*, (Washington: Island Press, 1994).

20 Peepre quotes J.A. Cruikshank's "Legend and Landscape: Convergence of Oral and Scientific Traditions in the Yukon Territory," from Arctic Anthropology, xviii-2, 1981.

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