INTELLECTUAL RESPONSIBILITY FOR AN ECOLOGY AGENDA

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I: FROM HARAWAY TO BACON THROUGH WORLD WAR II

After Auschwitz and Hiroshima—using these words as labels and signifiers of many phenomena and issues—I think we all would agree that technoscience (in Bruno Latour's sense of 1987) is not only the contested ground for debates informed by technophobia and technophilia (see, e.g., Hickman, 1985, Part I), but is also the site where personal and public responsibility should be scrutinized under a magnifying glass. Whatever the question, whether rainforests or urban pollution, responsibility is traversing the private/public domains along a conceptual path that is often called "globalism." This framework itself tries to maintain a dialectical balance between localism and globalism; yet, as Andrew Ross says, this "globalist move is not taking place in a political vacuum" (Ross, 1991, p. 221).

Philosophical debates about the environment, deep ecology (e.g., Naess, 1973) or feminist ecology, the Gaia hypothesis or energy conservation, recycling or the life-world, are articulated within particular frameworks that remain informed by political pressures, regardless of their globalist/universalist pretense. More specifically, the European and North American framework is more informed by free market ideology than by socialist or anarchist concerns. Hence, the "treatment" of the environment is posed as an issue for which every citizen is equally responsible, instead of focusing attention on the prime violators or corporate abuses. It goes without saying that indeed every individual contributes to the pollution of the environment in some fashion; but such an admission fails to account for the disproportion of pollutants in terms of the geographical location of manufacturers and their immediate surroundings.

The question, then, is not whether or not there is a political dimension that must be accounted for in the philosophical debates over ecological responsibility, because the answer is obviously yes. Instead, the question should be, under what conditions will the management of ecological responsibility be

enhanced rather than retarded? Assuming for the moment first, that technoscientific debates are important after World War II, when the conceptions of both universalism and nationalism collapsed (Sassower and Agassi); second, that ecological debates are philosophical in nature and are to be contextualized politically and economically; and third, that both technoscientific and ecological debates are predominantly informed by a confused capitalist ideology, what can we say then?

We have to begin our exploration by clarifying, at least provisionally, what we mean by the term environment, or its historical antecedent, nature. For Donna Haraway, there is an urgent concern with "Nature" and its meaning at the dusk of the twentieth century. To begin with, she claims that, "Nature is a topic of public discourse on which much turns, even the earth." She earlier says that, "Nature cannot pre-exist its construction, its articulation in heterogeneous social encounters, where all of the actors are not human and all humans are not 'us', however defined" (Haraway, 1992, p. 67). In this respect she goes beyond the definitions commonly used by cultural critics, urging the consideration of animals as equal participants in the environment. She continues: "We must find another relationship to nature besides reification, possession, appropriation and nostalgia" (*ibid.*, p. 65), pleading for a more comprehensive and interactive public discourse.

Though future-oriented in a fashion that stretches contemporary discourse beyond the confines of accusation or apology, Haraway also echoes some of Francis Bacon's claims concerning the study of and interaction with nature. Now I should make clear from the outset that my aim is neither to reduce Haraway's thought to that of Bacon's nor to show that there "is nothing new under the sun." Instead, I wish to trace historically an idea and its critical development over the years. In doing so I wish to reaffirm a postmodernist orientation that mixes different historical texts deliberately and juxtaposes seemingly contradictory texts in order to rethink the worldviews which they implicitly endorse and the applications which were undertaken in their name.

Before I begin a brief reconsideration of Bacon's intellectual injunctions, it may be useful to take an etymological break, and review the lexical mess accompanying the term ecology, a mess that require thinkers such as Haraway to come up with their own definitions. "Ecology" is not defined by the definitive

Oxford English Dictionary and is mentioned in the Supplement of 1981 without a definition; in old dictionaries (e.g., *The Advanced Learner's Dictionary of Current English*, 2d ed., 1963), it is defined as the "branch of biology that deals with the habits of living things, esp. their relations to their surroundings"; and newer dictionaries (e.g., *Webster's New World Dictionary*, 2d ed., 1978) allude to the Greek origin of the term oikos as house, and provide multiple definitions: "(a) the branch of biology that deals with the relations between living organisms and their environment, (b) the complex of relations between a specific organism and its environment 2. *Sociology* the study of the relationship and adjustment of human groups to their geographical environment."

I rehearse some of these dictionary definitions in order to illustrate how far behind our "standard" inscriptions remain when we deal with or confront the immediacy and urgency of ecological problems. *The* ecology is more than a "branch of biology"; it is life as we know it (in Haraway's sense), perhaps not with a capital L, but definitely with a multiplicity of interpretations, all of which contribute to the pervasiveness of the "presence" of humans in their environments, in their public discourse about Nature. When speaking of ecological issues, one is by definition implicated in speaking about technoscience and nature, two interrelated concepts that draw their definitions from each other since neither has logical or historical primacy. Even Francis Bacon, that villain of many feminist critiques (e.g., Keller, 1985), understood that the encounter between humans and their environments had to be visually and linguistically mitigated by what has become technoscience: "Man, being the servant and interpreter of Nature, can do and understand so much and so much only as he has observed in fact or in thought of the course of nature. Beyond this he neither knows anything nor can do anything" (Bacon, 1985, p. 39) "Human knowledge and human power meet in one; for where the cause is not known the effect cannot be produced. Nature to be commanded must be obeyed; and that which in contemplation is as the cause is in operation as the rule" (Bacon, 1985, p. 39)

After discussing the Idols of the Tribe, Cave, Market Place, and the Theater, all those obstacles to human understanding and presentation of natural phenomena, Bacon continues to claim that, "The human understanding is of its own nature prone to suppose the existence of more order and regularity in the world than it finds" (Bacon, 1985, p. 50). While doing so, different individual minds "easily err in excess" no matter if their strength lies in finding natural

resemblances or differences (Bacon, 1985, pp. 54-55). It is within this context that Bacon claims that "the true and lawful goal of the sciences is none other than this: that human life be endowed with new discoveries and powers" (Bacon, 1985, p. 78). I know that it is commonplace to view Bacon as the main culprit in the Enlightenment zest for the conquest of "Nature" (whatever that may mean) and the post-feudal developments of capitalism with the aid of science and technology.

But there is already in Bacon a different meaning of the interaction between organisms and their surroundings, as the dictionary calls it, one that watches out for philosophical prejudices and linguistic conventions, one that is concerned with power, as in the aphorisms of *The New Organon* quoted above. When human knowledge and human power meet, it is a meeting of the minds, so to speak, where the power of the imagination or intellectual power or the power of critique is just as much at stake as the so-called brute power of the machine. When the mechanistic views of the world are proposed around Bacon's time in order to replace prior demonic and supernatural ones, it is he who warns against the presumption of too much order in and regularity of nature, and suggests that any sort of systematic organization is imposed on the environment by us, humans, with all our frailties and errors. For him the sciences are supposed to endow human life with new discoveries and powers. Discoveries, in turn, are new when they are presented as such, since he, no less than Haraway, remains a naive realist through and through. Hence, so-called discoveries are constituted as such by an intellectual exercise that transforms a vision or a collection of sense data into discoveries; in the same fashion, the endowment of human life with power is much more intimately connected in this context to the power of the imagination to organize its worldviews than to survive or "harness" nature.

I must repeat that I do not mean to defend Bacon against his numerous critics nor to argue that he has been shamefully misread by generations of highly competent scholars. Even when I claim that Bacon's ideas are important, this claim is not an endorsement: import is measured against the criterion of critical evaluation, and especially if the said ideas are refuted in one form or another. Bacon's scientific theories were refuted and his methodological principles of induction were shown inapplicable in many instances. But it is not the specifics of his theories and principles I wish to discuss here. Instead, I wish to suggest that even Bacon the sexist "rapist" of nature shows sensitivity to the problematic articulation of the relations between humans and nature. Bacon the naive

inductivist of the seventeenth century is concerned much more with method and with formulating universal rules of thought and conduct that would enhance the understanding of nature than with the conquest of nature in terms of the industrial revolution. This does not turn him into a radical feminist critic of the twentieth-century genre, of course; yet tracing the discursive features already acknowledged by Bacon and later more fully developed by a diverse group of scholars such as Haraway should remind us of the public responsibility intellectuals have in light of the horrendous events of World War II.

II: CRITICAL REVIEW OF CURRENT TRENDS

In order to argue more forcefully about the specific political-economic perspective I think most appropriate for discussions about ecological concerns, it would be helpful, even if only briefly, to review in broad brushstrokes—that is, in extremely general and misleading terms—three of the standard current trends in the literature that cover the ecology. First, there are numerous assessments, those of government agencies, like the Office of Technology Assessment and the Environmental Protection Agency, academic risk-benefits analyses, and privately funded assessments that are sold to the highest bidder. These technically-sophisticated reports constitute in most likelihood the bulk of the literature that deals or is concerned with the ecology (see, e.g., Shrader-Frechette, 1988). Whether the users of these reports are the conformist conservatives who shield corporate America from any hindrance to profit optimization and capital accumulation or the radical leftists who attack the hegemonic ideology of free marketeers, all users of these reports use them as articles of faith in order to legitimate their own methods and data.

It is arguably defensible to suggest that assessment reports ought to be mastered even by their critics in order for them to "speak this language more proficiently than the dominant culture" (Ross, 1991, p. 120). Yet there is always the danger that while learning to speak proficiently, the very privilege accorded to the documentation of dominant culture and the implicit agreement to play by the rules of that culture in terms of its technoscientific jargon, there is an immediate loss of power, an inescapable that the site of confrontation is designated by the military-industrial-information-university complex. I know not what to say or do about this situation, for in my concern there appears a utopian vision of a day when the site of confrontation, even more than its outcomes, could be

democratically decided upon or chosen through a procedure that would recognize the legitimate concerns of the counterculture or the various social movements and subcultures that are affected by the technology that is being assessed. Incidentally, this utopian vision comes closer to Lewis Mumford's (1962) than to Plato's.

Second, a great deal of the critical literature that deals with the environment can be subsumed under the label social and political, ranging from the critiques of Marx and Engels to those of Bookchin (1971, 1989). The particular political commitment of the critics becomes the background with which these individuals formulate their specific concerns, be they understood in communal, "left libertarian," or anarchistic senses. It is difficult to summarize or review the diversity of views that come under this label, not only because of their range but also because they unwittingly or deliberately mix standard principles and metaphors associated with the "right" and the "left."

I think it is reasonable to suggest that these critiques are religious/spiritual in their orientation, since they draw a great deal of their inspiration and vocabulary from the biblical concern with the expulsion from the Garden of Eden that forced humans to toil the land for their survival. This religious depiction of the alleged human condition claims to have substantiated once and for all the view that ours is a world of scarcity rather than abundance. The far past, that of the Bible with Adam and Eve, offered abundance; but the present, no matter if it is the present described by Malthus in his alarmist treatise on the disproportionate growth of population relative to the growth of foodstuff production or that described by late twentieth-century critics, is one wherein scarcity controls our modes of behavior and thought simultaneously (Bender, 1990; Sassower, 1990).

Post-scarcity rhetoric acknowledges the inadvertent shift away from a harmonious to a competitive stance toward nature. Human existence is understood to be alienated from its surroundings by contrast to the understanding of the indigenous people of the Americas, for example; this alienation necessitates, so the argument goes, a competitive rather than a harmonious orientation toward the environment. Haraway's critiques of the language we use when speaking of the world (e.g., proposing "cyborgs" as a term that includes machines in the establishment of supposedly exclusively animated objects) problematize traditional conceptions of alienation associated with Marx (e.g., Haraway, 1991, chapter. 8;

Haraway, 1992). In this broad second category of the literature I suppose one could find feminist critiques as well as those of socialists, anarchists, old-fashioned liberals, and brash libertarians of the right or the left. It is a literature that still flirts with spiritual overtones, but that claims that the road to utopia must be fought politically.

Third, there is a great deal in the literature about ecological issues that is explicitly spiritual, both of the religious and the secular sort. This kind of critique approaches not only "nature" or "the world" as sacred, in the sense already suggested by Spinoza in his conflation of God and Nature, but considers as sacred also the very relations that take place between humans and natural phenomena, among humans themselves, and among natural phenomena. The explicit religiosity of the critiques can be observed in texts such as Frederick Ferré's (1988) or in more implicit terms in the staple literature on technology, such as Jacques Ellul's works (1964) or those of Hans Jonas (1984). It is a religiosity that begins with a biblical "fall," here technological and not only moral, and ends with some form of redemption and salvation, either of the sort that propounds some escapism (as in Erazim Kohak's 1984 visions) or diligent appropriation of more technological fixes to repair past damages (as in Joseph Agassi's 1985 more secular renditions of this sentiment). The spirituality evoked in the third stream of critiques is evident in the texts of deep ecologists and phenomenologists, from Kohak to Albert Borgmann (1984).

I should reiterate at this juncture that my concern here is neither with a survey of the literature on ecological issues in technoscientific terms, nor with a classification of all works in this literature into distinguishable streams or trends that are easily recognized. I tried to invoke some economic terms and cull the political dimension of these trends in order to facilitate the remainder of my discussion.

III: ECONOMIC FEATURES OF A RESPONSIBLE ECOLOGY

Bacon and Haraway are not as explicit about the economic conditions of the discourses with which they are concerned, whether understood realistically by Bacon or constructively by Haraway. Ross's comments come closer to the concerns I wish to address here, namely, those economic settings within and around which political decisions are being made concerning the environment.

Back to globalism. It is impossible to invoke a globalist worldview theoretically and try to implement it locally, for the political framework stands in the way of economic incentives and disincentives that supposedly will guarantee a safer and more hospitable environment. National boundaries in the form of nation-states are still the ones with whom it is necessary to negotiate specific policies. When nation-states agree to meet, say, in the United Nations, they retain their respective interests and refuse to behave globally. All this is well documented and requires no further elaboration. The roots of this behavior is also well understood, and the consequences are all too apparent to anyone traveling around the world.

Following some of the literature on developmental economics—as a discourse that remains faithful to the notion of a political economy, as opposed to economics and politics as two distinguishable sciences—I wish to suggest the following. If the international community adopted a mechanism of the redistribution of wealth, then individual nation-states could adopt far-reaching egalitarian and liberal principles. This proposal sounds counter intuitive, for it mixes principles from allegedly contradictory models, those commonly associated with marketplace capitalism and collective planning socialism. But as welfare economics has taught us, no "pure" models can be expected in the marketplace; mixed models, just as mixed metaphors, rule the practices of humans, no matter what languages or dialects they happen to speak.

Developmental economics is the shorthand label given to a variety of twentieth-century theories that deal with the discrepancies that characterize the international marketplace in terms of first, second, and third-world countries, in terms of rich and poor countries, or in terms of the northern and southern countries. Developmental economics in its various manifestations is—whether self-consciously or not—the backdrop against which ecological critics articulate their concerns over the consequences of technoscientifically-informed modes of production, distribution, and consumption (e.g., Agassi, 1991). The spectrum of models for development includes Rosenstein-Rodan's (1973) with its "big-push" principle (aid to developing countries must be given in a great enough quantity up-front to ensure the establishment of an infrastructure to accommodate localized plants, and Schumacher's (1973) with its "small is beautiful" principle (aid to developing countries must be done with an appreciation of an "appropriate technology" catered to the specific conditions of these countries). Both of these models and many others that locate themselves in between them reflect an

awareness of the need to figure out the technological apparatus with which to approach developmental projects and the implications of different technologies for the environments in which they are introduced.

But it is not only technology proper that is on the agenda for those concerned about the environment, but also the ability to pay for ecology-friendly projects that may or may not be more expensive than their ecology-hazardous ones. Without the prosperity of some nation states and their willingness to be heavily taxed, there is no chance of bringing about any change in the current deterioration of the environment. North Americans' ecological vows of yesteryear are the future vows of Latin Americans; whether the gap is one decade or three is irrelevant. What is of extreme relevance is the fact that crises (understood in Marxian or other terms) occur in proto- and post-capitalist environments with a greater rapidity than anyone expected, and that, furthermore, in order to handle these incessant crises, more and not less technology is needed (Agassi, 1985). Let us examine this situation briefly.

Capitalist modes of production, distribution, and consumption take their toll on the environment, from the simple fact that manufacturing uses energy, that distribution requires transportation, and that most consumption is wasteful. Regardless of the details, it is clear that no matter how beneficial scientific technology remains to this day, its development and implementation, its replacement and maintenance, cost a great deal of money. Efficiency is achieved expensively even under the promise that great savings will result eventually. And some of the damage done to the environment cannot be repaired no matter at what price. At the same time, what is the price of not developing certain regions of the world? Should the principle of scarcity or that of abundance be employed? What views of humanity should we adopt according to which to measure the value of human life? All of these questions must be addressed economically—that is, socially and politically, which, incidentally, is inevitably also philosophically—and not left to spiritual musings or the dictates of self-appointed environmental bookkeepers.

Coming back to the framing of the intellectual agenda: the matrices of discourse must include economic conditions and consequences, those that are subsumed by political institutions and modes of control, those that enhance or retard technoscientific proliferation, those that are open to critical evaluation.

Perhaps all I wish to say here is that contemporary debates over the nature and function of post-Fordism or the particular operations of flexibly accumulating economies or the dissemination of labor-power roles in an information age that is fueled by hardware and software interaction are all important factors that condition our critical perceptions of the ecology and color the proposals we think worthy to debate publicly (Harvey, 1989). In short, to speak philosophically about the ecology necessitates considering economics, however broadly one defines this term. The discussion of the economy would bring about a recognition of the ideological assumptions and cultural consequences that are connected to economic circumstances and constellations.

IV: CONCLUDING REMARKS ON THE ROLE OF INTELLECTUALS

Perhaps Ross is right in suggesting that "The task of renewing left traditions of technofuturism today draws its appeal, for the most part, from the utopian underpinnings of the new social movements" (Ross, 1991, p. 7). Utopianism, by contrast to the reformist stance of piecemeal engineering or piecemeal technology (Popper, 1957), has a critical and revolutionary orientation. Its appeal is that it promises to do away, once and for all and in one sweep, with all the injustices and misfortunes of the past. There are advantages and disadvantages associated with the two contrasting views of change and progress, utopianism and reformism, but I will only point out here that both are future-oriented, and both require an ideal or telos toward which they strive, whether gradually or radically. The future is envisioned in both views as constituting a better environment than the past and present, and in that sense is ideal.

How does the intellectual, the academic, the university professor, fit in this prescriptive formulation? As far as Ross is concerned, "The traditional function of the polemical critic lies in making *interventions*, in using his or her position as an intellectual to enter into the more general public debate about the shape of cultural politics" (Ross, 1991, p. 28). For Ross, then, the foremost task of the intellectual is to intervene in public debates, to use an intellectual and professional position strategically in order to make a difference. This view follows Marx's famous Eleventh Thesis on Feuerbach: "The philosophers have only *interpreted* the world, in various ways; the point, however, is to *change* it." Perhaps because of my own intellectual history, I would add two other functions

of the polemical critic or the philosophically minded critic that I believe may even precede the ability to intervene or that may complement one's ability to change the world.

It seems to me that any form of critique has two interrelated aspects that have to be recognized as different in some regards. On the one hand, one does it in the sense of providing a critique, writing a critique that is of course simultaneously descriptive and prescriptive, that deconstructs while reconstructing an alternative. On the other hand, there is also a process whereby one trains or inspires others to participate in the doing of critiques. On this level, the critique is not so much concerned with the details of the analysis or the accuracy of the description or the consistency of the prescription. Instead, the critique is supposed to appeal to someone else's sensibilities or interests, shock someone into considering this particular critique of environmental waste, for example, or the devastating effects of radiation. If a critique is superb, as few are, it incorporates these two dimensions for heuristic purposes.

However, on various occasions the polemicist or the philosophically-minded critic focuses or emphasizes only one of these features, thereby drawing a great deal of opposition and at times an outright dismissal from colleagues and the public alike. For example, various technology assessment or risk-benefit analysis reports are presented in technical jargon that is so inaccessible that the potential for these reports to serve as critical tools is lost on anyone but those who wrote them. By the same token, inspirational pieces by postmodernist critics, say French writers such as Baudrillard, are dismissed as incomprehensible rhetorical devices that are quite useless as critical tools to deal with specific technological problems. Let us recall the three current trends of contemporary ecology critiques.

It seems to me that the first critical option, that of assessment reports, is shunned by most critics, for it requires the kind of technoscientific expertise that is too demanding and time-consuming. Moreover, there remains the fear that once this particular language game is entertained, the possibility of remaining informed by the "inside" of the system while maintaining a posture "outside" it may vanish. So, the second and third options of critiques are more readily adopted by critics. The second option—social and political critiques—has been the site of debates among apologists for contemporary capitalism, government

officials, and many of the social movements of the left, such as the Greens in Germany and elsewhere in Europe. In some ways, this option has dominated the literature and has had more rhetorical impact (as in the case of Jonas), cultural shock effect (as in the case of numerous movies, like "The China Syndrome"), and political repercussions (as in the case of German and French politics). Yet the third option, casually called spiritualism, has been received favorably by the public, perhaps in response to the disillusionment of the postmodern movement (whose political undertones have been summarily dismissed). Is spiritualism the necessary if not the sufficient ingredient in every critical discussion of the environment?

Perhaps the question of spiritualism can even be problematized further by recalling Auschwitz and Hiroshima. What sort of spiritualism can accompany any experience emanating from these contexts? Perhaps this question cannot be answered by academics at conferences or by anyone else. It may be a spirituality that focuses a great deal of attention on the emotional and political vacuum that has been accepted by intellectuals after Auschwitz and Hiroshima. Intellectuals have a responsibility to dedicate their energies to fill this vacuum, at the very least by recognizing that Auschwitz and Hiroshima have framed our world in technoscientific ways that still require articulation and analysis that surpass the categories of fear and hope. Second, we ought to acknowledge that philosophical analysis happens within particular political networks that express and protect particular ideologies. Third, we ought to reflect on our role as academics and intellectual workers whose mandate is to be cultural critics. And fourth, to be a cultural critic who is informed by technoscience is necessarily to be a critic who is concerned with the environment in its broadest sense, with ecology.

Still, all of these reminders cannot overcome the problems associated with any critical attempt to deal simultaneously with ecological concerns and their attendant economic conditions for the purpose of conceiving some sort of "technological futurism." As Ross notes: "For technocrats, it [technological futurism] was a tradition in which expertise, rationality, and knowledge challenged the arbitrary diktat of capital; for socialists, it was a tradition in which the technological forces of production undermined the existing social order even as they reinforced it; and for progressives, it was a tradition in which technology was the ally of democratization and the enemy of limited production for profit" (Ross, 1991, p. 133) Dare to think of the future need not be an empty or

embarrassing suggestion. On the contrary, a future-oriented but critical engagement with present conditions is preferable to musings about the potential stored in technological innovations that are transformed to fit a preconfigured political commitment. Any intellectual claim about a "body of knowledge"—whether produced by philosophers of technology, cultural or literary critics—does not have only one universal interpretation. Instead, a critical stance must be informed by the history of ideas, be concerned with maintaining a critical distance from its subject matter while being passionately committed to certain political and social ideals, always searching critically for a better future no matter how utopian it may be.

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