

Response to my critics

Meera Nanda

1. Introduction

“The day the Enlightenment went out”, is how Gary Wills described the re-election of President George W. Bush in an op-ed column in the *New York Times* (November 4, 2004). Reflecting upon the conservative religious vote that put Bush back in the White House, Wills wondered if there was any connection between the fact that many more Americans believe in the Virgin Birth than in Darwin’s theory of evolution and that 75 percent of Bush supporters actually believed—without an iota of credible evidence—that Iraq was directly responsible for the terrorist attack on 9/11. Wills asks if a people that have lost respect for evidence and critical reasoning can still be called an enlightened nation.

“Belief that does not require proof or evidence” is how the *Webster New World Dictionary* defines the word “faith”. It also defines “faith” as “faith in God”. The American elections, then, turned out to be a massive faith-based initiative in both these senses of the word. Belief and policies backed not by evidence, but by religious values wedded to an aggressive nationalism are driving American politics. In this America is not alone. India, the subject matter of much of what follows, has had its own brush with faith-driven politics in which an aggressive Hindu nationalism came to color public policies, including science education.¹

The question is: how do secular democracies like the United States and India (the world’s first and the world’s largest democracies, respectively), manage to square off their official commitment to enlightened values of openness and religion–state separation with the realities of faith-based politics? How do matters of fact—that is, questions that *in principle* can be decided by empirical evidence—end up getting decided on the basis of religious faith. This alchemy of turning secular matters of fact into religious-civilizational matters holds the key to understanding the *democratic-populist route to religious fundamentalism*. If people can be mobilized to freely vote for parties with radical religion-infused social agendas, where is the need for fatwas and book-burnings and bloody revolutions?

Correspondence to: Meera Nanda, 71 Brainard Rd, Rd, West Hartford. CT 06117, USA. Email: meera@comcast.net

So how can people be made to believe in something regardless of what the evidence says, and still maintain the fiction of an open public sphere? One way to do it is to, in the name of empowerment and deeper democracy, extend the “right” to the people to construct their own truths, by their own lights, while denying the very possibility of objective facts backed by impartial evidence.

Consider the statement that Richard Viguerie, a well-known conservative media tycoon, made in a recent conversation with Bill Moyers on the public TV Programme *Now* (December 17, 2004). Moyers is concerned about how baseless assertions put out by the Swift Boat veterans casting doubts on John Kerry’s military service managed to acquire the kind of credibility they did during the run up to the elections:

Moyers: “Several weeks after the [Swift Boat veterans’] attacks had been repeated over and over again on cable TV that fact-checkers finally caught up...they began to say, “This isn’t right. That isn’t right. There is no basis for this. There’s no basis for that”. But by that time, it was too late, right?”

Viguerie: “Well, that is a matter of opinion whether there was a basis for this story or that story. But you know, that is the beauty of having thousand of sources of news and information out there so that people can make up their own decision. They can believe what the *New York Times* and CBS says about the Swift Boat issue, or they can believe what the Swift Boat people say”.

People, in other words, are entitled to construct their own facts by choosing whose evidence to believe in. There is no right or wrong, better or worse evidence anyway, because “It’s all opinion. Just opinion”. The right-wing media are more virtuous on this account, Viguerie tells Moyers, as they make “no claim to be objective unbiased observers. They are up front about their biases”. The problem, as Viguerie frames it, lies with those liberal elites who aspire for objectivity, not with those who openly defy the very idea. Why should the rules of liberal media be treated as the universal standard of what is acceptable as fact, Viguerie demands to know? He ends with a declaration of independence: “we’re not gonna play by the liberal establishment rules”.²

Prophets Facing Backward, my book under discussion here, claims that the cluster of social constructivist, feminist and postcolonial theories that deny any cognitive distinctions between warranted knowledge and collectively accepted beliefs³—or between facts and opinions in a more popular parlance of Richard Viguerie—have provided philosophical justifications for the kind of populist interpretive flexibility that Viguerie and his right-wing colleagues find so “beautiful”. Set against the backdrop of the rise of Hindu nationalism in India, the book argues that the relentless debunking the very idea of universally valid, bias-free facts has received in the hands of its many academic critics, has added to a culture of doublethink where truth has become infinitely malleable, open to all kinds of nativist, pseudo-scientific and faith-based interpretations. Intellectuals, whose job it is to challenge such mystifications, I argue, have betrayed their calling by condemning the very possibility of impartial and universally valid truth that can cut through cultural and national boundaries. This betrayal has made it easier for the religious right to present itself as the defender of the tradition, dressed up as “alternative science”, which it claims has been unfairly rejected and willfully suppressed by the secular elite. The logic of deconstruction of modern science simultaneously provides

the logic for the construction of “sacred sciences” by the resurgent religious-political movements that have sprung up among the Hindus, Christian and Muslims alike.

Even though the book is set in India, the concerns I raise are becoming increasingly relevant to the United States as well. The patterns of reactionary modernity that I describe for India under the Hindu nationalists are, unfortunately, beginning to gain momentum in America under George W. Bush. One shared symptom of reactionary modernism is the aggressive state sponsorship of pseudo-sciences aimed at absorbing science into the religious worldview, which in turn is yoked to nationalism in varying degrees and forms in both countries. The White House’s active induction of Christian evangelicals and corporate scientists (who often work together) to shape science policy, ranging from the open support of the Biblical Flood geology in the Grand Canyons to the research policies and funding for AIDS, contraception and stem cell research⁴, is not very different from the state sponsorship of Vedic astrology and Vedas-inspired research grants to unproven indigenous “sciences” (in medicine, architecture, and even in defense) during the Hindu nationalist years that I describe in the *Prophets*.

Appearing as it does on the heels of American and Indian elections, this issue of *Social Epistemology* comes at an opportune time. It is indeed high time for science studies to get engaged in the thorny issues raised by the attempt of religious extremists to take on the prestige of science for their objectively false and outdated cosmologies. It is gratifying to note that the debate I began in the *Prophets* has now been joined. My colleagues from science studies and postcolonial studies have done me the honor of critically engaging with the concerns I have raised regarding the political dangers of epistemic multiculturalism in this age of religious fundamentalisms. In this essay, I will respond at length to the issues my critics have raised in their readings of the *Prophets*.

2. Restating the Argument

A good place to start this conversation is to lay out—clearly and unambiguously—the main theses of the book. This will help clarify some misunderstandings that crop up time and again regarding the nature of linkages I describe between the social constructivist and allied critics of science, and those who peddle the romance of Vedas-as-science.

Who *are* these prophets who have their faces turned backward, even as they want to surge forward, as all prophets are wont to? There are two kinds, one coming from the postmodernist left and the other from the religious right, both united in seeking inspiration for the future from the non-modern past. My book traces the many points of convergences and contacts—but also divergences—between the two. One of the aims of the book was to raise an alarm about the unintended consequence of anti-Enlightenment ideas as they have filtered out of the globalized Ivory Tower into the messy world we live in.

I describe the prophets from the left as those postmodernist intellectuals—the clerks, as I sometimes call them—who come from the secular academia and/or new social movements traditionally allied with progressive social causes (opposition to imperialism and

racism, defense of the environment and women's rights). But what sets them apart from the traditional liberal and Marxist left is that while they "uphold left-wing *political* ideals, ... [they] have lost all confidence in the traditional left-wing cultural ideals of scientific reason, modernity and the Enlightenment. ... They display a passion for radical social transformation, alongside an equally passionate rage against the Enlightenment's promise of progressive social change through a rational critique of superstition, ideologies and flawed reasoning" (p. 1). These postmodernist prophets insist that a critique of oppression must include a critique of modernity, especially modern science which they have come to see as a bastion of Eurocentrism and patriarchy. They believe that non-modern traditions, especially the traditions of non-Western societies colonized by the West, can provide them with less alienated and less reductionist models for conducting scientific inquiry into nature. Thus, postmodernists do not see themselves as rejecting science altogether but as "improving" it, transcending its limitations by examining its conceptual framework from the vantage point of other traditions.

This valorization of the non-modern and the non-Western knowledge traditions requires, first and foremost, that they be treated as still viable sciences, satisfying the requirements of empirical evidence and logic, at least within their own conceptual schemes. (Without this assumption, it would be patently irrational to insist on the *cognitive* value of non-modern, non-Western traditions, although they could, of course, still be prized for their aesthetic and historical value.) The requisite philosophical justification of "symmetry" or "parity" between modern science and other ways of knowing was provided by the Strong Programme of sociology of scientific knowledge which draws upon the post-positivist philosophy of Ludwig Wittgenstein and Thomas Kuhn. On this account, the objective truth of accepted beliefs in any society is to be treated as irrelevant for understanding why these beliefs are accepted as facts by members of that society. All accepted beliefs, regardless of whether they were true or false, are to be explained as having the same type of social, non-rational causes. Herein lies the famous "symmetry" of the Strong Programme: Modern science is no less of an ethno-science than any other local knowledge; its best confirmed theories offer a description of nature no less filtered through socially accepted metaphors, models and values of the local (i.e. Western) society, as do the sciences of other traditions.

I devote two substantial chapters of the book (chapters 5 and 6) to a critical reading of the Strong Programme, along with their offshoots, including cultural studies and feminist epistemologies. I also include postcolonial theory since it shares the anti-realism and perspectivalism of social constructivism. Among other things, I object to their attitude of "epistemic charity" toward all ways of knowing which

...forbids evaluation of the truth or falsity of [other cultures] beliefs....The theories in question reject the traditional philosophical ideals of universal standards of scientific rationality, objectivity and truth in favor of perspectival approach that grounds these concepts, in the end, in local social and cultural circumstances. All sciences are "ethno-sciences", for all are equally embedded in their own cultural contexts. (p. 125)

But these prophets from the left for whom social egalitarianism has come to demand an epistemological egalitarianism, make up only half of the story that I have to tell. The

other half is made up of the prophets who seek a model for the future—for India but also for the West—from the high-Hindu traditions of spiritual monism taught by the Advaita Vedanta. They believe that a rediscovery of the supposedly pristine Hindu roots of India—which they locate largely in the spiritual monist tradition of Vedanta—can help India modernize without having to go through the Western “pathologies” of a secular modernity. Like their left-wing counterparts, they too are looking for alternative models to modernize, but they simply absorb the folk knowledges of “the people” much prized by the left-wing into the elite, spiritual-mystical traditions of Hinduism.

For the most part, Hindu nationalists do not fit into the mold of Taliban-style revivalists or Christian fundamentalists who resist any attempt to update the sacred texts. Nor are they old-fashioned conservatives seeking to hold on to the caste, gender and class privileges of the old order (even though they are vehement in their defense of the “integral” organism-like “harmony” the caste society, shorn of its “excesses” of untouchability, preferable to the individualism of the liberal order). I describe these prophets from the right as “reactionary modernists” who are not necessarily opposed to modern science, technology and the instrumentalities of the modern mass politics, provided they can be annexed to the ideology of Hindutva or Hindu-ness. I define reactionary modernist as simply those who “embrace modern technology while rejecting Enlightenment reason” (p. 7)⁵. Their goal is to aggressively re-traditionalize the public sphere, while equally aggressively modernizing the economy, the military and the technological infrastructure (chapter 1, *passim*).

The re-traditionalization of the culture—and this is of crucial importance to my thesis—in the hands of Hindu nationalists takes the form *not of* an outright rejection of scientific reasoning but its translation, or restatement, into a Hindu civilizational idiom, derived for the most part from Vedanta. Hindu nationalists insist upon the many ways in which Hinduism—both its panentheistic worldview and its spiritual-mystical practices, including yogic meditation—are “like” modern science, say the “same” thing and show the “same” spirit of inquiry and respect for evidence. In the hands of Hindu nationalists, the modern, I try to show, is not rejected outright as un-Hindu but

simply subsumed under the traditional by declaring both to be equivalent in function and rationality. The *break* that modern science made with what passed as science in pre-modern India is simply not recognized. If any difference is recognized at all, it is only to declare the superiority of the Hindu alternative. All the virtues of the modern west, but none of its vices, are claimed to be found in the wisdom of ancient Hindu sages. (p. 38, emphases in the original; see also p. 8)

There is nothing *inherently* objectionable in this kind of a cultural indigenization of novel ideas. I fully recognize and appreciate the need of all prophets to look back, that is, to find cultural homologues for new ideas from within the existing cultural-religious repertoire (see p. 17 and *passim*). But the dominant tendency among modern Hindu reformers (whose legacy Hindu contemporary nationalists are carrying on, and which had the blessings of the state during the BJP regime) has been to draw spurious parallels between the spiritual monism or panentheism of Advaita Vedanta and modern science, while completely bypassing—indeed, aggressively denigrating—the mechanistic world view and empiricist methodology of modern science as “reductionist”, “lower

knowledge” of “mere matter” which has been, supposedly, overthrown by quantum physics, relativity theory and other “holistic” sciences (a grab bag which includes everything from Gaia theory, discredited vitalistic theories of biology, parapsychology and spiritual theories of evolution to deep ecology and eco-feminism). The result was been an Orwellian doublespeak wherein, in the name of supporting science, the Hindu nationalist-led government started funding and promoting a New Age-style mysticism—including such superstitions as astrology, Vastu (the Hindu version of Feng shui), mind-over-body theories of healing and vitalistic theories of life and evolution (see chapters 2, 3 and 4).

Now, for the central thesis of the book: I show that there are strong family resemblances between the social constructivist theories of “equal rationality of all sciences” and the Hindu nationalists’ propensity to establish equivalences and parities between Vedic cosmology and modern science. The same logic that leads the left-wing post-modernists to decry the universal meta-narratives of modernity in defense of the rationality of local knowledges of “the people”, fuels the right-wing nationalists’ project of glorifying the “scientific rationality” of the Hindu metaphysics and mysticism. Both sides, I argue, are engaged in removing science from the larger Enlightenment project of creating a secular society and a disenchanted nature and translating it into the jargon of cultural authenticity of the folk culture (on the left) and an elite, Brahminical religiosity (on the right). The overall result, on both sides, is to restate the logos of science into the mythos of Hinduism (p. 30), a mythos which Hindu right-wing uses as badge of superiority over other faiths and other peoples. What is more, both sides defend this translation by making a social constructivist argument about the inseparability of the logos from the mythos, or the inseparability of the logic of science from the larger culture. Both sides are engaged in advocacy of “alternative universals”, or an alternative ways of being modern, which do not require either the disenchantment of nature or secularization of the culture. Yes, the language and the style of the partisans of Hindutva tends to be less scholarly, their idea less well developed, their books less well footnoted. But for all the distortions, they are saying nothing that has not been said by legions of well-meaning left-leaning intellectuals themselves.

I fully appreciate—and repeatedly acknowledge—the starkly different motivations for this turn to alternative modernities. Postmodernist and postcolonial intellectuals defend the local and the traditional in order to *oppose* the real but often exaggerated scientism of Westernized elites and technocrats, while the right-wing Hindu nationalists *encourage* scientism of their own kind by turning the spiritual and wisdom traditions of Hinduism into an actual, supposedly scientific description of nature. In other words, the former are motivated by a multiculturalist impulse to let a thousand flowers bloom, while the latter by a chauvinist impulse to subsume all knowledge traditions—especially modern science—into the rubric of Vedantic spiritual holism, and in this process take on the prestige of modern science for Hinduism. The shared ground between the left and the right, my thesis is, lies not so much in shared motivations or intentional political collaboration—albeit there are instances when the stalwarts of the left-prophets, notably Vandana Shiva, Claude Alvares, Sundar Lal Bahuguna of the Chipko fame and others of “patriotic science” groups, have openly worked with the

right-prophets on anti-globalization and environmental issues. Rather, the shared ground lies in their shared denigration of autonomy of science from forms of life, and in their shared defense of the alternative sciences embedded in the indigenous forms of life.

But the question remains: How is this shared intellectual ground between the post-modernist left and the Hindutva right mediated? Exactly what kind of sharing or borrowing of ideas am I suggesting? I point out many instances of contact and convergence. But these examples are scattered through out the book, giving the impression to some that I provide “no evidence” (as suggested by Sandra Harding, Jim Maffie and Helen Verran), and to others that I am claiming too tight a fit amounting to an “alliance” or a collaboration between the two sides (as suggested by Vinay Lal and Susantha Goonatilake). If I were write the book again, I would take care to delineate, more clearly, the nature and extent of these connections in order to avoid both extremes of interpretation. For now, let me make amends and indicate, as clearly as I can, what kind of evidence I am basing my thesis upon.

Fortunately for me, I now have a much discussed exemplar from a prominent science studies scholar that I can point to and say, “this is what I mean! This is the kind of connection that I have pointing to all along!” I refer here to Bruno Latour’s famous second thoughts that appeared in the April 2004 issue of *Critical Inquiry*.

Just around the time when the *Prophets* came out in print (December 2003), Latour published his troubled reflections over what has become of the critical spirit of science studies: “has it run out of steam?...It might not be aiming at the right target” (Latour, 2004, p. 225). Latour argues that

While we [in science studies] spent years trying to detect the real prejudices hidden behind the appearance of objective statements...[and while] good American kids are learning that facts are made up, that there is no such thing as natural, unmediated, unbiased access to truth, that we are always prisoners of language, that we always speak from a particular standpoint, *dangerous extremists are using the very same argument of social construction to destroy hard-won evidence that could save our lives.* (Latour, 2004, p. 227, emphases added)

Let us see what kind of evidence Latour provides to support his claim that “dangerous extremists” (or “bad guys” as he calls them) are using the “very same argument of social constructivism”—a thesis which is obviously very similar to the one I am making in the *Prophets*.

Latour’s claim of the “very same argument of social constructivism” being used by both sides hinges primarily on a *New York Times* editorial on global warming wherein a Republican strategist invokes the “lack of scientific certainty” as an excuse for avoiding stricter controls on greenhouse gases. Latour is troubled because he recognizes that, despite all the distortions and simplifications, the Republican argument for disregarding the existing evidence for global warming is “troublingly similar in the structure of explanation” to those offered by himself and his colleagues in science studies. Latour acknowledges that he himself has “spent some time in the past trying to show the ‘*lack of scientific certainty*’ inherent in the construction of facts...[in order to] *emancipate* the public from prematurely naturalized facts” (p. 227, emphases in the original). Even though the popularized versions of skepticism toward science are “an absurd deformation of our own

arguments, but like weapons smuggled through a fuzzy border to the wrong party, these are our weapons nonetheless” (pp. 229 and 230).

Latour’s example helps to illustrate the nature of connections I have tried to highlight in the *Prophets*. Like Latour, I have been trying to warn of the “troubling similarities”—what I call family resemblances—between the discourse of the defenders of Vedas-as-science and that of the academic defenders of ‘alternative sciences’ constructed out of non-Western categories. Just as in the case of Latour where the Republican strategist did not directly quote Latour, or any other social constructivist for that matter, my case does not hinge upon how many times the “bad guys” directly quote the “good guys”, even though I do provide ample evidence of *direct* use of science studies and postcolonial literature by Hindu nationalists. What I am getting at is the shared *Weltanschauung* of a suspicion of secular modernity and the shared glorification of the state of a-modernity where natural science, and indeed nature itself, were integrated into the wider webs of cultural and religious meanings. But even more than that, I am pointing out “troubling similarities” between the science studies arguments for symmetry and context-dependence of evidence and the conservative Hindu habit of thinking through analogies and parallels which are ultimately justified by a hierarchical relativism of all truths. The whole idealization of bricolage or cyborg epistemology that has gripped the imagination of academic “radicals” in the West and in India, I am suggesting, has long been a dominant episteme of Hinduism which has allowed it to ignore all contradictions, as it absorbs novel ideas into its idealistic metaphysics. This dominant episteme, I am worried, is being revived and glorified under the combined influence of a variety of intellectual streams united in their insistence that India must be understood through indigenous (which inevitably turn out to be Hindu) categories of thought alone. What is more, I fear that the postmodernist denigration of the very possibility of objective knowledge through the classical empirical-materialist episteme as Western and patriarchal, has silenced critics of the dominant Hindu episteme by stigmatizing them as speaking from a colonial perspective. *These* are the kind of connections I am positing.

In order to be able to answer the critics in the rest of the essay, let me list the four distinct sets of arguments I offer as evidence to back up my thesis.

First, at the most macroscopic level, the social constructivist defense of parity or symmetry of all ways of knowing turns out to be nothing more than a rediscovery and a restatement of the hoary old Hindu mantra of all paths to knowledge of the Absolute being equally valid—within their own context, fixed by the caste order of birth which determined the innate ability, purity and the right, or *adhikar*, to different types and levels of knowledge. Indeed, given the high degree of pluralism and contextual style of thinking in Hinduism, Hindus have been described as the “ancient postmoderns” by Wendy Doniger (1987) who suggests that “it might humble the postmodernists to learn that [their] vision of reality was discovered long before the twentieth century and nowhere near Paris”. Others have described postmodernism as having been “created especially for Hinduism in which literally anything goes, where anything can be connected to anything else and where anything is all”, to quote Axel Michaels, a German Indologist (Michaels, 2004, p. 9). The idea of plurality of context-dependent

truth, each open to multiple interpretations, which is often celebrated in the West as challenging the universal meta-narratives of one science and/or one God, is in fact the dominant tradition of Hinduism. Indeed, India offers a sobering counter-example to the fashionable postmodernist idea that partial and multiple truths are egalitarian and respectful of the “other”, while universal meta-narratives are “totalitarian” and “violent”: Hinduism is a clear example where interpretive flexibility of relativized truths has served to protect the status quo and silence the oppositional worldviews.

I have argued that the rage for Vedic sciences that flared up under the BJP was merely an example of how Hindu elite have always asserted the authority of the Vedas over post-Vedic, non-Vedic and even anti-Vedic ideas. Hinduism has always turned every new idea under the sun into a derivative of the Vedas by refusing to acknowledge that the new idea is actually saying something new, and that it might actually contradict and falsify the old. The “other” is not recognized in its otherness, but simply interpreted as “saying the same thing” within its own limited context, what the Vedas have always known. The Hindu orthodoxy works not by suppressing the heterodox ideas that contradict its “eternal truths”, but by *relativizing* them to their context and then presenting them as deformed, aberrant versions of the higher Gnostic truths always already contained in the Vedas⁶.

My thesis is that in the Indian context, where relativistic eclecticism is the central episteme, fully sanctioned by the dominant religion and hitched to a Hindu nationalist project since the nineteenth century, *the prescriptions of social constructivist and postcolonial critics read more like actual descriptions of the Hindu nationalist strategy for subsuming modern science into the Vedic orthodoxy.*

There are two components of Hindu orthodoxy regarding modern science—namely hierarchical relativism and inclusivism or parallelism—and both of them are entirely congruent with the prescriptions of social constructivist and postcolonial theory. The first simply declares the naturalistic-empiricist worldview of modern science (which includes nearly all of conventionally accepted mainstream science) as “lower” or “partial” knowledge, valid only within the supposedly outdated materialist, dualist metaphysics of the Judeo-Christian, Western cultures. The validity of this science is not denied, but “only” relativized to the Western metaphysics, so that it ceases to have any critical implications for the “higher” or “holistic” non-mechanistic knowledge of the Vedic “sciences” (like astrology, or Vedic creationism). Once this relativist logic is admitted, the stage is set for inclusion of data from fringe sciences like parapsychology and defunct ideas of vitalism as legitimate evidence “proving” the validity of Vedic theory of evolution or the Vedic astrology. This entire style of thinking bears unmistakable resemblances with the social constructivist insistence on the relativity of evidence to the conceptual schemes and cognitive values; the postcolonial insistence on understanding local worldviews through local categories alone and the feminist and postcolonial condemnation of the mechanistic philosophy as a Western and male way of thinking which completely separates the knower from the object, rendering the latter completely devoid of all meanings and agency. I also examine the radical constructivist arguments for a return to the state of a-modern conceptions of nature and knowledge as seamless, un-differentiated webs of meanings which did not

divest the objects of nature of all meanings, subjectivity and even agency (see chapter 5 for these connections).

The other strategy of parallelism or inclusivism combines relativism with bricolage, that is, fitting bits of quantum physics here and the bits of mind–body medicine or even parapsychology there, into the essentially spirit-driven metaphysics of Vedanta. This method of combining what are actually contradictory bodies of knowledge, I argue, is an exact example of bricolage, “knowledge collage” or critical traditionalism that the various theories of epistemic multiculturalism have been recommending. Have feminist epistemologists and postcolonial science studies scholars not recommended multicultural epistemologies in which contradictions are simply treated as so many sites for expressing “difference”? Have they not agitated for the preservation of the cultural gestalt of the oppressed over self-critique of traditions? I show that this kind of eclecticism is precisely the mechanism which the Hindu nationalists are using to co-opt modern science into the orthodoxy. (See chapter 6 for more details).

The problem with these academic-left prescriptions, in other words, is that each one of them has long been “captured” by the Hindu nationalist style of reasoning, to use a science studies concept introduced by Australian scholars, Pam Scott, Evelleen Richards and Brian Martin (Scott *et al.*, 1990, and also, Hess, 1997). As science studies scholars have come to realize, thanks to the work of Scott and her colleagues, the recommendation to be even-handed between objectively true and false, rational or irrational beliefs is “almost always more useful to the side with less scientific credibility or cognitive authority” (Scott *et al.*, 1990, p. 490). But as the case of India shows, it is not true (as assumed by countless feminist and postcolonial epistemologists) that those who lack scientific credibility are also always socially oppressed or marginalized. Indeed, Hindu metaphysics which has very little real *scientific credibility* has always enjoyed far more *cultural authority* than any other worldview in India (note: cultural authority is not to be confused with the higher profile of science and technology in the technocratic agencies of the state and private capital. In India, where modern science was not an organic growth of the indigenous culture, there is a mismatch between the cultural and the political-legislative authority).

The first set of arguments, then, establishes how social constructivist prescriptions have inadvertently rediscovered and reinforced the dominant Hindu episteme of hierarchy of truths, each valid within its own context.

The second point of contact is the direct use of social constructivist and postcolonial literature by the advocates of a uniquely Hindu holistic science in order to accomplish three goals: (1) discredit the naturalistic metaphysics of modern science; (2) justify mysticism or non-sensory experiences as permissible sources of scientific inference; and (3) to agitate for the “decolonization of the Hindu mind”.

The most egregious example that I have come across is that of the idea of “knowledge filtration” that the champions of “Vedic creationism” use to discredit the fossil record and the mechanism of natural selection on the grounds of Western biases and career interests of the mainstream evolutionary biologists who work in the Darwinian tradition. The names of Kuhn and Feyerabend also crop up now and then in the literature on “Vedic physics” which tries to make room for mysticism as a source of

empirically verifiable knowledge of the natural world. (Because in the Vedantic metaphysics, consciousness is supposed to be the primary stuff which takes various material forms, altered states of consciousness through mystical practices can lead to a “direct perception” of natural laws.) Last but not the least, I point to direct references to postcolonial theories and theorists by the champions of Hindutva, who see themselves as furthering the postcolonial theory’s agenda of recovering the worldview of the victims of colonialism.

Direct citation of social constructivist and other critics of science is worrisome, as it lends the proponents of pseudo-sciences an air of intellectual respectability. Yet, I do not treat it as a smoking gun. The fact is that while Hindu nationalists would gladly use whatever help they get from the Western critics of science, the Hindutva case for scientizing mysticism did not start with postmodernist theory and has independent resources. Postmodernism only *reinforces* the methodological and epistemological relativism which has a long history in Hinduism. Votaries of neo-Hinduism, for example, have always treated the conventional meaning of scientific empiricism, which admits only sensory experiences as evidence, to be an artificial limitation on the totality of possible experiences. Countless number of Hindu thinkers, including such erudite philosophers as Sarvepalli Radhakrishnan, have long deployed a relativist, forms-of-life argument to insist that within Hindu monism, where there is an original unity between mind and matter, knowing the mind through introspective and meditative practices allows you to infer the laws of nature, or knowing the microcosm within allows you to know the macrocosm. This move allows Hindu apologists to accept modern science as valid within its limited, materialist context of sensory seeing, but only as a partial truth which is superseded and encompassed within the higher Vedic truths. No doubt, there are tendencies in other faiths as well—the reformed epistemology among Protestant Christians, for example (see Plantinga, 2000)—that are trying to bring non-sensory evidence of faith as a legitimately foundational experience for the believers. But treating mysticism and non-sensory seeing as verifiable, rational evidence for knowledge of nature has the blessings of the mainstream of Hindu teachings.

The third connection is more in the realm of social movements. I show that many of the local initiatives of women and women’s ways of knowing embraced by feminist epistemologists and eco-feminists only look “oppositional” when seen from the Western perspective. In India, these local initiatives (subsistence agriculture and Chipko, the tree-hugging movement to save the trees) have always shared the mythology and worldview informed by Hinduism, which, like all other religions, has its share of patriarchal traditions. In recent years, nearly all of these ecological and subsistence agriculture movements have been co-opted by religious environmentalists who want to project Hinduism as a uniquely ecological religion around the world. Alternative development, organic agriculture and other small-is-beautiful movements are being recoded into a religious idiom which serves as the mobilizing ideology for the peasantry.

Last but not the least, what concerns me is that radical critics of the very content and logic of universalism and objectivity are left with no principled grounds to challenge the onslaught nationalistic pseudoscience. This is not to deny that the Indian scientific

community *did* fight back the more egregious initiatives like Vedic astrology. But when it comes to hard and slow task of challenging the cultural authority of the entrenched ways of reasoning which privilege unobservable, unverifiable mystical “truths”, Indian intellectuals have not measured up to the task. The vogue of anti-Enlightenment, anti-modernist ideas only weakened the already shaky consensus for what used to be called “scientific temper” among Indian intellectuals.

Before I conclude this section, let me offer an apology for the bad editing that some have noticed and commented upon. I apologize and take full responsibility for the many editorial errors and mis-spelt names that appear in the book. I completed the draft under very difficult conditions, having suffered a retinal detachment in the final stages of writing. I was in no condition to adequately check the proofs. My apologies to all those names I have mangled, and to my readers who have had to suffer through these errors.

3. Response to Science Studies Critics

In this and the following section, I will respond to the issues raised by the critics whose readings of the *Prophets* appear in this volume. I will start first with scholars who write primarily from the perspective of science studies (James Maffie, Sandra Harding, David Turnbull, Helen Verran, Sujatha Raman and Zaheer Baber). In the next section, I will respond to the cluster of scholars whose primary interest lies in India and postcolonial societies more generally (T. Jayaraman, Vinay Lal, Susantha Goonatilake and Walter D. Mignolo).

James Maffie applies his talents as an analytical philosopher to cut through my arguments. He raises important questions that include my (allegedly) politically motivated critique of social constructivism, my “fundamentalist” understanding of the Enlightenment and my inconsistent position on realism and pragmatism. These questions are of great importance and I am glad to have this opportunity to explain my positions better.

But before I do that, let me clear up some relatively minor but still important misunderstandings. First, the issue of intended audience: I did not write the *Prophets* “for a first-world *rather than* a third-world audience” (emphasis mine), but for a first-world *and* a third-world audience (the Indian edition of the book was published in August 2004)⁷. My quarrel with science studies has always had two sources, both equally important to me: one, that it fails to get science right; and two, that it fails to appreciate the unfulfilled potential of science for the creation and maintenance of secular cultures around the world. The book is intended to engage with theorists of “different sciences” or “alternative epistemologies” wherever they are located in the global chain of ideas. But the book is also intended for rationalists, dalits and other partisans of the Enlightenment rationalism wherever they are located in the global chain of ideas, but chiefly in India where they have been on the defensive for too long.

Then there are matters of labels and language. Maffie consistently identifies Hindu nationalism as “Hindu fascism”. There are two problems with this highly charged and damning characterization: one, it is factually incorrect; two, it gives the impression

(considering that Maffie is reviewing my book) that I so characterize Hindu nationalism. Far from being a fascist state, India's democracy has demonstrated its vitality by conducting a free and fair election in an exemplary manner (which holds many lessons for the conduct of elections in the United States). The BJP-led coalition was voted out, giving Congress another stab at running the country and (hopefully) recovering the cultural ground lost to religious passions in the last decade or so. But even at the height of Hindutva fervor and power, it would not have been correct to characterize India as fascist. I do point out some shared traits between Hindu nationalists and national socialists in Germany (more on that in my response to Vinay Lal who also raises the fascism question). But despite my very real concerns, let me remind the readers that in my book I most explicitly denied that India under Hindu nationalism could be called fascist: "while I see clear signs of creeping fascism in India, the country has not yet capitulated. There is great danger...but there is also hope.... clerical fascism is still more of a threat than a reality in India" (pp. 17–8).

To stay with the issues of labels and characterizations, I take umbrage at Maffie's characterization of my position as if it were in opposition to feminism. Yes, I am critical of the wrong turn some feminists have taken on this whole issue of feminist epistemology. But that does not mean I am opposed to feminism *per se*. I consider myself a feminist who speaks from with the Enlightenment tradition, the original home of feminism. Finally, that I am accusing the critics of science of "apostasy" and demanding that they "recant their ideas" are Maffie's words, not mine. Following Julien Benda, I do talk of the betrayal of the clerks of their calling to defend the universal against the particular, the moral good over the customary (p. 29). But nowhere in my book do I cast this issue in the language of religious persecution and moral grandstanding that words like apostasy and recantation evoke.

Now for the substantive issues that Maffie raises.

The first objection Maffie raises is quite serious. He argues that I condemn the post-modernist heterodoxy not because I have demonstrated their philosophical or factual errors, but because I dislike the political consequences of the epistemological relativism that follows from the heterodoxy. I reject the heterodoxy for tactical and not principled reasons.

This would be damning if it were true. Do I offer a merely "tactical or moral reading" of the heterodoxy while devoting "negligible time" to philosophical critiques of the content of their ideas? Having devoted two sizable chapters to a philosophical engagement with the relativist logic of the major schools of science studies (chapters 5 and 6), another outlining a Dewey and Ambedkar inspired pragmatist middle ground (chapter 7) and yet another citing empirical data to counter the case for eco-feminist philosophy and politics (Chapter 9), I am a bit puzzled at Maffie's complaint. Just for the record, I have to my credit an extended critique of social constructivism from the standpoint of scientific realism (Nanda, 1997).⁸ I decided not to include that essay, or refer to it in the *Prophets*, as I have gradually moved away from my strident, table-thumping realism in favor of a more fallible, a critical common-sensist defense of realism (yes, I do believe that it is possible to be a moderate scientific realist and a pragmatist at the same time. More on this later). I decided that one more defense of epistemological realism from

me was not going to settle the issue that the legions of clever philosophers have not been able to settle since the beginning of philosophy.

In my book, I side-step some of the perennial debates in philosophy of science. Based upon the writings of philosophers whose ideas I find persuasive—especially the writings of Philip Kitcher (1993) and Susan Haack (1993)—I *assume* a fallible version of a moderate scientific realism and proceed from there (pp. 20–1). Indeed, I have come to believe that the social constructivist debates do not hinge on realism versus anti-realism as much on evidentialism. There are many verificationists and pragmatists who are anti-realists, but who are nevertheless deeply opposed to social constructivism. The axis of the social constructivist debate runs on the issue whether reason and evidence, and not social factors, that decide what scientific theories should be accepted⁹. In my book therefore, I do not go into the “subtle debate” between realists and anti-realists who are nevertheless evidentialists¹⁰. That is to say, I enlist the support of sworn anti-realists like Larry Laudan in my opposition to those who think that evidence itself is a matter of social interpretation.

Because my book moves at a tangent to these subtle intramural debates among evidentialists themselves (that is between realist, pragmatists and positivists), a classical philosopher of science might find it either confused, or/and devoid of any philosophical interest whatsoever. But that would be a great mistake. Such a narrow approach will prevent the readers of my book from appreciating the kind of philosophy I am trying to do.

Here is the kind of philosophy I see myself doing in my interrogation of social constructivism: I am subjecting social constructivist theories to John Dewey’s “first-rate test of the value of any philosophy that is offered to us”. This test lies in asking the following question of any philosophical school of thought:

Does it [i.e., the philosophy that is offered to us] end in conclusions which, when they are referred back to ordinary life experiences and their predicaments, render them more significant, more luminous to us, and make our dealings with them more fruitful? Or does it...render things of ordinary experience more opaque...and deprive them of having in reality even the significance they had previously seemed to have. (Dewey, 1925, p. 18)

Rather than stay mired in the realist-antirealist debate, I apply Dewey’s test of value to the issues of universalism and relativism. I ask of the various schools of social constructivism if they render “more significant, more luminous, more fruitful” one fairly ordinary, everyday experience that literally millions of people have, everyday, all around the world. I am referring to the *nearly universal acceptance of the universalism of modern science*. It is simply an empirical fact of the modern world that regardless of the culture they were born into, ordinary people when introduced to scientific theories and reasoning behind them, tend to find them as rationally persuasive and empirically warranted. People everywhere, I have argued, do not merely seek a social consensus over what they will deem as true. Rather people everywhere have an interest in increasing the “stock of their true beliefs and not just accepted beliefs” (p. 132) and a universally shared inclination to bring their beliefs in accord with better evidence because they understand evidence as tracking the causal links between beliefs and

actual states of the world. Explanations of natural phenomena that are backed by scientific evidence are found to be equally persuasive by people across different cultures, because they satisfy the universal human interest in acquiring reliable knowledge.

My critical engagement with social constructivism shows that it fails miserably to illuminate this universally accepted fact of universalism of modern science. Far from rendering it “more significant, more luminous, more fruitful”, various schools of constructivism render universalism of science as a form of “epistemic violence”, as an imposition of alien cultural categories on the other. Far from sympathizing with millions of ordinary men and women around the world who struggle to educate themselves and their children in modern sciences, the critics make them look like dupes of the West. Moreover, for all their talk of “emancipation” of the oppressed, social constructivists fail to account for the interest the oppressed have in truth and evidence-based reasoning (for example, the dalit struggle to create a religion of reason which incorporates many epistemic virtues of modern science). Far from acknowledging the knowledge interest of the oppressed, social constructivist theories disarm their quest by rendering modern science as no less conventional and motivated by power interests than the myths of mystagogues in all societies.

These failures, I have shown, cannot be ascribed to excessive politicization of the apolitical and “scientific” approach of the original doctrines of the Strong Programme. I argue that the Strong Programme opened the door for politicization of science by making evidence itself relative to the background cultural values (which are invariably informed by the religious cosmology) and by dogmatically insisting on the inability of experimental evidence to decide between competing claims.

This should persuade Maffie that far from offering a merely tactical and strategic critique of the heterodoxy, I *do* go into the logic of the arguments that make all knowledge ultimately local and deny the grounds for critique of locally agreed upon standards of evidence and truth. I make a case that a conception of knowledge which leaves no space for a transcendent criterion for judgment must be rejected because it is flawed in itself, regardless of whether it provides aids or comfort to the right or to the left, for that matters.

To stay with this issue of my supposedly “tactical” opposition to social constructivism, Maffie does me a grave injustice when he suggests that if “skepticism [toward science] were politically enabling in other circumstances, Nanda would presumably deem it acceptable and hence true. But is the truth of skepticism relative to political circumstances?” But this judgment is based upon incorrect facts. I was among the first to subject the standpoint epistemology arguments made popular Vandana Shiva, the global icon of feminists and environmentalists, to a thorough critique (see Nanda, 1990). I have been one of the most persistent critics of the politicization of the logic of science whether it is found “politically enabling” by the right or by the left.

This leads us to the second issue Maffie raises which has to do with my allegedly “narrow” view of the Enlightenment. I will readily admit to my bias for the Enlightenment. I will readily grant that my project is driven by the goal of challenging religious metaphysics, revising traditional standards of truth and evidence sanctioned by upper-caste, Brahminical Hinduism which underpin the social ethics of caste hierarchy,

patriarchy and the whole mass of occult superstitions in India. This is a classical Enlightenment mode of thinking and I make no secret of my admiration for what the European Enlightenment set out to accomplish. I have been agitating for an Indian Enlightenment for some time (see especially my essay on the Indian Enlightenment in my previous book, *Breaking the spell of Dharma and Other Essays*, Nanda, 2002). But is my conception of the Enlightenment as narrow as Maffie makes it out to be? Is my antagonism toward holistic and organicist thinkers and ideas misplaced?

In the *Prophets* and more clearly in *Breaking the Spell*, I follow the mainstream interpretation of European Enlightenment derived from my reading of Ernst Cassirer, Peter Gay, Roy Porter, Margaret Jacob and Stephen Bronner among others—an interpretation, incidentally, that has been reaffirmed by the overall framework of the new four-volume *Encyclopedia of the Enlightenment*¹¹. I understand the Enlightenment, at its most basic, as a revolt against supernaturalism in all its guises. This revolt took the shape (I follow Cassirer here) of a concerted attack on metaphysical systems which offered all-explaining axioms and essences arrived at through deduction from first principles which were nearly always backed by divine revelations. The Enlightenment thinkers sought to replace this kind of deduction with a spirit of empiricism and induction exemplified by Newtonian science. The permanent achievement of the Enlightenment was to bring about a change in the cultural habitus by setting new standards for evidence, truth and authority that were inspired by advances in science. This integration of a scientific temper with the cultural common sense is what I admire in John Dewey, whose ideas (among others') influenced the dalit-Buddhist case for an Indian Enlightenment that I describe.

Now, Maffie believes that my emphasis on this empiricist and naturalistic strain in the Enlightenment is narrow-minded for it excludes some thinkers who should have been included. He is especially irked by my exclusion of philosophers who espoused absolute idealism and a more organicist thinking, philosophers such as G.W.F. Hegel, A. N. Whitehead, George Berkeley, F.H. Bradley, among others. Maffie sees this exclusion motivated by my *a priori* assumption that “holism and organicism are ex hypothesi hierarchical and hence contrary to liberalism...” (end note 7 in Maffie's manuscript).

I have two points to make in my defense. First, these complaints would be more pertinent if I were engaged in a historiography of the European Enlightenment. In fact, even professional historians of the Enlightenment do not treat the idealists as key voice in the Enlightenment tradition. A case in point: the *Encyclopedia of the Enlightenment*, the most authoritative recent compendium on the subject, does not have any entries for the thinkers mentioned above, with the sole exception of George Berkeley. Even though much has been written regarding the role of pantheistic ideas in the radical Enlightenment, the considered opinion of the *Encyclopedia of the Enlightenment* is that pantheism, considered in its religious meaning of nature as the body of God, played a “very minor role in the 18th century...while Spinozism was an important element in much anti-religious thought, Pierre Bayle's interpretation of Spinoza as an atheist prevailed for much of the century” (Thomson, 2003, p. 240).

But while these historical details are important, they are not central to my interest in the European Enlightenment. I see the Enlightenment as the first, and perhaps the most

successful (so far), instance of a generic and universal human aspiration for bringing beliefs and ethical values in accord with the best evidence available. I am interested in understanding the social factors in different countries—including the class configurations, the ideological interests of the bourgeoisie, the nature of the religious doctrines and the role of religious organizations—in furthering or hindering this aspiration for critique. It is in this context of figuring out the forces acting against the Enlightenment and secularization in India—and this is my second defense—that I am critical of holistic and organicist ideologies. Hindu holism is of a spiritual monistic variety, that is, it makes a disembodied, immaterial force which has attributes of conscious thought and conscious agency fundamental to all that exists. In India, where this monism of the spirit has always co-existed with the dogma of transmigration, holism has always stood on the side of hierarchy built into the innate stuff of different kinds of persons. What is more, the complete identity of the sacred and the natural law (because nature is seen as the embodiment of the divine principle) has justified laws of hierarchy as if they were laws of nature. *This* is what pre-disposes me against holism. I am fully aware that a spiritualistic monism that seeks to re-enchant nature has become popular among many deep ecologists and New Agers in the West. I am also aware of the resurgence of process philosophy among Christian theologians who are trying to tone down the transcendent elements of the Abrahamic traditions to bring them more in tune with the growing hunger for personal spirituality and eco-centric thinking in the West. But it would be foolish to ignore the shadow side of holism even in the West, where unlike in India, it is an oppositional ideology to the mainstream of religious and techno-scientific culture alike. Consider, for example, David Ray Griffin's (2001) erudite defense of a Whiteheadian process theology which grants (as in Hinduism) equal validity to extrasensory perception, a kind of mystical, intuitive prehension, which is the rock on which all kinds of occult phenomena are built upon. There are good reasons, I want to suggest to Maffie, to be suspicious of holism and organicism. In itself it is a harmless enough philosophy, but whenever and wherever it has become the dominant ideology—as it has been in India for millennia—it has bred irrationalism and authoritarianism. My big problem with this whole business of holistic or Vedic science is that rather than demystify the spiritual monistic elements of Hinduism (that is, by treating them as myths and parables not meant to be actual descriptions of the world), neo-Hinduism has followed the exactly opposite alternative. Using relativist and cultural nationalistic arguments, Hindu nationalists have selectively picked out evidence (including evidence from parapsychology and other dubious pseudo sciences) to present the spiritual element as an actual force that acts upon matter. Rather than demystify spiritualism, modern Hindus have turned it into a superior variety of science which encompasses all of "Western" science as lower-level knowledge within it.

The third issue Maffie raises has to do with the responsibility of intellectuals toward their own ideas. At one point in the book, I propose a version of the Hippocratic Oath for all intellectuals which states: "Ideas have consequences. Those of us who trade in ideas have a responsibility to ensure that our ideas should do no harm (p. 159)". Maffie asks some probing questions what such a responsibility would actually require intellectuals to do. Am I asking for some kind of recantation, self-censure or moral limits on

the kind of questions intellectuals should ask, Maffie wonders? Am I not betraying my own Enlightenment ideals and imposing a *priori* moral constraints upon inquiry? Am I not “suffocating the Enlightenment in order to save it”, Maffie wonders?

The answer is a categorical “No”. No, I do not believe that sociobiology should be proscribed because of the fear of what we might find out, although I do not see what new facts about genetics can we possibly learn from eugenics and “scientific racism”, the other examples that Maffie cites. As I have already clarified, I do not reject social constructivist schools of thought because of political reasons but because of their philosophical inadequacies.

What I meant by the responsibility of the intellectual when I came up with my version of the Hippocratic Oath was quite simple. All I meant was that when intellectual invoke local knowledges of other cultures to counter the imperial power of the West, they must make a sincere effort to obtain complete evidence from all aspects of the intellectual and social history of these local knowledge traditions. Local knowledges do not exist in a vacuum: they have social histories. What might appear progressive because it challenges the domination of Western ideas, may actually be serving rather reactionary ends *in situ*. In the context of my book, I was suggesting that postmodernist intellectuals have been irresponsible in picking and choosing those aspects of the non-Western world that help them fight their own battles against modern science, without adequate awareness of the role local knowledges play in sustaining traditional power structures in non-Western societies. Indeed, I find the same lack of care for the integrity of ideas when it comes to the wholesale condemnation of the Enlightenment project that one finds in the postmodernist literature (see important new defenses by Bronner (2004) and Gordon (1999)). It is the lack of care for the integrity of ideas that constitutes the historical blunder of the radical critics of science.

Finally there is the question of how I hope to accommodate my assumptions of scientific realism with the instrumentalism of John Dewey and the explicit anti-realism of Larry Laudan. This issue arises because I turn to Dewey and selected contemporary interpreters of pragmatism, including Larry Laudan and Susan Haack in my elaboration of the ideas of Bhimrao Ramji Ambedkar. (Ambedkar was a student of Dewey who belonged to a caste of untouchables and who interpreted the teachings of the original, historical Buddha in a Deweyan fashion to pose a radical challenge to the metaphysics that justifies hierarchy.) What Ambedkar found useful in Dewey’s pragmatism was the insistence on a *rational examination of values in the light of better warranted facts*. Ambedkar’s Deweyan Buddhism, I suggest, poses a radical challenge to the many varieties of standpoint, feminist and postcolonial epistemologies that insist on bringing in politically correct values into the assessment of scientific evidence. I elaborate this point by bringing in Larry Laudan’s reticulated model of scientific rationality and in Susan Haack’s crossword analogy, both of which I refer to in my work. (See chapter 7 for details on all these issues.)

Maffie’s complaint is, roughly, that I cannot be a realist in the rest of the book and fall back on anti-realists like John Dewey and Larry Laudan when it suits me. On the surface, I seem to be in trouble, for it looks like I am doing what I criticize others for: that is, combining contradictory philosophies without regard for their integrity in

order to score a political point. But that is not so. I do not see a fatal conflict between the hard core of pragmatist tradition—that developed by Charles Peirce and continued in somewhat muddled form by John Dewey—and the kind of realism I support.

Indeed, as important philosophers of science (notably Susan Haack (1999) and Nicholas Rescher (2000)) have clarified in recent years, the Peircean core of pragmatic tradition has always treated success in practice as providing a “reality principle” that serves as an independent constraint and limitation on the proper way to fix beliefs. Far from condoning *any* practice that satisfies socially constituted ways of knowing, the original, Peircean pragmatism insists that inquiry conducted under the guidance of scientific method offers a “person-indifferent, global and universal...reality principle” which claims that that “[while] you can choose your goals, but the effectiveness of the means for their realization is wholly outside your control. Whether those ideas and beliefs actually work or not...is not a matter of social custom but of world’s impersonal ways” (Rescher, 2000, p. 67). Pragmatism, properly understood, uses practical efficacy not as a substitute for truth, but as our best available evidence for truth.

Now, the way I understand Dewey’s instrumentalism is that *in practical details*, it does not differ substantially from Peirce’s conception of scientific inquiry. Dewey’s instrumentalism shares nearly all the details of the method itself—including the continuity, in a systematic and rigorous manner, of the methods of abduction and induction with everyday commonsense and the insistence on the temper of science (see Haack, 1999, p. 26). It is true that Dewey, in contrast to Peirce, was a lot more willing to allow that what we take as evidence is a matter of social consensus, but there is evidence that he backed away from this relativist position in his more mature works (see Rescher, 2000, p. 25). Given all this, and the fact that Dewey treated scientific method as universally applicable in all spheres of life and in all societies, I believe it is not that much of a deviation to fit Dewey into a Peircean conception of realism. Likewise, the pessimistic induction by which Laudan justifies his anti-realism has been ably refuted by important philosophers (see Kitcher, 1993). I believe that Laudan’s reticulated model can stand by itself, regardless of the position he takes on the matter of realism.

The principal characteristic of **Sandra Harding’s** essay—in contrast with Maffie’s—is its utter failure to engage with the arguments set forth in my book. Her long meandering review contains, as far as I can make out, precisely *one* issue where she engages with what I am actually saying. (I will address this lone issue in a moment.) For the rest, Harding is content to speculate on my alleged motivations for writing the book, which she assimilates into the alleged motivations of other “Science Warriors”. Much of Harding’s essay is devoted to repeating science-studies dogma as if it were fact, passing over in silence my detailed critique of some of the central claims of contemporary science studies (chapters 5 and 6). I shall do my best not to follow Harding into imputing motives and instead try to address the (very few) concrete arguments she makes.

Harding has been a leading champion of “interpretive flexibility” in matters of science. She repeats this mantra again:

There is no essence to science; its methods, meanings and use, along with nature’s hard materiality, permit an interpretive flexibility which undercuts the reasonableness of any claims to restrictive definitions of “real science”. (p. 7, Harding’s review)

I argue at length in the *Prophets* that if, as Harding suggests, there are no reasonable criteria to put any restrictions on what is science and what only pretends to be science, then we have no choice but to grant the status of science to the nature-mystical, Vedic sciences. Indeed, Harding does not have to go to India: the Bush White House provides ample evidence of interpretive flexibility right here in America.

How does Harding respond to my concern about interpretive flexibility running amuck? Incredibly, she turns my critique of science studies and Vedic science into just one more interpretation!

Nanda's science, science studies' science and Indian nationalists' science, are three significantly different phenomena, each richly constituted by culturally local beliefs, assumptions and interests as well as nature's actualities. Moreover each such science is itself multiple, since there are conflicting understandings of science within science studies and Indian nationalism and even Nanda at times acknowledges the existence of culturally multiple sciences...

I appreciate Harding's polite courtesy to extend to me the same right to interpret science in *my own* misguided "Enlightenment fundamentalist" ways (as she describes it elsewhere), for that makes me equal to science studies and Indian nationalists, who have the same right to flex *their* interpretive flexibility! But this polite inclusivism defeats the whole point of my critique that science studies mis-describe science and that Hindu nationalists are promoting pseudo-sciences. By declaring unlike as alike—because all are equally "constituted by local beliefs, assumptions and interests"—Harding exemplifies my concern that this kind of epistemological egalitarianism supports the status quo by sweeping all contradictions under the carpet. What I find truly ironic is how Harding, the most vocal champion of the oppressed and the marginal, has inadvertently ended up re-discovering the inclusivist strategy of the Hindu orthodoxy.

But this is not all. Harding describes me as "re-circulating" the charges made by assorted "Science Warriors" including Paul Gross, Norm Levitt, Alan Sokal, Jean Bricmont, Susan Haack, Noretta Koertge and Cassandra Pinnick, among others, who have revealed the many fallacies of science studies. I am honored to be included in this group, but I thought I was making an original contribution to the "science wars" and not just re-circulating the opinion of my fellow "warriors"!

Frivolities aside, I find it disturbing that even now, when all kinds of reactionary political groups are redefining science to fit their agenda, Harding continues to chant the old mantras of "re-envisioning and re-designing science" (p. 8) [in Harding's review]. Instead of answering the real issues raised by the many critics of feminist and other alternative sciences, she continues to scoff at them as disaffected experts protecting their personal-professional turf. In her current essay, Harding goes so far as to suggest that it was because Robert Merton was a Jew that he defended the universalism of science (Jews having suffered from the murderous nativism of the Nazis). Reasoning by analogy, she seems to suggest that my defense for universalism stems from my biography. I find this entire line of reasoning totally absurd and unproductive.

But all this sophistry hides the *real* vacuity of Harding's position. A case in point: I offer an extended case study of India's dalits who, under the influence of B.R. Ambedkar, turned to modern science as a paradigm of empirical methodology which they tried to

emulate as a part of their neo-Buddhist practices. I use that study to challenge Sandra Harding's version of standpoint epistemology which claims that starting from "oppressed groups' lives" will lead to a "redesigned science" which will differ significantly from contemporary science in methodology and content. I show that on the contrary, the oppressed people themselves turned to the supposedly "masculine" and "Eurocentric" modern science to challenge the Hindu metaphysics that treats the laws of caste as laws of nature. I argue that contra Harding, "modern science *is* the standpoint of the oppressed" (p. 203). Harding's response? A deafening silence.

Or consider my extended critique of the overlaps between postcolonial and Hindu nationalist defense of constructing science through Vedic Hindu categories. Harding's response? An extended quotation from Gyan Prakash, a postcolonial historian. In Harding's hands, authority of Prakash becomes "evidence" against me! It will simply not do to fall back on the hoary maneuver of citing what Prakash and others have allegedly "again and again demonstrated". As philosopher of science James Robert Brown has written in a similar context (referring to an essay by Stanley Aronowitz), this style of argument is nothing more than name-dropping:

This rhetorical practice is on a par with my writing, "As Newton has shown, science is wonderful, and as Darwin proved, science is great, and as Einstein amply demonstrated, science is terrific". The Aronowitz argument style is little more than name-dropping. *If there is a case to be made, he must make it with argument, not with endless appeals to authority.* Background information can be justified with a footnote, but central, contentious claims need more justification than a remark of the form: "As the prophet has said...". (Brown 2001, pp. 79–80, emphasis mine)

If Harding believes that Prakash *et al.* have "again and again" demonstrated the falsity of my historical or philosophical claims, well, then, let us *see* the purported demonstration so that we can analyze it critically, rather than just claiming that all this is by now so well known that no one can possibly question it.

There is, however, her critique of my views on feminist epistemology that I must respond to. According to Harding, I am behind the curve and haven't yet figured out that feminist epistemologists like Helen Longino and herself are not demanding women's "subjective experiences, or interactionist values" be allowed to enter into the scientific reasoning (both as the stages of discovery and justification).

Surely Harding is joking?! I define interactionist values as a preference for "dynamic, interactive, non-dualist relation between elements of nature, rather than reductionist and hierarchical 'master-molecule' models of control presented as 'facts'...the meek shall put together what the powerful have torn apart" (p. 147). I do not derive these interactionist values from object-relations theory alone (which Harding erroneously describes as being *passé*). In fact, I clearly cite Harstock, Harding's fellow standpoint epistemologist, as providing the most tenable ground for why women would have more relational, less dualistic values. I follow it with a clear account of how Helen Longino's recent work on feminist virtues seeks to operationalize the relational interactionist values defended by other feminist heavyweights, especially Harding, Keller, Haraway and postcolonial eco-feminists¹². Anyone who is even vaguely familiar with feminist science literature can attest to the centrality of

these feminist *political* values as feminist *cognitive* virtues. I suspect that Harding has not read my critique carefully enough. Otherwise it is difficult to understand why she would raise such a baseless point. In any case, she completely misses the real point of my critique of interactionist values, namely, that these values open the door to a reactionary Third Worldism.

Let us look at Harding's second complaint. She scoffs at my argument (p. 146), roughly paraphrased here, that in their keenness to take a feminist challenge to modern "Western" science, which they see as the bastion of masculinity, feminists began to valorize the taken-for-granted assumptions that structure the everyday lives of women, especially women from non-Western societies, since the latter were considered to be the most oppressed of the lot. (Oppression, of course, is a crucial cognitive virtue in feminist epistemology. The greater the oppression, higher the potential for achieving "strong objectivity", that is, higher the potential for revealing the taken-for-granted andocentric biases of the entire scientific establishment.) It is for this reason I charged that while feminist epistemologists are quick to read all statements of facts emerging from modern science as value-laden, they take the social and cultural values that regulate the lives of non-Western women as cultural givens—indeed, as precious cognitive resources for "improving" "Western-patriarchal" science. My point was that while Western feminists are quick to want to challenge the factual claims and methods of modern science in light of the values of Third World women, they show no concern at all in using the facts and methods of modern science to challenge the worldview and values in those parts of the world where a vicious patriarchy still reigns. My point was—and it still stands—Western feminists are *using* third-world women as rhetorical resources in carrying on their own quarrel with modern science and technology in their own societies. There is nothing contrary to the spirit of feminism in my thesis, as Harding claims. I want to take back nothing from the passage that Harding is so exercised about.

David Turnbull, along with Helen Verran, his occasional co-author and a fellow Aussie, has been an indefatigable promoter of epistemic egalitarianism. Even though we disagree on many matters, I have learned a lot from Turnbull's and Verran's writings in the past. It is gratifying that both of them have commented on my work.

Turnbull reads the *Prophets* as "throwing a gauntlet to constructivists with a question: Is constructivism adequate to the task of resisting the forms of fascism we now face?" He responds with a passionate defense of "emergent constructivism" embodied in tacit assumptions and craft-like practices of the "vibrant multiplicity" of local knowledges around the world. He calls for development of "clumsy institutions" that celebrate this multiplicity and defy the old-fashioned idea that "when faced with contradictory definitions of a problem, we must choose one and reject the rest". Such an approach, Turnbull believes, does not preclude critique of local traditions, and is fully capable of responding to such complex techno-scientific and socio-economic problems as global warming. I, for one, remain unconvinced.

Epistemological relativism¹³, Turnbull argues, is not a luxury but a necessity forced upon us by the realization that there "there does not exist a fixed universal set of standards of logic, rationality, truth and methods that are sufficient to choose between

competing knowledge claims” (p. 6). Science studies, he argues, has shown that all these protocols of good reasoning and rules of evidence which we thought were universal are actually co-produced by specific knowledge traditions. Echoing the Strong Programme¹⁴, Turnbull argues, since we all approach nature through “socially and culturally inflected...ontological assumptions about space, time, agency, subjectivity, causality, structure...” we are “irredeemably stuck in the meshes of our own ways of knowing and acting”. Because there is no position external to these meshes of our own ways of knowing and acting, we have no choice but to accept that there are many forms of knowledge, with none claiming any special privilege.

But is it really true that we have, today, no position external to our own local ways of knowing? Is that really true that we have, today, no criteria for choosing better or worse methodological rules and/or ontological assumptions than those supplied by our own cultures? Is that really true, today, that to choose between contradictory epistemologies amounts to erasure or suppression of non-Western cultures and that all we can do is to celebrate them all?

But the existence of transcultural knowledge is a fact of our lives and has been since the beginning of the modern era of industrial (and yes, colonial) capitalism. The constantly evolving and growing methodological conventions and conceptual categories of modern science *do* provide the vantage point outside of any one particular local culture from which the adequacy of traditional epistemologies can be judged. Because social constructivist critics like Turnbull believe that no knowledge can ever break free from the social cultural context of its origin, they treat this fact of transcultural knowledge as one more piece of evidence of Western ways of fact-making masquerading as universally valid method.

I, on the other hand, believe very strongly that the universality of modern science can be philosophically grounded in the universal human interest in acquiring reliable knowledge. Let me explain:

I am sure that those who, like Turnbull, admire the wisdom and ingenuity of local traditions in solving empirical problems will agree to at least this much: regardless of whatever else might motivate their search for knowledge, *all* people have an overriding interest in acquiring knowledge that is reliable, in the sense that it can help in controlling and predicting the forces of nature. Undoubtedly, this pragmatic interest in manipulating nature can become the dominant ideology in some cultures under some circumstances, while it remains covered with religious taboos and superstitions in other cultures in some circumstance, leading to problems in both cases. But one can agree that it *is* an interest shared across cultures. If we can agree upon this minimal motivation for science, we can safely say that following the methodological conventions and values of modern science (e.g., choose those theories that pass more stringent tests, assume naturalism, do not invoke forces that are in principle unobservable to explain empirical phenomena) is a preferable way to conduct inquiry in all cultures. Cultures with different ontological categories can still agree on methodological rules of science, because all cultures have an interest in reliable knowledge, and science has a proven track record of picking out reliable knowledge more often than other ways of setting up inquiry.

The tragedy is, as I have tried to point out in the *Prophets*, that while even the most remote cultures in the world are becoming adept at using technologies that embody the reliable and dependable knowledge produced by modern science, the rules of method of science are not being applied to test the efficacy of traditional epistemologies or the validity of traditional ontologies. This has created a situation where highly destructive technologies are put at the service of religious passions which are being justified in vocabulary of ancient faiths and local knowledges. A defense of localism and multiculturalism *in this context* can only fan the flames.

So, my response to Turnbull is that we are *not* “irredeemably stuck in the meshes of our own ways of knowing and acting”. Turnbull’s preference for localism is his choice, not a necessity imposed upon us by the necessarily “co-produced nature of all knowledge”. (Indeed, the kind of complete intertwining of nature and culture that Turnbull is buying into was a characteristic of *pre-modern societies*. For more on the subject of co-construction, see my comments on Helen Verran, below.)

In my opinion, Turnbull’s support of a worldview which allows “celebration of pluralism and incommensurability” is not productive. Take, for example, his insistence that multiple (though unspecified) ontologies of different cultures are resources for finding solutions to the problems of global warming. I fail to understand how different understandings of causes and mechanisms will actually contribute to the solutions which, in addition to all other socio-economic reforms, will require scientific-technical solutions. How will different ontological schemes actually help us understand the *real* mechanisms are actually working to raise the temperature here on earth?

Turning to **Helen Verran**, I am struck by the hostile tone of her critique. I deeply resent her insinuation that my “actual aim” is not to engage with what is going on in India, but rather to opportunistically “use” India for “tactical advantage”, as mere “ammunition”, as “ordnance” in America’s science wars started by the “nasty little boy tricks” of my colleague, Alan Sokal. I do not have to prove my credentials as a concerned intellectual of Indian origin to anyone, but Verran should know that I have been writing against the neo-Gandhian/postcolonial embrace of irrationalism and romanticism and its connections with social constructivism way back since early 1990s. Four of my extended critiques of social constructivism had already been accepted for publication when the science wars exploded between 1994 and 1996¹⁵. Verran should also know that my engagement with issues related to nature of science and its relationship with Hindu traditions date back to 1980s when I was still working as a scientist and later as a science journalist in India. Indeed, India was the very reason I came to science studies in the first place. The suggestion that I have some unspecified ulterior motives for dragging India into the science wars is deeply offensive to me.

Equally offensive is to have Verran quote long passages from my Indian opponents (Vinay Lal, Gyan Prakash and Gayatri Spivak) to me. (I wonder if it would be OK for me to respond to Verran by quoting passages from Alan Sokal?!) While it is perfectly acceptable to bring other scholars into the debate, what I object to is having my ideas framed by the same postcolonial conceptual vocabulary that I am contesting. (For my comments on the philosophical problems with using authority as evidence, please see my response to Harding.) Verran is clearly not interested in *the book that I have written*,

but in a *book she wishes I had written*, had I only seen the light of the metaphysics of co-construction of nature, knowledge and knowers (see below). This kind of “review” amounts to an evasion of engagement.

After carefully reading through her sometimes rather obscure writing, it is not clear to me what exactly Verran’s complaints are. She concedes that the kind of “foundationist relativism Nanda lambastes” is, in fact, “morally irresponsible...in just the ways that Nanda argues” (p. 9). She also concedes that I “adroitly demonstrate the flaws in eco-feminist arguments and reveal the shortcomings of arguments of those waging an epidemically-based relativist critique of science within the India academy”. Verran also grants that I give an “informed reading of school of Euro American science studies scholars who advocate epistemic charity toward other knowledge systems” (p. 16).

So what exactly is the problem? My clarifications on the nature of overlaps between social constructivism and Hindu apologetics (see the previous section) should answer her legitimate complaint on that score. Verran’s major criticism seems to be that while I am quick to attack the magical and hierarchical metaphysics of the Vedas, I am “blind to science’s metaphysics” and that I am “promoting a particular metaphysics while insisting that [I am] operating in a metaphysics-free zone” (p. 7). I am puzzled by this complaint since nowhere in the book do I argue for metaphysics-free knowledge (as if it were even possible) or suggest that modern science lacks its own metaphysics. I clearly indicate that my opposition is not to metaphysics *per se*, but to a *spiritualist* metaphysics which treats disembodied consciousness as the ultimate ground of all matter, as the Vedic cosmology does. Taking a leaf out of the Arkansas court ruling over creationism in America, I expressly include a commitment to a naturalistic metaphysics, at least at the methodological level, as a defining character of modern science (pp. 68–9).

On closer reading, Verran’s criticism turns out to be that I refuse to take the Bruno Latour-inspired “co-constructionist turn”, which she, David Turnbull and Sandra Harding, and many other prominent cultural studies scholars seem to be taking. This co-constructionist turn requires that we do not treat the natural world (the object), the knower (the subject) and knowledge (science) as distinct and separate entities, but as “clots...emerging all in one piece” (p. 11), that is, each *made up* of the other two and each *making* the other two. There is no conception of nature (the object of scientific inquiry) as existing prior to and independent of the subjectivity that the knower (the subject of scientific inquiry) brings with himself/herself. This subjectivity, in turn, does not exist apart from the cultural discourses (including the existing knowledge of the object) prevalent at any given time and place that the knower lives in. Echoing Bruno Latour’s conception of co-construction in which “a single narrative that weaves together...laws, power, morality in order to understand what our sciences tell us about the chemistry of the upper atmosphere” (1993, p. 7), Verran suggests that a culture’s “conception of nature and society are embodied answers to how should we live” (p. 12). In other words, morality and ontology make each other; laws of morality in a society are co-made with what that particular society considers to be the laws of nature.

This, then, is the substance of Verran’s case: I act “irresponsibly” because I pass up an opportunity to go beyond the separatist, un-holistic metaphysics. My error is that I

have resisted the charms of subject–object/culture–nature co-construction, the latest fashion in science studies.

My response is that those like Verran who are rushing headlong into this fad have not fully grasped its dangers. One, this holistic, “unified field” metaphysics is the quintessential metaphysics of magic and supernatural superstitions in *all* pre-modern societies. This is of special concern in India where the identity of nature with gods is upheld as the essence of Hinduism’s most sacred texts, and where the complete fusion of morality and natural laws is upheld as the highest ideal (dharma). Of course, Verran, Turnbull, Harding and others may still find this new holism more intellectually satisfying—that is their prerogative. But then they should give up the talk of “emancipation” of the oppressed, for the fact is that fear of gods and the power of superstitions have a proven track record, continuing into the present era, of cruelty, inhumanity and authoritarianism. Indeed, they would do well to heed the pronouncements of their intellectual hero, Bruno Latour, who has made it clear from the very start that his conception of co-construction “eases us into the non-modern (or a-modern) world” (1992, p. 288)¹⁶. In sum, it is not particularly responsible or wise to embrace this kind of non-modern holism.

Secondly, it seems to escape Verran’s notice that the fusion of subject/culture and object/nature is a perfect ideology of a closed society in which there is no possibility of obtaining independent evidence that can challenge the exiting conception of laws of nature and morality, (since the two are co-constructed). If nature can have no meaning for us apart from how we “co-construct” it out of our subjective meaning, wishes and fears, then one denies even the possibility of obtaining any independent evidence that can challenge our conceptions of nature. The whole point of modern science has been to create a wedge between subjective meanings and actual facts about nature which are warranted by independent evidence judged by person-indifferent criteria. To deny any split between our subjective meanings and facts will be a huge step backward.

It is with great relief I turn to two voices from science studies whose critique is accompanied with a fair amount of sympathy for my position. I refer here to the comments by Sujatha Raman and Zaheer Baber.

Sujatha Raman describes her own dismay with the “blind-spots” of the STS community about the supposed virtues of local knowledges. She very correctly points out:

In their attempt to bring down Western science down to the same level as cultural beliefs and non-modern sciences, constructivist scholars have failed to examine the social context of these latter traditions. Reserving their political sensibilities to the doings of science, they have ignored the links between ethno-knowledges and systems of *domination*. (p. 51 of the review)

My sentiments exactly!

Raman also provides independent support to my critique of a-modern hybridity (see my response to Verran, above). She agrees with me that:

the blurring of the human, the natural and the cultural that is popular in STS...masks an uncomfortable fact about its reactionary political implications. The modern boundary

between the categories of human, nature and culture is central to the capacity to challenge entrenched mystifications about the apparently natural order of things.

Again, I could not have said it better myself.

But Raman poses some probing questions which I must answer. Raman believes that in my critique of the core principles of science studies, I do not leave any room for legitimate criticisms of modern science and technology. In my advocacy for science as a legitimate “lingua franca of the modern world”, I run the risk of “supporting every turn science has actually taken”, without adequately considering the need to examine science scientifically (p. 2). Obviously, as Raman points out, not every critique of science is unwarranted and reactionary.

This is a legitimate critique and I accept full responsibility for sometimes leaving the impression of being an unreconstructed science booster. I do appear at times to treat science as “holy” (I even say it at some point in the book) and give the impression that I hold it beyond any criticism. If I were to write the book again, I would make sure to emphasize that I do *not* believe that all critiques of the modern age are reactionary, or that all critiques of scientific methodology *must* lead to irrational thinking.

I firmly believe that it is possible—indeed, necessary—to respect the rationality of science while holding it accountable. Here I find the distinctions offered by Alan Sokal and Jean Bricmont very useful. They offer four different meanings of the word “science”:

an intellectual endeavor, aimed at rational understanding of the world; a collection of accepted theoretical and experimental ideas; a social community with particular mores, institutions and links to the larger society; and finally applied science and technology. (Sokal and Bricmont, 1998, p. 202)

When I defend science as a “lingua franca” of the modern world and emphasize its unfulfilled potential for secularization in India, I mean first and foremost science in the first sense of the word, as an intellectual endeavor. The unique features of this intellectual endeavor are described well by Alan Sokal in words which describe my own understanding of science very well:

By science I mean a worldview giving primacy to reason and observation and a methodology aimed at acquiring accurate knowledge of the natural and social world. This methodology is characterized, above all else, by the *critical spirit*: namely, commitment to the incessant testing of assertions through observations and/or experiments—the more stringent the tests the better—and to revising or discarding those theories that fail the test. One corollary to the critical spirit is fallibilism: the understanding that all our empirical knowledge is tentative, incomplete and open to revision in the light of new evidence or cogent new arguments (although the most well-established aspects of scientific knowledge are unlikely to be discarded entirely). (Sokal, forthcoming)

Of course, science as an intellectual endeavor operates within the messy here and now of social-political institutions linked to powerful business and military-industrial interests. That is to say, science in the first and second senses are not insulated from science in the third and fourth senses, above. But to say that they are interlinked is very different from saying that they are inseparable or co-constructed. The problem that Sokal, myself and other critics of science studies have been exercised about is how

science studies reads all the undeniable problems at levels three and four (i.e. social institutions and uses of science and technology) into the levels one and two (the worldview and methods). It is not so much the critique of science we object to, but this disregard for distinctions between context and the content, uses and the logic. This total critique of science is self-defeating, because in order to protest against the worst excesses of science and technology, it demolishes the very possibility of impartial evidence which is needed for intelligent, evidence-based public policy intervention in controlling the uses of science and technology.

To return to Raman's critique, when I talk of the worldview of science as the *lingua franca* for the modern world, I am by no means suggesting that we close our eyes to the possibility of distortion of the worldview and even content of science, nor am I suggesting that any new application that results from well-attested scientific theories (e.g., the Green Revolution) must be automatically given the seal of approval. All I am suggesting is that we critique every aspect of science and its applications while retaining and respecting a qualitative *distinction* between the social and the epistemic, the context and the content. In the absence of such a distinction, science becomes politics by another name. I realize that the distinction between the social context and the logic of science is seen by many as not "radical enough". But I believe that radical politics requires that we refrain from being too "radical" in deconstructing science into its social context.

Another issue that Raman raises demands attention. In my book, I take issue with the well-known defense by Frederique Apffel Marglin of the traditional Indian understanding of smallpox as caused by the anger of a goddess, Shitala. Raman takes me to task for misunderstanding Marglin's intent. The crux of Raman's critique is that Marglin is correct to criticize the colonial powers for their arrogance in assuming the superiority of vaccination and banning the traditional practice of variolation-plus-goddess-worship as sheer superstition without examining its empirical logic and efficacy.

Raman's defense of Marglin would carry more weight if Marglin did not herself eagerly drag her defense of the goddess view of smallpox into the contemporary debates. Far from simply offering a historical understanding of the clash between Western and indigenous understanding of the causes and cures of smallpox, Marglin uses this case study to offer a holistic, non-binary alternative to the "logocentrism" and "phallogocentrism" of Western science. Marglin was by no means offering a purely historical study. She was actively and self-consciously engaged in producing an alternative, Indo-centric worldview suitable for politics of new social movements engaged in environmental action, women's rights and alternative technologies.

The problem with Marglin goes back to the STS debate over "capturing". In a society like India where gods and goddesses have not lost their hold on medical practices or on legitimation for social practice, a supposedly disinterested, even-handed defense of the embedded rationality of religious practice, invariably helps those who derive their already considerable authority from religious traditions. In the context of contemporary India where superstitions like shitala goddess, or the newly emerging AIDS goddess¹⁷ are contemporaneous, where they are by no means consigned to a dim historical past, Marglin's defense of the traditional view of smallpox cannot be simply

seen as an innocent defense of a *historical* experience of the colonized who were silenced by arrogant Westerners. As Raman correctly suggests, one must be willing to take the claims and practices of the non-Western people seriously—that is, seriously enough to subject them to the critical spirit of inquiry using the methodology that has evolved out of the practices of modern science. This kind of critical, demystifying dialogue is what I mean when I suggest that modern science must retain its status as the lingua franca of the modern world.

Zaheer Baber, a science studies scholar now based in Canada, has been a chronicler of science in India and an astute commentator on the upsurge of nativist intellectual currents in India. I find it most gratifying that Baber, with his engagement with STS and the Indian debates, should affirm the main of my book. He clearly shares my concern that in its zeal for promoting difference and multiculturalism, science studies has given uncritical support to completely sanitized and romanticized conceptions of non-Western societies and their sciences. Truly respecting the other requires hard work, including criticism, where due.

Baber reminds us of the long history of science and technology getting dragged into nationalist passions and jingoism. This danger is real and growing in the world that is getting more sharply divided into rival civilizational, religious blocks. Well-intended celebrations of pluralism, without any objective basis of comparison, can aid national jingoism. Zaheer Baber clearly shares my concern over this issue. I feel affirmed and encouraged by his comments.

4. Response to Postcolonial Critics

In this section, I will respond to the cluster of critics (T. Jayaraman, Vinay Lal, Susantha Goonatilake and Walter Mignolo) who approach the *Prophets* primarily from their concern with India, and/or with postcolonial theory.

I have learnt a lot from **T. Jayaraman's** comments and agree, in part, with many of his critical observations. If I had had the benefit of this kind of intellectual give-and-take when I was puzzling through these issues, I would have written a better book.

As Jayaraman points out, the militant obscurantism of Hindu nationalism expressed itself first as revisionist history and later as pseudoscience. While historians have been able to fend for their discipline, mine is the “first significant attempt” to counter the Hinduization of science.

Jayaraman affirms the dangers of bracketing the validity of the truth claims of traditional knowledge for pretty much the same reasons as mine. He very correctly points out that relativist critiques “offer ready-made justifications for all traditional beliefs which are quite commonly deeply laden with gender or caste discrimination...To refuse to examine the validity of traditional beliefs is tantamount to accepting or condoning such discrimination”. He points out the special dangers of this style of thinking for India, where pre-modern traditions still have not lost their hold on the popular imagination.

He finds two flaws with my thesis, both with a grain— but only a very small grain!—of truth in them.

His first complaint is that I do not give a nuanced account of “India’s contemporary intellectual space”. On the one hand I underestimate the importance of the Marxist left that did not fall under the spell of postmodernism, while on the other hand I overestimate the influence of neo-Gandhians who did take the anti-science position. He writes that I present Indian intellectuals as a “supine intellectual class” that simply allowed the Hindutva juggernaut to roll all over them.

It is possible that I may be giving disproportionate weight to the anti-modernist, relativist tendencies in India. My problem is that I wrote the book while I was living in the US and working in relative isolation from other intellectuals in science studies and South Asian studies¹⁸. I did my best to make up for my isolation with extensive reading of published reports in the media and scholarly journals. But it is possible that I failed to see the strength of the emerging “broader secular platform” that Jayaraman talks about. I hope to make amends by returning to India and continuing my future work from there.

Be that as it may, there are at least three reasons why I do not think I am totally off the mark in focusing on the neo-Gandhian anti-modernist camp. For one, even though there were only a handful of prominent neo-Gandhians openly theorizing an irrationalist, nativist position on matters of science and development, their ideas did serve to channel postmodern and postcolonial theory in the West into the agendas of new social movements for alternative development and ecology, encouraging a populist politics often couched in traditional idiom. True, as Jayaraman points out, natural sciences, engineering and economics were not affected by the relativist trends. But these mainstream disciplines, unfortunately, have always been largely absent from public debates of any consequence. Secondly, I agree that the Marxists never intellectually consented to the traditionalism of the Gandhians. But is it not true that Marxists did not hesitate in making common cause with Gandhians when it came to issues dear to their own hearts, such as opposition to globalization and economic liberalization? While I agree that Marxists are a significant force in mobilization against Hindutva, their work tends to discount the semi-autonomous role of religion in public life. With a few honorable exceptions, Jayaraman included, Marxists have not addressed the relevance of science for a continuous critique of religious imagination in India. Thirdly, no one can deny the importance of Indian historians in exploring the strengths and weaknesses of secularism in India. But with all due respect to eminent historians, they simply have not paid sufficient attention to social and intellectual history of science and rationalism in India. Given that “science”, properly translated into Vedic categories, plays such a central role in neo-Hindu image of Hinduism, this is a serious deficiency. In other words, while I do not deny the continuous strength of secular intellectuals in India, they have not stood up to the twin challenges of postmodernism and Hindutva in matters of science. Their responses have been more reactive (e.g., opposition to the outrage of astrology) rather than proactive.

Jayaraman’s second complaint is that I offer too idealistic a picture of the Enlightenment, “making it too much of a good thing”, without locating it in the political economy and other material changes like mass literacy.

I admit that my treatment of secularism and secularization was a bit muddled (chapter 2)¹⁹. But a careful reading will reveal that I am not dismissive of the strengths of India's constitutional provisions establishing India's own brand of secularism (pp. 57–8). Nor do I treat secularism primarily as an intellectual project, de-linked from the larger patterns of socio-economic changes like industrialization, urbanization, growth in literacy rates, universal franchise and a reasonably free judiciary and mass media. It is true that I deal with these larger socio-economic changes more as a backdrop for the ideas that I am investigating, but I do give them salience in understanding the process of secularization and fully acknowledge the distance India has already traveled (see pp. 30–3, 49, 56, 202, 265–6). A careful reading will reveal that, overall, I agree with Jayaraman that “there are considerable resources for opposing Hindutva...the hold of Enlightenment reason is not as weak” as I sometimes fear.

But, whereas Jayaraman seems to find hope for a secular India in the existing religious-cultural resources (he mentions tolerance and pluralism), I find them to be *real but inadequate*. Take the celebrated idea of “tolerance”. In India today, a romanticized conception of the uniquely “tolerant Hindu” has become an excuse for *not* tolerating the “intolerant” Muslim and Christian. Whatever popular reserves of tolerance and multi-culturalism there are in India—and I agree that there are such reserves, not just among Hindus but among all faith communities—will have to be integrated into a shared secularized public culture.

By secularized culture I don't mean a godless culture—that is neither possible nor desirable. By a secular culture I only mean a culture where god or spirit no longer serves as an explanation of nature, and where metaphysical Truth (which is *neti-neti*, which is beyond “mere” senses) no longer sets the standard of what is accepted as authoritative in the larger society. Why is this important in India? As the example of witchcraft Jayaraman cites, religion in India exerts its authority to a very large extent by retaining its function of providing explanations of nature and offering “solutions” to problems of physical existence for which, today, we have better answers. But secularization of natural knowledge has a unique importance in India for the high-end of Vedantic Hinduism seems to draw English educated, urban upper classes, including many physicists, engineers and other natural scientists as well. In the absence of a serious and sustained public challenge by secular scientists and other concerned secular intellectuals, a New Age pseudoscience which allows all kind of occult, mind-over-matter phenomena is taking hold in this privileged class of modern, urban Hindus. In many of these cases, the supposed scientificity of Vedanta imperceptibly melds into Hinduism's superiority over other religions.

It is obvious from Jayaraman's own writings on these issues that he is sympathetic to the project of secularization. His concern is who is going to do it? What interest groups are there and what is their place in the larger political economy? I admit I don't have an exact blueprint. My reading of Ambedkar has led me to believe that dalits are natural allies in this project of secularization. Now that we have had a taste of what reactionary Hindutva feels like, it is perhaps time that scientist and other concerned intellectuals will join dalits, Marxists and other secular humanists. This will mean a more pro-active

engagement with the *content* of the cosmology of Hinduism (at both the folk and elite levels), and not just with the political strategies of Hindutva.

It appears that **Vinay Lal** was moved not so much to review the book, but to rebuke the author. His commentary is one long stream of sarcasm, laced with personal attacks on my competence and my personal integrity, turning me into some kind of a self-hating native bent on “rubbishing” all Hindu Indians. Apparently, only those who excel at rubbishing the Enlightenment can speak for India these days. Knowing of Lal’s great admiration for Ashis Nandy—Lal has recently edited a festschrift to Nandy (Lal, 2000)—I naturally expected a strong critique from him. But I did not expect that he would stoop to such a hostile and willfully misleading presentation of my positions.

In what follows, I will respond to three issues Lal raises which have the potential to further the debate about postcolonial theory and Hindu nationalism. These three issues are: the reason why postcolonial theorists like Ashis Nandy, whether they intended it or not, are serving as Trojan Horses of the Hindu right; the importance of the disenchantment of nature for the project of secularization in India; and, finally, the fascism question and its relevance to the preeminent place of monism in the worldview and politics of neo-Hinduism.

Lal has learnt well from his guru. Back in 1987, when a young woman committed sati in India, Nandy famously demanded to know what *adhikar* (right) urbanized, de-cultured feminists had to challenge this act of “supreme sacrifice” sanctioned by Hindu traditions. Following his master’s voice, Lal demands to know what competence do I have for questioning the profound wisdom of his guru. He declares me to be “ill-equipped” to address the issues I raise in the book.

Let us see what exactly the great postcolonial theorists are saying that I am so terribly ill-equipped to understand and—heavens forbid!—dare to question.

As I make clear in the *Prophets* and will restate here, postcolonial theory is, above all, an epistemological critique of the very possibility of knowledge that can capture some aspect of reality truthfully, regardless of the context of its production (pp. 153–4). Postcolonial theorists, to the last man and woman, decry this “empirical-realist” epistemology (Roland Inden’s term) as Eurocentrism masquerading as universal reason. What is more, postcolonial theorist, to the last man and woman, *simply assume without argument* that this empiricist-realist conception of knowledge has already been refuted and buried by post-positivist philosophies of science. Kuhn and Feyerabend are important influences on Ashis Nandy, Partha Chatterjee, Vandana Shiva and Roland Inden, with Inden showing a special interest in post-Kuhnian developments in science studies²⁰. The other stream of skepticism toward the realist episteme comes from post-structuralism of Michel Foucault, via Edward Said’s classic, *Orientalism*. Said very clearly lays down the anti-realist position which has become axiomatic for postcolonial theory: “[there can be no] true representation of anything, because any and all representations are embedded first in language and then in the culture, institutions and political ambience of the represented” (Said, 1979, p. 272; see also, pp. 10–11). The nearly perfect overlap with the dominant science studies position is obvious. Postcolonial theory is relativist chickens coming home to roost.

Now, postcolonial theorists' special claim to fame has been to apply this great "insight" to Western representations of the Orient. The result? A sweeping condemnation of *all* Western representations of India—*regardless of whether they are factually valid or not*—as a colonial mutilation of India's original cultural gestalt. The following syllogism is at work here;

- a. There is no representation free of power;
- b. The West exerted power over India, its most prized colony;
- c. Therefore, all colonial representations of Indian society—its sciences, culture, and religion—were meant to serve the Western interests in controlling India.

Postcolonial theorists, being *post*-colonial, are concerned with the effects of this power-knowledge in the present era. The argument then takes the following turn: Because all modern Indians—regardless of whether they were Hindu nationalists or secular socialists—derive the basic knowledge of their country's history and culture through these colonial constructions, their minds are infected by colonial thinking. Whatever his or her politics, whoever speaks from within the discourse of modernity—that is, accepts the legitimacy of scientific rationality, technological progress, the whole idea of modern secular society which respects rights of the individuals over communities—is speaking from within the colonial discourse.

The question then arises: If colonial ideas have so colonized the minds of modern Indians, what is a radical anti-colonial to do? Why, then, they must purge themselves of these Western categories of thought themselves! "Authentic" anti-colonialism would continue to fight not just the political economic interests of the imperial powers, but their conceptual categories as well, chief among them being the empirical-realist episteme that is the engine of modernity. As Ashis Nandy never ceases to intone:

all authentic anti-colonialism must affirm the cultural categories of the victims of colonialism....All genuine resistance to colonialism must [express] skepticism toward modern science [which is] the basic model of domination of our times and the ultimate justification for all its institutionalized violence. (Nandy, 1987, pp. 113, 122)

It was necessary to recapitulate this base-line, non-negotiable position of postcolonial theory that I describe in *Prophets*. This allows us to see how pathetic Lal's complaints are.

I find it hilarious that Lal should criticize *me* for ignoring "subtleties" and "nuance", while happily swallowing postcolonial theory hook, line and sinker²¹. There is nothing more sweeping, more un-subtle, and more naively reductionist than the postcolonial view of the Western episteme outlined above. I am hardly the first one to point out that postcolonial theory reduces an entire genre of Orientalist scholarship to exercise of power²².

But while previous critics of postcolonial theory limit themselves to pointing out the non-dominating, "affirmative" and romantic motivations the Orientalists had, over and above their interest in power, I am asking a different question which cannot even be asked within the power-knowledge episteme of postcolonial theory. I worry *not about the political motivations of the Orientalist knowledge, but about the objective valid-*

ity of their claims. I hold on to the idea that even those motivated by power can *still* sometimes find out some facts about another culture which are objectively true. This wide gap between Lal and me should help explain why he is having such a hard time understanding me.

Take, for instance, the case of Roland Inden which Lal accuses me of mangling. Inden cites the example of Louis Renou (1896–1966), the well-known French Indologist. Renou at one point points out the tendency toward scholasticism in the Vedic texts describing various rituals and suggests that “ritual has a strong attraction for the Indian mind, which tends to see everything in terms of formulae and methods of procedures...”. Inden accuses Renou of presenting Indians as “distortions of the normal and natural (that is, Western) thoughts and institutions”. Inden believes that had Renou not held up Western standards as universally valid, he “might have been able to present Indian ritualists to be perfectly rational within their own conception of the real world, which was based upon metaphysical assumptions differing from those of nineteenth-century England”. In other words, “Vedic thought appears mystical and idealist” *only* when set against empiricist rationalist epistemology which Inden holds up as a construction of (an already passé) modern Western science (Inden, 1986, pp. 411–2). Hindu science (Vedic rituals were in part, intended to manipulate physical forces of nature), in other words, can only be analyzed only through Hindu categories.

Let me clearly explain my deep opposition to this style of thinking. The idea that Vedic thought appears mystical and idealist *only* when set against a supposedly alien and Orientalist empiricist epistemology leaves no room for the internal critics of Vedic mysticism. I refer the interested reader to my exposition of Ambedkar’s attempt to interpret the teachings of the historical Buddha in a naturalistic-pragmatic vein (chapter 7). On Inden’s reading, Ambedkar’s rationalism can only be seen as imprisoning him in an Orientalist, colonial discourse. My point is that if we insist that Indian science can only be explained in Hindu categories, and the Hindu categories are defined in opposition to the supposedly Orientalist realist-empiricist tradition, then we will completely fail to give any importance the rationalist traditions within India. This will distort the Indian philosophical tradition beyond recognition, for the simple fact is that there were strong, albeit always silenced, materialist and empiricist tendencies within Indian philosophy.

While historical accuracy is important, it is not my *primary* concern: I leave that task to professional historians of Indian science who have studied the original texts. My primary reason for opposing postcolonial theory (Lal mocks me for getting “unnerved” every time I read the word “post”) has to do with its deeply reactionary implications. I believe the kind of postcolonial theory preached by Ashis Nandy, Ronald Inden and Vinay Lal *gives a carte blanche to even the most reactionary traditions, while silencing all rationalist and humanist critics of the tradition from within the Indian society.*

To continue with Inden’s case, if India can only be understood through Hindu metaphysical categories and through Hindu epistemology, how can we ever interrogate these metaphysical categories? Are postcolonial theorists not condemning us forever to live as if the great idealistic metaphysics of Vedanta were actually describing the real world? Are the postcolonial critics not condemning us forever to think through the

logic of analogies and correspondences hallowed by the Vedic tradition? Are postcolonial theorists, who are so astute at detecting the power hidden in Western ways of knowing, not asking us to close our eyes to the unjust power that Vedic metaphysics has exercised for centuries by legitimating hierarchy and superstitions?

I contend that is *exactly* what they are doing. Let me go back to Lal's own interview with Nandy to explain why I insist that postcolonial theory is a Trojan Horse of the Hindu right-wing which as made its way into the Western and Indian academia. When Lal asks Nandy to describe his intellectual project, Nandy replies as follows:

My first obligation....to academics, scholars and intellectuals in the Third World is to provide an intellectual framework less encumbered by the paraphernalia of western knowledge...that is more suitable to intellectuals belonging to this part of the world. (Lal, 2000, p. 32)

What kind of intellectual framework would that be? Nandy provides these details:

...Intellectuals in this part of the world [do] not use the language of 'interrogating' the axioms [or what is taken for granted in the tradition]...In fact their aim would be to say that if they consider these axioms to be part of eternal verities, they are merely extending them, or enriching them. (Lal, 2000, p. 34)

How are they to "enrich" the "eternal verities" of the tradition? First and foremost, by maintaining

an authentic relationship to the tradition....By finding one's own civilization's authentic vision of the future. (Lal, 2000, pp. 44-5)

What would such a relationship of authenticity entail when it comes to matters of epistemology? Nandy's answer: To stay within the Indian episteme. But the Indian episteme, if you exclude the modern and discount the Islamic, is by default a largely Hindu episteme with its unique laws of logic which Nandy celebrates as follows:

As Indian logicians would put it, there is a defiance of the law of identities: A is not not-A. Indian civilization would give something of this kind of definition: A is only primarily A, it must include something of not-A, even to be A....A has to include something of not-A to be even fully A. [Therefore Hindu tradition recognized, Nandy continues, no absolute separation of evil and good.] (Lal, 2000 p. 50)

But then, what to do with the episteme of modern science and its technologies that even Nandy uses everyday? You cannot wish them away. Nandy's recommendation—his famous "critical traditionalism" which recommends that tradition can "enrich" its "eternal verities" by carefully accepting those elements of new knowledge that do not challenge or alter these "verities". I contend that this critical traditionalism, at bottom, is no different from the orthodox Hindu anything-goes inclusivism which Nandy celebrates as follows:

This civilization has survived not only because of the 'valid,' 'true,' or 'proper' exegesis of the traditional texts, but also because of the 'improper,' 'far-fetched' and 'deviant' reinterpretations of the sacred and the canonical....[for example] Rammohun Roy 'legitimately' interpreting Shankara's monism as monotheism, and the instance of Gandhi 'legitimately' borrowing the concept of ahimsa or non-violence from the Sermon on the Mount and

claiming it to be the core concept of orthodox Hinduism. However odd such 'distortions' appear to Westernized Indians or to the scholastic Brahminic traditionalists; they are the means which the Indian civilization has repeatedly used to update its theories of evil and ensure cultural survival while allowing large scale social intervention. (Nandy, 1987, p. 118)

To this list of "improper" but still "legitimate" interpretations, Nandy could easily have added the interpretation of Vedic monism as quantum physics, the interpretation of Einstein's energy-mass equation as affirmation of Brahman, equation of mystical experiences as empirical data, the Vedic cosmology as a theory of evolution so and so forth. Nandy is describing here exactly the mechanism through which Hindu nationalists are absorbing modern science into the spiritual monism of Vedanta, while denying the contradictions that actually exists between the two.

After all this, I am surprised that Lal should be questioning *my* intellectual acuity! Lal mocks my thesis that Nandy, Inden and other postcolonial theorist are providing aid and comfort to Hindu reactionaries by paining me an extremist moral crusader for scientific temper. Lal taunts me: "what do the Hindu nationalists, what does Nanda, understand of Inden and Nandy". I challenge Lal to tell me, please, what exactly do Hindu nationalists *not* understand, approve and celebrate in what Nandy or Inden have been saying as described above? Nandy is saying nothing that has not been said over and over again, by all the top-guns of Hindu nationalists, both the contemporary ones and their neo-Hindu predecessors from the Indian "Renaissance".

The only fig leaf Nandy and Lal have is to condemn the Hindutva ideologues for being attracted to modern ideas and reading them into Hinduism, robbing the latter of its "authenticity". To do this, Nandy has created an idealized image of Hinduism as essentially anti-essential, as totally anarchic, totally unorganized and totally open-ended²³. (No one reading Nandy could ever imagine that this "unorganized and open-ended" society was a caste society!) Such Hinduism exists nowhere but in Nandy's own imagination, which he anchors in a highly sanitized reading of Gandhi. Nandy and his devotees hold this imaginary pre-colonial Hindu society as the gold standard and then declare the contemporary Hindu nationalists as corrupters of the true faith. But the fact remains that Hindu nationalists' version of Hinduism is actually much closer to the Hinduism of average believers than the romanticized version of Nandy. Nandy and his followers simply cannot wash their hands of the Hindutva project. In matters of science and technology, issues that I have been chiefly concerned with, the entire edifice of Vedic science is nothing but a concrete example of the kind of critical traditionalism and inclusivism that Nandy writes so glowingly of.

I will be brief in my response to the other two issues that Lal raises. In my book I argue that postmodernist skepticism toward science has been far more dangerous in countries like India, where secular thinking has a tenuous hold, than in the Western world which has had a longer experience of secular and liberal ideas. Lal gives no counter-arguments, no evidence to challenge the veracity of this view. All he does is to mock me and paint me as a self-hating Indian who can "barely restrain [my] disgust"

at the society I grew up in. I find these personal attacks offensive. But then, they reveal the complete vacuity of Lal's "critique".

I stand by the double-layered argument I offered in the *Prophets*. First, a secular polity requires a secularized culture (no secularism without secularization, as I put in the book). Two, secularization everywhere will require a disenchantment of nature and society. In other words, disenchantment is a universal feature of secularization, but it will be achieved through the initiative of different classes and different social institutions in different societies.

The recent elections in the United States have affirmed my thesis that secular laws rest on shaky grounds without a secular public. When a large and growing proportion of citizens begin to define their identities in religious terms, as is happening today in the United States, the Constitutional separation of church and state threaten to become a mere formality. If I were to rewrite the book, I would stress that the Enlightenment is incomplete everywhere and always. The West cannot sit on its laurels. Defense of secular culture requires, at a minimum, that we do not decry the possibility of objective and universal knowledge, as postmodern theorists have been doing all these years.

Finally, there is the vexed issue of fascism. Lal goes almost apoplectic at my contention that the inner circle of National Socialists borrowed certain ideas of natural moral order from Hindu sacred books. I would like to suggest to Lal to pay close attention to the underlying *logic* that attracted the Nazis to a holistic or monistic worldview, which they celebrated as the heritage of their Aryan forefathers.

But first, I *must* protest Lal's sleight of hand (one of his many ²⁴) in portraying me as someone who is out to "condemn Hinduism itself and [to condemn] Hindus as no different from Nazis" (p. 15). Lal supports this calumny by quoting only one line from the passage from my book in which I draw a clear distinction between the lived faith of Hindus and the Nazi's "hybridization" of Hindu/monistic ideas with their rabid nationalism and anti-Semitism. Let me quote the entire passage, starting with the only sentence that Lal cites:

Of course, Hindu doctrines cannot be condemned for the sins of the Nazis. [Lal stops here. But I go on to say]. Neither can one surmise that fascism is immanent in India's culture; this same India, with the same mix of religions has allowed a working democracy to survive and grow for the last 50 years or more. Vedic monism, in conjunction with other heterodox dualist and theistic trends, has provided, and continues to provide, great spiritual solace and a design for ethical living for millions of Hindus and non-Hindus around the world. Hinduism cannot be held responsible for the manner in which some of its ideas were raided by Aryan supremacists. (pp. 15–16)

It is a pity that Lal would rather hide behind a fog of fabrications rather than honestly confront the *underlying logic* that made spiritual monism or holism so attractive to national socialists. Indian intellectuals need to confront this logic not because it is integral to *Hinduism* but because it is integral to *neo-Hinduism and Hindu nationalism*. As I state in the *Prophets*: "Hindu nationalists are putting the exact same spin on Vedic monism as the Nazis did, and neo-Nazis still do" (p. 16). But even this does not mean that fascism is inevitable in India. Nowhere have I

suggested that ideas drive history. I have been concerned with the *potential* for these ideas to serve as a bridge between real concerns with community and environment raised by globalized markets and rapid social change, and the right-wing mobilizations on behalf of the Hindu nation defined in terms of its superior “holistic”, non-logocentric ecological and scientific rationality. The recent brush with Hindu nationalist rule has shown that my fears are not that far fetched. Under these circumstances, I have consistently argued, it become incumbent on the intellectuals and activists to be very careful not to fall in the trap of anti-modernist celebrations of “non-logocentric” local knowledges.

This is not the place to go into Nazi intellectual history in any great details. But let me give the barest of an outline of the argument why the Nazis found spiritual monism so attractive.

It may come as a surprise to Lal who has decided in advance that Nazism was a direct result of secular modernity, but in fact, Nazism arose out of a veritable *revolt* against empirical-materialist ways of understanding nature caused by rapid industrialization and defeat in the First World War. (Indeed, were our contemporary science-bashers to read the accounts of this anti-positivist revolt in the early twentieth-century Germany, they will see an image of themselves²⁵.) In Germany, this anti-positivist revolt became intimately bound up with a belief in nature’s cosmic life-force whose mysteries could be understood not through empirical-materialist science but through gnosis, through “seeing with one’s soul”. This mystical seeing was assumed to be a Germanic-Aryan trait supposedly destroyed by the Judeo-Christian tradition. The prominence of spiritual monism among the inner circle of Hitler, Lal should know, is by no means a marginal view of some fringe historians, but supported by well-respected historians of Nazi Germany including Geroge Mosse (1961), Robert Pois (1985), and Goodrich-Clarke (1985).

German interest in ancient Hindu wisdom was motivated by this worldview of *Lebensphilosophie*. I must emphasize that it wasn’t just India, or Hinduism, but German national socialists raided *all* ancient Gnostic traditions in search for a “revival” of a supposedly Aryan-pagan religion of nature. Nearly every mystic tradition which does not separate nature and spirit was ransacked, including Zen Buddhism, Tibetan Tantrism, Christian mysticism and, above all, theosophy of Madame Blavatsky (who, along with Annie Besant, played a key role in India as well). Hinduism was only one among the many sources of inspiration for the monist *Lebensphilosophie* that the Nazis embraced.

Rather than avoid confronting this bit of uncomfortable history—and attacking me for pointing it out—Lal would do much better to understand the legitimating, meta-political role spiritual monism played in the Nazi politics. As Robert Pois (1985) has pointed out in his well-known book, *National Socialism and the Religion of Nature*, spiritual monism provided the Nazis with the rationale that their policies were in accord both with the laws of nature and with their ancestral Aryan virtues of totality. This way, they could accommodate their extreme scientism in industry and economy with the rhetoric of Aryan virtue and naturalness. Indeed, it was this belief that Aryans think in wholes and Jews think reductively that motivated the attacks on “Jewish science”.

Lal simply fails to see the relevance of these ideas to the neo-Hindu and Hindu nationalist celebrations of the superiority of Vedantic monism over “irrational” creeds like Christianity and Islam. What is worse, by constantly clamoring for “a relationship of authenticity” to the Indic tradition, Lal and his fellow theorists have been silencing those who are troubled by the objective falsity of spiritual monism as a description of nature, and by its nationalistic and chauvinistic overtones in India.

Like Vinay Lal, **Susantha Goonatilake** has written an *amicus curiae* brief on behalf of the postcolonial and feminist theories and theorists I criticize in the *Prophets*. Goonatilake has been an important voice from Sri Lanka, and has made original contributions to the postcolonial and standpoint epistemology debates. He repeatedly reminds the readers of his long friendship with Ashis Nandy, Vandana Shiva and other Indian scholars promoting Indic ways of knowing. Goonatilake has a tendency to read my critique as an attack on the personal integrity of his friends. This is unfortunate because it is a gross misunderstanding of my position. Nowhere, for example, do I suggest that postcolonial theorists are knowingly in “cahoots” (p. 125) with the Hindu right, or “responsible for murder” (!) (p. 133).

What is striking about Goonatilake’s critique is not how much he shares the standard cultural relativist view of his postcolonial friends: that is, of course, to be expected. But what is truly striking is how much sympathy he has for the starkly Hindu nationalist positions. Goonatilake, who has written many learned books protesting the Western mischaracterizations of Eastern cultures, shows no hesitation whatsoever in making outrageously ethnocentric statements like “Abrahamic religions...are irrational in comparison with Hinduism” (p. 132). He has also accepted the nationalist party line that any criticism of Hinduism, even by those who were born into the faith, equals “a transparent admiration of White Supremacy” (p. 13 of MS) and Christian missionaries (p. 11 of MS). It is also quite remarkable that someone like Goonatilake, who has spent a life time promoting “dialogue” between civilizations, should end up cheering for the coming “Asian century” under India’s leadership. Is multiculturalism good only for promotion of one’s own culture? How real could Goonatilake’s commitment to multiculturalism be when it does not prevent him from dreaming of world domination by any one culture?

Goonatilake’s choppy, sound-bite style of writing reduces my arguments to caricatures that I have a hard time recognizing. Nevertheless, Goonatilake raises four substantive issues.

First, he defends an extreme form of cultural relativism suggesting that “a culture ‘understands’ only through its mind set, there is no other way” (p. 136). And he misreads me as opposing *any* contextualization of science whatsoever. I have already responded to similar concerns raised by David Turnbull, Vinay Lal and Sujatha Raman. I will not pursue this issue any further.

Second, he brings in issues related to Sri Lankan Buddhism in the context of my work on Ambedkar. I will have to set aside this issue for a later date, as I am not very familiar with the literature on the Sri Lankan debates.

Third, Goonatilake charges that I fail to see the great achievements of pre-Islamic Hindu science. His evidence consists entirely of testimonies of foreign observers who

are supposed to have said nothing but great things about ancient Indian science. His remarks are so disjointed and so transparently ethnocentric that I do not believe there is any possibility of a productive conversation here.

The fourth and final issue has to do with hybridity. Goonatilake is a great defender of the bricolage-style, postmodern hybridity that I criticize. He also seems a bit confused about the kind of “hybridity” that I support. This issue requires a careful consideration.

From the very beginning of civilizations, societies have been borrowing ideas and technologies from each other. There are two ways to fit the borrowed ideas into the already existing fabric: the way of the bricoleur, and the way of the engineer²⁶. The bricoleur is a jack-of-all-trades who takes whatever he can find, and puts it together in patterns that suit the purpose at hand. The engineer, on the other hand, works from the first principles, rejecting the materials that do not fit and changing the pattern in response to the materials.

I have argued that postmodernism and classic Hinduism prefer the first kind of bricoleur-style hybridity where contradictions between different elements do not matter as long as the culturally accepted patterns can be maintained. This kind of bricolage, I have argued, reinforces the existing traditions by ignoring falsifications and contradictions.

Now, Goonatilake claims that this kind of bricolage is a “sign of confidence” of Indic cultures (p. 16 of MS). I don’t deny that it is. I clearly state many times in the book that such eclecticism makes Hinduism remarkably resilient. What concerns me is that this resilience has also permitted the survival of objectively false elements of Hindu cosmology which have had negative social consequences and which are now adding to the Hinduization of politics.

Of course, by recommending that we take the universal discourses of science more seriously, I, too, am arguing for borrowing ideas which did not originate from within India. Goonatilake sees this as a contradiction and claims that I opportunistically use hybridity while criticizing others for doing the same. But the kind of “hybridity” that follows from my views is more like the hybridity of the engineer that demands rejection of contradictions. My kind of hybridity will not, for example, combine quantum physics with Vedanta based upon false analogies between energy and consciousness. My kind of hybridity will not allow me to use all kind of technologies based upon old-fashioned mechanistic philosophy while simultaneously rejecting it as passé. Of course, as Goonatilake rightly points out, the West during the time of the Renaissance and the Enlightenment acted as a “scavenger” and took bits of ideas from India, China and the Arabian civilization. But the thinkers of the Western Enlightenment did not throw these ideas together in a big hodge-podge. They used them to remove contradictions between the teachings of the Christian Church and the new secular worldview that was emerging out of Newtonian science. In India the borrowing of Western ideas is serving to reinforce, rather than reduce, the hold of Hindu orthodoxy. Perhaps this is a development that Goonatilake welcomes. I don’t.

Walter Mignolo makes sweeping judgments on complex issues with only marginal relevance to my theses.

For example, Mignolo takes issue with Amartya Sen and Martha Nussbaum’s view of human capabilities that I use in my book to challenge the relativization of needs by

eco-feminists like Vandana Shiva, Maria Mies and other proponents of subsistence economies. For some reason not entirely clear from his remarks, Mignolo interprets Sen, Nussbaum and myself as justifying universal human capabilities by assuming that “humans are separated from nature and all equals [sic] in their capabilities” (p. 112). But the way I see it, the universalism of capabilities ethics is premised on our shared species needs as humans rooted in nature, which Sen and Nussbaum derive from an Aristotelian view of human essentialism. Again, I fail to understand why he finds the idea of nurturing full human capabilities of all as necessarily requiring an “imperial view of goodness” or an “instrumental view of rationality”. Likewise, Mignolo simply asserts, without argument, that colonialism is a necessary component of modernity. These are complex issues which require more argument and evidence than Mignolo has provided.

I agree with one point that Mignolo raises, namely, that the critics of science in new social movements are principally concerned with science’s complicity with global capitalism with often leads to colonization and exploitation (p. 114). I share these concerns and would be only too willing to work with the critics of the corporate take-over of science and technology provided that:

- a. The critics do not indiscriminately read the corporate and state abuses of science and technology into the very conceptual structures of science. Philosophies inspired by social constructivism have gone too far in demolishing all boundaries between the context and the content. This is self-defeating, as it leaves no ground to stand on in order to question either the false claims of the market fundamentalists or the pseudo sciences favored by religious fundamentalists.
- b. The critics do not hide behind “colonial epistemic difference” (Mignolo’s term) to evade examining the objective validity of local knowledge claims.
- c. The critics refrain from following Mignolo’s totally misguided advice for “epistemic de-linking” from the universal metanarratives of science and modernity. For reasons that I have elaborated in the *Prophets* and again here, I reject Mignolo’s idea that a “pluri-versal” dialogue of cultures requires a de-linking from science as we know it.

To sum up: this has been a bracing debate. My critics have made me go back and examine my claims in a fresh light. I have learnt valuable lessons in how to present my arguments in a more careful and nuanced manner. But I believe that the main theses of the *Prophets* have withstood the scrutiny of my critics. I hope this conversation will open up fruitful new areas of debate in science studies and postcolonial studies, both in the United States and in India.

Notes

- [1] For most of the 1990s India remained under the control of a coalition government led by BJP, or Bharatiya Janata Party. BJP is the political arm of a family of Hindu nationalist parties whose agenda is to redefine India as a Hindu country. The BJP-led coalition was ousted from power in the 2004 elections. Currently India is governed by a coalition of parties led by Congress.

- [2] Full transcript of the interview can be found at <http://www.pbs.org/now>. The show was broadcast on December 17, 2004.
- [3] Granted that this distinction was to be set aside for methodological purposes of understanding how collective beliefs come to be believed at all. But by insisting that in all cases, belief was to be explained in terms of social and culturally directed rules of evidence, the Strong Programme in sociology of science allowed cultural relativism to thrive under its rubric. For a detailed discussion and references, see chapter 5 of the *Prophets*.
- [4] See Esther Kaplan's recent book *With God on Their Side* for an exhaustive description of the evangelical influence on science policy.
- [5] I borrow the concept of reactionary modernism from Jeffery Herf's (1984) history of technology and culture in the Weimar Republic and the Third Reich.
- [6] I have found much that affirms my understanding of the mechanisms and dangers of the co-option of modern science into the Hindu orthodoxy in Brian Smith's 1989 book titled, *Reflections on Resemblance, Ritual and Religion*. Unfortunately, I read this book after I had completed the *Prophets*. The strategies of co-option I describe, however, fall in the pattern of analogical thinking so well elucidated by Smith.
- [7] The complete title of the Indian edition reads: *Prophets Facing Backward: Postmodernism, Science and Hindu Nationalism*. It is published by New Delhi-based, Permanent Black.
- [8] This essay began as a paper—provocatively titled “Why I am not a social Constructivist of Science”—I wrote in lieu of my qualifying exam in social theory for my doctorate from the Science and Technology Studies department in Rensselaer Polytechnic Institute. A version of this exam paper was included in my dissertation and eventually published in *Socialist Review*.
- [9] The following statement from James Robert Brown describes my position well:

...In the science wars we too often hear the debate turning on confused discussions of realism vs. anti-realism. This is not where the relevant arguments are to be found. Classic instrumentalists and verificationists are typically opposed to social constructivists, even though they are fellow anti-realists. Why are they opposed? Because they believe that evidence decides which scientific theories should be accepted and which rejected. They take reason and evidence, not social factors, as deciding the matter.

... Realism isn't the proper notion to defend here. Instead it is *objectivity*. Realism embraces objectivity, but it is clear, for instance, that instrumentalists and verificationists are also objectivists in a sense that social constructivists are not. In a pinch we might say that scientists are objective in so far as they accept or reject theories on the basis of available evidence rather than on the basis of social or other non-evidential factors. (Brown, 2001, p. 101)

- [10] The conception of the “subtle debate” in philosophy of science I refer to is derived from Jean Bricmont and Alan Sokal who describe it as follows:

Let us begin by distinguishing two levels of debate about scientific knowledge: one crude, the other subtle. The crude debate pits scientific objectivists of all kinds—be they realists, pragmatists or of some other stripe—against postmodernists, relativists and radical social constructivists. The subtle debate pits scientific realists against objectivist anti-realists of various kinds (pragmatists, verificationists, instrumentalists, etc.).

A far more subtle debate in the philosophy of science concerns the relative merits of realism and instrumentalism (or pragmatism). Roughly speaking, realism holds that the goal of science is to find out how the world really is, while instrumentalism holds that this goal is an illusion and that science should aim at empirical adequacy. We will address this debate in detail in a moment; for now we simply want to emphasize how it is *not* relevant for the crude debate.

Relativists sometimes tend to fall back on instrumentalist positions when challenged, but in reality there is a profound difference between the two attitudes. Instrumentalists may want to claim either that we have no way of knowing whether “unobservable” theoretical entities really exist, or that their meaning is defined solely through measurable quantities; but this does not imply that they regard such entities as “subjective” in the sense that their meaning would be significantly influenced by extra-scientific factors (such as the personality of the individual scientist or the social characteristics of the group to which she belongs). Indeed, instrumentalists may regard our scientific theories as, quite simply, the most satisfactory way that the human mind, with its inherent biological limitations, is capable of understanding the world. (Bricmont and Sokal, 2004, pp. 17, 19–20)

- [11] Please see the preface by the editor, Alan Charles Kors where he sets the keynote of the project.
- [12] Indeed, I am not the only one who reads Longino as operationalizing the insights of her fellow feminists. David Hess, a scholar much admired by Harding, arrives at exactly the same conclusion (see Hess, 1997, pp. 49–51).
- [13] Turnbull draws no distinctions between methodological and judgmental relativism.
- [14] Compare with Bloor: “scientists are always responding to nature, but doing so collectively through shared conventions and institutional concepts” (1999, p. 90).
- [15] I had published an extended critique of Vandana Shiva back in 1991. Four other papers had already been completed and three of them had been accepted for publication when the “science wars” broke out (see Nanda, 1997a, 1997b, 1997c, 1996).
- [16] This is the whole point behind Latour’s *We have Never been Modern*. Latour claims that while we moderns *thought* we were separating subjects and objects, but *in fact* we were not. This leads him to claim that no one has ever been modern and modernity has not even started yet. His solution: let us stop pretending to be modern and actually investigate science in our societies just as anthropologists do in pre-modern societies.
- [17] See “India’s Temple to Aids Goddess”, at http://news.bbc.co.uk/1/hi/world/south_asia/545405.stm
- [18] I was unable to find an academic position anywhere after three years of trying.
- [19] Even as I was writing the second chapter, I was not satisfied with it. The problem was that I had taken too big a bite. I was running many different issues together, everything from the Constitutional provisions for freedom of religion, the religious-cultural background of India’s brand of secularism, the anti-secularist criticism of the very idea of separation of religion and politics, and the nationalist glorification of Hinduism as secular in itself. I plan to return to a detailed study of secularism and secularization processes in India in my next book.
- [20] Inden (1986, p. 445) writes, citing Ian Hacking, “I reject the duality of knower and known... It is my position that knowledge both participates in the construction of reality and is itself not simply natural (in the sense of necessary or given), but in the large part, constructed. This would appear to be a tenable position nowadays in physical sciences. How much more so, then, must it be the case in social sciences, where knowledges are integral to those who constitute the known and not just confined to the knowing subjects themselves!”
- [21] One has to read Lal’s fawning interview with Nandy to get a full measure of his complete and unquestioning indoctrination into cultural nativist thinking (see Lal, 2000).
- [22] See Peter Heehs (2003) and David Smith (2003) for two recent voices opposing the reductionist view of Orientalism on which postcolonial theory is based.
- [23] Especially in his best known work, *The Intimate Enemy*.
- [24] Take another example of Lal’s habit to play fast and loose with quotation. He writes: “Nanda does not shy away from describing the relationship between postmodernists and Third World indigenist movements, ... as an obviously unholy ‘alliance’ (4. 30)”. Nowhere on either of these two pages, do I use the word “alliance” which Lal directly quotes me as saying. Likewise, I don’t have any idea where Lal got this strange notion that Alan Sokal had published his

famous *Social Text* hoax under an “assumed name”. Alan Sokal *is* the real name of Alan Sokal. There was no hoax there!

- [25] I invite Lal and his colleagues to read the well-known accounts of interwar Germany by Fritz Stern (1961), George Mosse (1964), Fritz Ringer (1969) and the well-known essay by Paul Forman (1971).
- [26] These are taken from Claude Levi-Strauss’s classic, *The Savage Mind*.

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