

Penultimate Draft

The Ethics of Inquiry, Scientific Belief, and Public Discourse

Lawrence Torcello

I. Towards an Ethics of Inquiry and Public Discourse

This paper builds on a developing movement to determine what, if any, ethical constraints ought to be exercised in the process of intellectual inquiry; and what, if any, ethical burdens fall upon professional researchers regarding the public explication of scientific matters. In particular this article will focus on how an ethics of inquiry connects to, and ought to inform, an ethics of public discourse among researchers and laypersons alike, particularly when scientific findings are relevant to public policy. One framing issue, which has been discussed by Philip Kitcher, is whether or not there are paths of scientific investigation so potentially harmful that pursuing them is morally irresponsible.

Kitcher advances the view that in the context of particular cultural milieus, certain scientific investigations are not worth the social harms they might engender.¹ Kitcher argues, for example, that racial prejudices are held in place by what he deems “political and epistemological asymmetries.” Political asymmetries are the consequences of ideological prejudices specific to one’s cultural history. For instance, the United States’ long history of institutional racism and its accompanying tensions remain influential despite the official political condemnation of all institutional and public discrimination.² Epistemological asymmetries result from the widespread tendency people have to inflate inaccurately the level of evidential support available for their personal beliefs.³

Such asymmetries cause individuals with a particular prejudice to magnify findings favorable to their own views while ignoring any findings that challenge their positions. Given the asymmetrical effect of prejudiced thinking on race and intelligence, and thus the likelihood that any research into the topic will be misrepresented (regardless of outcome) by bigoted groups promoting racist social agendas, Kitcher argues that such research ought not to be pursued.⁴

A related but alternative position argues against any duties to refrain from particular lines of investigation, and instead emphasizes communicative responsibilities. Scott F. Aikin and Michael D. Harbour argue that researchers have the burden of communicating the implications of their work with a mindful regard for political and epistemological asymmetries, and that researchers have the additional responsibility of engaging publically with those who misrepresent scientific findings in order to advance a personal agenda.⁵ Aikin and Harbour use evolution as an example of a subject particularly prone to the distortions of political and epistemic asymmetry. Such asymmetries prompt a fundamental responsibility for researchers who deal with the topic to communicate scientific findings to the public clearly, and to assertively address any public misrepresentations of evolutionary research that may occur in the wider culture.⁶

The present article supports the latter position unequivocally, yet posits additionally (in section II) that an ethics of inquiry extends to the public at large (scientific experts and laypersons alike) insofar as citizens are publically engaged in political advocacy that relates or responds to scientific matters. I therefore maintain that any political advocacy concerning scientific inquiry implies, and ought to be interpreted as implying, a circumspect due diligence in preparation for public discourse. Furthermore, I maintain that such an extension places a special communicative obligation (similar to that advocated by Aikin and Harbour for scientific

researchers) upon all professional academics, politicians, journalists, or anyone who may play a prominent role in framing and informing public discourse. Such citizens ought to place special emphasis upon the appropriate scrutiny of evidence, upon rational circumspection, and upon their own professional limitations in asserting public arguments. This obligation comes from the responsibility such professionals incur as educators and, on occasion, as public intellectuals with their own boundaries of professional expertise. In the context of the cognitive symmetries previously mentioned, an ethics of public political discourse relating to science and public affairs is necessary to temper speech that is laced with sensational misrepresentations, distortions, and simplistic (if intuitive) misunderstandings. In other words, the ethics of public discourse and inquiry requires that we attend to the *rhetorical asymmetries* that one can reasonably expect to follow from cognitive asymmetries.⁷

I will make my argument, in part, by considering the works of W.K. Clifford and John Rawls, and by proposing a revision and a reconfiguration of these works respectively. While endorsing the line of argument that leads Clifford to make strong moral claims about belief, my aim is to shift focus from unwarranted belief to specific cases of unwarranted public/political assertions against scientific consensus. As such, I will frame the need for an extended application of Rawlsian public reason beyond its traditional realms of constitutional essentials and questions of basic justice.⁸ More specifically, the idea of public reason will be extended as a necessary counter-measure meant to minimize the moral hazards resulting from confused public discourse and political advocacy, which stem from (and exacerbate) the cognitive asymmetries referenced above.⁹ Such asymmetries commonly lead to morally relevant misunderstandings of science among policy makers and the general public, which in turn inordinately affects vulnerable populations worldwide.¹⁰

The application of public reason can and should be advanced beyond constitutional essentials and basic questions of justice to address the complexity of situations in which it is difficult for non-specialists to accurately discuss (or fully comprehend) the reasoning behind scientific conclusions, conclusions which nevertheless have crucial relevance to public political discourse. Moreover, the political incentives to publically dismiss some strong scientific conclusions, or even to cynically challenge them, need to be countered straightforwardly and procedurally to better avoid the dangers of public misinformation regarding science.¹¹ It is therefore worth reflecting upon the relationship between private comprehensive doctrines and cognitive asymmetries, and the means by which the former (independently of overtly stated arguments) often, if not always, influences the latter to corrupt public discourse regarding science.

I want to emphasize how the demands of public reason can be brought to connect a responsible ethics of inquiry to public discourse on issues of science. To be clear, the position offered will be Rawlsian in spirit, but it is not a position explicitly endorsed by Rawls. Finally, while there are many excellent examples of, or forums for, exploring the ethics of inquiry and discourse pursued here (the discussion of evolutionary theory being but one), I maintain that no contemporary issue currently demonstrates what is at stake better than climate change. As such, I will illustrate my arguments using the primary example of public discourse, as opposed to scientific discourse, concerning global warming.

So what does an ethics of inquiry entail for the interested non-expert?

II. Belief, Consensus, and Assertion

W. K. Clifford's essay "The Ethics of Belief" (1879), famously states that "it is wrong, always, everywhere, and for anyone to believe anything on insufficient evidence."¹² Clifford is

not simply acknowledging the obvious point that such forms of belief are epistemologically dubious, but the far more contentious point that such forms of belief are morally negligent. In order to illustrate his position, Clifford cites the example of a ship owner who contracts his vessel to carry emigrants to the new world.¹³ The ship owner is aware of different reasons why his ship might not be seaworthy, including its age, exposure to previous storms, and its sub-par construction. However, before allowing the ship to sail he manages to quell his doubts, not by overhauling the vessel for inspection and repair but by rationalizing away his misgivings, and thereby yielding to a blind trust in providence. After his brief bout with uncertainty is resolved Clifford tells the reader that the ship owner saw his ship's "...departure with a light heart, [...] and he got his insurance-money when she went down in mid-ocean and told no tales."¹⁴

Clifford argues that the tragic ending of this example is morally irrelevant. In the case presented, the ship owner has no satisfactory reason to trust the material soundness of his ship, and this—regardless of outcome—is of primary moral significance. Nevertheless, the concerned reader might argue that it is not the ship owner's false belief, but his lack of sufficient maintenance, i.e. his actions, or in this case his failure to act, which result in tragedy. Yet, as Clifford counters, it is not possible to consider a belief innocent while condemning the actions that stem from that belief. It is tenuous to assume that one can sincerely hold a belief and not be moved to action by that belief eventually. In any case, such hope could serve no purpose but to elevate torpidity to a moral virtue. Furthermore, once a belief has taken root it becomes difficult to assess opposing points of view fairly; which is a necessary guard against rash and unwarranted belief and actions. Thus we have a moral responsibility to tend judiciously to the origins of our beliefs.

Such arguments about the ethics of belief hinge on two related points: (1) No matter how innocuous a belief may seem, it will set the condition for similar and related beliefs. If a particular belief is not directly responsible for a certain action then it is indirectly responsible insofar as it shaped the epistemological framework for that belief which is responsible.¹⁵ (2) Since the nature of human life is largely communal, belief is never so private a thing as it might first seem: human beings inevitably influence one another. Furthermore, even if we were able to isolate our actions from our beliefs, there would be no guarantee that others under our influence could avoid (be it intended or not) taking actions that by our influence resulted in identifiable and otherwise avoidable harms. There is good reason to assent to these points.

Regarding the first claim, it is reasonable for Clifford to insist that our beliefs set the condition for similar beliefs to follow upon them. If we are careless in one domain of cognitive experience, we are likely to be careless in others. Accepted inferences of one logical form, valid or not, help define a standard for other such inferences. It is plausible to assume that a person who agrees that unexplainable noises in an old house are haunting spirits, simply because such an explanation cannot be disproven, will be more likely to accept claims, again simply because such a claim cannot be disproven, that unexplainable lights in the night sky are extraterrestrial space-craft.

Likewise, one is more apt to assent to unsupported claims that unknown buildings in desert satellite images are weapons of mass destruction facilities if one is also inclined to concede that unexplained (as opposed to unexplainable) evolutionary processes are “irreducibly complex,” and therefore evidence of intelligent design.¹⁶ All such invalid conclusions, regardless of their different subject matters, are predicated on the fallacious but familiar logical form: (P)

cannot be disproven, therefore (P) is true. In other words, this is the belief that lack of evidence against a claim must count in the claim's favor—it is otherwise known as an appeal to ignorance.

The claim being made (that fallacious forms of reasoning consistently engender fallacious judgments) does not depend on anecdotal examples, but in the recognition that our judgments, and derivative beliefs, are often made in the context of identifiable cognitive patterns. That the mind has a tendency to fall into consistent patterns of fallacious inference is a non-controversial (foundational) justification for the importance of logical analysis and critical thinking. When interpreted in this light, Clifford's claim that unwarranted belief sets the condition for more unwarranted belief is highly plausible.¹⁷

As for the second of Clifford's points, it is likewise easily admitted that holding a belief without warrant involves some moral hazard in the sense that one's unwarranted belief may have consequences (foreseen or not) that adversely affect innocent parties.¹⁸ If one fails to be appropriately cautious in the face of uncertainty, such moral hazard may transform into moral tragedy. To take Clifford's example of the ship owner, the belief itself that one's ship is seaworthy merely entails a moral hazard. Had the ship owner had his ship inspected and fortified before allowing passengers to embark on a transatlantic voyage, the tragedy, and his moral culpability for the tragedy, might have been avoided. Likewise, a reasonable commitment to responsible intellectual circumspection is vital for any person with responsibilities involving others, including all voting citizens. On these grounds, it is worth insisting that a responsible ethics of inquiry ought to extend to the public at large to the extent that citizens throw their lot together as public participants, subject to the moral hazards of communal life.

Acknowledging the moral hazard posed by unwarranted beliefs, and thus the ethical responsibility to foster appropriate standards of belief, does not, however, justify a categorical

moral condemnation of every unwarranted belief. It remains difficult to go along fully with Clifford's statement "it is wrong, always, everywhere, and for anyone to believe anything on insufficient evidence."¹⁹ Clarification is needed, as well as guidance concerning practical application for an ethics of public discourse.

Without a clear sense of what constitutes warranted belief, and clarification regarding the type of belief being discussed, Clifford's bold condemnation of unwarranted belief under all circumstances is insufficiently helpful.²⁰ By way of building on Clifford, and of increasing the relevance of his thought for democratic societies marked by the free exchange of ideas, it is important to recognize, more explicitly than Clifford, the meaningful distinction between fact and value.²¹ There are beliefs that are not truth-apt, and may be accepted or rejected without any ethical implications. For instance, if a person believes that Vincent Van Gogh is the greatest of all post-impressionist painters, and furthermore that *The Potato Eaters* (1885) is his superlative work, what can be said about such beliefs ethically? Very little—and likewise for the person who believes that Johann Sebastian Bach is the greatest composer ever to live, or that the finest expressions of Riesling in the New World are to be found in the dry wines of New York's Finger Lakes region. These are matters of value, not fact, but they are used here to demonstrate the need for such a distinction if Clifford's ethics of belief is to remain relevant for a modern ethics of inquiry. Indeed, it would seem that Clifford's own categorical condemnation of unwarranted belief is well beyond what can be warranted, since it is unclear how such a claim, even if true, can ever be verified.²²

There is no doubt good reason to affirm, as Clifford does, that all individuals rightly bear a moral responsibility to approach inquiry and belief with lucidity and due diligence.²³ It is more difficult to conclude from this, as Clifford does, that unwarranted belief is worthy of categorical

moral condemnation in and of itself. Irresponsibly holding an unwarranted belief is morally hazardous to be sure, and ought to be guarded against and discouraged. I argue, with Clifford, that an ethics of inquiry ought to commend the development of appropriate habits of credulity in all citizens to the extent that civic engagement requires a minimal level of inquiry sufficient to be an informed voter. The failure to live up to the appropriate standards of inquiry required to be a responsible citizen is a serious problem, but it is when failure to cultivate appropriate habits of credulity prompts the insertion of unwarranted claims into specific conditions of public discourse that something morally egregious, and worthy of strong public condemnation, has occurred. When should an ethics of inquiry reasonably trigger strong moral condemnation of unwarranted assertions?

There are subjects (e.g. climate change) of settled scientific consensus with clear social and global implications.²⁴ If one does not fully understand the facts of scientific consensus on such topics, then those facts may be studied. It should not be objected that such study requires technical education beyond the practical reach of most, for there are professional researchers and teachers with relevant expertise, willingness, and the pedagogical ability to make consensus in science—and the reasons for consensus—understandable to the lay person.²⁵ The moral importance of getting facts right on matters with extreme social and global ramifications (such as climate change) cannot be overstated. Thus, for a non-expert to insist doggedly on a contrarian view regarding such topics is evidentially and morally irresponsible. In cases like these, the obstinate public promotion of beliefs contrary to established scientific consensus by non-experts, and especially in the context of political advocacy, is morally condemnable.

Such cases display a morally reckless and unjustified level of anti-intellectual (or at times pseudo-intellectual) cynicism, which identifiably harms society. This is so because the growing

public ignorance on climate change results in diminished collective action. Indeed, in our example of climate change, this relative complicity has been the case for three decades.²⁶ The changes necessary to begin cutting down our combined carbon emissions to acceptable levels will require nothing short of a paradigm shift in the collective thinking of the industrialized world. The crucial reality is that fossil fuel based technologies will remain prominent (barring depletion of resources) until market demands instigate an uncompromising insistence on more sustainable technologies. No such demands will be made by significantly uninformed consumers.²⁷

With regard to the moral implications of such denialism, the example of climate change is not unique. One might, for example, also cite AIDS denial and anti-vaccination movements.²⁸ Such denialism is often described, and promoted, as “skeptical,” but skepticism is a misnomer in these cases since it suggests thoughtful circumspection and inquiry. Such anti-scientific views are better described as *pseudoskeptical*.²⁹ *Pseudoskepticism*, as I am using the term, is a seemingly “skeptical” artifice involving the rejection, by non-experts, of claims that are already scientifically accepted. *Pseudoskepticism* is based on the fallacious assumption that doubt *qua* doubt is inherently rational. This is not the case if good reason already exists to support the truth of a claim.³⁰

What sort of guidance, for public discourse, should those concerned with an ethics of inquiry draw from the identification of morally negligent pseudoskeptical assertions?

III. Science and Public Discourse

In *Political Liberalism* (1993) John Rawls develops the concept of public reason, which designates a comprehensively neutral approach to public discourse that brackets away arguments based on private comprehensive notions of morality. The premise behind public reason is that

contentious issues of public concern regarding constitutional essentials or questions of basic justice ought not to be legislated from comprehensive doctrines, since such doctrines are not necessarily compelling (or even understandable) to every reasonable person.³¹ Therefore, when attempting to influence public legislation on such matters, one is required to present arguments that all reasonable people can recognize and understand, even if they disagree. For example, attempting to influence legislation on end of life issues by appealing exclusively to Christian arguments is inconsistent with standards of public reason. Likewise, any attempt to influence such legislation based on any comprehensive tradition, whether religious or secular, is inconsistent with public reason.

The religious or otherwise metaphysical nature of comprehensive doctrines makes them controversial, inapplicable to all, and thus unhelpful in determining reasonable and stable solutions in a morally pluralistic society.³² To be sure, to the degree that societies are free and open they are bound to be morally pluralistic. Nevertheless, even when one sticks to the traditional requirements of public reason, it is possible that one's comprehensive doctrines may enter into public debates indirectly. This is to say—and this point is consistent with Clifford—that comprehensive doctrines and their attending beliefs and values are deep sources of bias, which can often, if not in every circumstance, affect the way we interpret data in the public sphere.³³ The cognitive asymmetries emphasized by Kitcher, Aikin, and Harbour may often stem from the natural influence comprehensive doctrines (reasonable and unreasonable) have on one's personal biases.

The responsible practice of scientific investigation (when done according to the accepted standards of the larger scientific community) is geared toward eliminating those cognitive asymmetries that may result from confirmation bias, whereas the denial of scientific consensus

by non-experts is not tempered by any procedural process to mitigate such influences. I am therefore suggesting that denialism with regard to scientific consensus, or what I have called *pseudoskepticism*, often stems from cognitive asymmetries plausibly influenced by comprehensive doctrines.³⁴

It may be the case that legitimate scientists sometimes disagree with a scientific consensus, but to the extent that they are actively working to scientifically investigate their hypotheses, they cannot be dubbed pseudoskeptics. Nevertheless, when weighing in on public debates, such scientific dissenters ought to state in unambiguous terms what the scientific consensus actually is regarding the given topic. However, more often than not, the news media fails to allow professional researchers sufficient opportunity to play an adequate role in the public debate, or to explain matters of ongoing inquiry without sensationalizing disagreement. Furthermore, professional researchers themselves are often hesitant to engage the media in a manner adequate to making their findings broadly understandable; in these cases, researchers are also somewhat responsible for the exaggeration of cognitive asymmetries.³⁵

Consequently, “debates” in the media are too often held on scientific topics without an explanation of the scientific consensus, but are rather staged by pitting against each other two diverging non-experts.³⁶ More often than not “debaters” are drawn from different sides of the political spectrum, and one can safely predict that their conclusions will align with their corporate and political affiliations. It is important to counter the corrupting influence of cognitive asymmetries by limiting public arguments to facts that have been established and endorsed through scientific consensus, when such facts are available. Otherwise, as Bertrand Russell has argued, when the experts are not in agreement, or when they confirm that no sufficient evidence exists for an informed opinion, the non-expert ought to remain agnostic.³⁷ Because it is the case

that our metaphysically laden value systems can so easily corrupt our interpretations of scientific data, it is important that we take care to limit our public arguments to those consistent with scientific consensus when arguing in the public sphere.³⁸

Consequently, in an ideally fair and just society informed by an adequate ethics of inquiry (inclusive to researchers and laypersons alike), where metaphysically neutral arguments are put forward transparently for public consideration, public reason must stick to established scientific consensus when matters of scientific relevance are pertinent to constitutional essentials and basic justice. Just as metaphysically laden moral doctrines are controversial, unhelpful, and even dangerous in public decision making, so too, unaccepted scientific hypotheses, because they are controversial or unaccepted by the community of relevant scientific experts, are harmful to informed public discourse and public policy.

These arguments are supported by Rawls' own guidelines for public inquiry, which are meant to clarify standards for public reason. As Rawls puts it:

...on matters of constitutional essentials and basic justice, the basic structure and its public policies are to be justifiable to all citizens, as the principle of political legitimacy requires. We add to this that in making these justifications we are to appeal only to presently accepted general beliefs and forms of reasoning found in common sense, and *the methods and conclusions of science when these are not controversial*. The liberal principle of legitimacy makes this most appropriate, if not the only, way to specify the guidelines of public inquiry. [*italics mine*]³⁹

As stated, Rawls limits his discussion of the guidelines of inquiry to issues of constitutional essentials and basic questions of justice, but he does not rule out the possibility that other political issues ought to be the concern of public reason as well.

Some will ask: why not say that all questions in regard to which citizens exercise their final and coercive political power over one another are subject to public reason? Why would it ever be admissible to go outside its range of political values? To answer: my aim is to consider first the strongest case where the political questions concern the most fundamental matters. If we should not honor the limits of public reason here, it would seem we need not honor them anywhere. Should they hold here, we can then proceed to other cases. Still, I grant that it is usually highly

desirable to settle political questions by invoking the values of public reason. Yet this may not always be so.⁴⁰

I maintain that Rawls is correct in insisting that fundamental matters of constitution and justice require discourse guided by the limits of public reason. Furthermore I contend that such limits must be extended into domains not initially insisted upon by Rawls. In particular, the need for an ethics of public discourse informed by, and akin to, an ethics of inquiry provides the proper incentive for an extension of public reason to all matters of public discourse relevant to science and to public policy. Indeed, it is difficult to imagine any topic of public political concern that ought to be settled by appeal to private doctrines in any circumstance. Should one be discovered, it would be better to treat it as an exception to be dealt with discretely rather than a defining example.

The ubiquitous effects of cognitive symmetries, the moral hazards surrounding unwarranted belief, and the good reasons we have to stick with expert opinion on scientific matters mandate my claim that public reason ought to be extended to all political discourse regarding science and public policy. This proposed extension of public reason on all matters of science and public policy stands as a necessary corrective to rhetorical asymmetries corrosive to productive public discourse. It does so precisely because such an extension demands that arguments inconsistent with scientific consensus be avoided in public debates relevant to public policy decisions. To limit such arguments to scientifically uncontroversial points decreases the political promotion of misinformation that compounds the problems associated with cognitive asymmetries.

Consequently, policy makers, academics, journalists, and anyone else sought for public remark on contentious issues ought to adopt this version of public reason explicitly when

commenting in the public realm. When they do not, those in the just-named groups ought to publically censure the inappropriate remarks. The need to take on this responsibility, as has been suggested, is nowhere better illustrated than in current public debates regarding the science of climate change and its implications for public policy. Furthermore, failure to sustain public reason on issues of science and public policy represents a specific case where the public advocacy of beliefs contrary to scientific consensus is not just morally irresponsible, but morally condemnable.

IV. Some Possible Objections

There are four objections that might be made to my strict insistence that public reason (with its reliance on scientific consensus) be extended to all civic discourse regarding science and public policy. (1) To depend so heavily on scientific consensus amounts to a blatant appeal to authority. (2) To dismiss arguments contrary to the established scientific consensus, when such consensus exists, amounts to the endorsement of censorship against minority opinions in science. (3) Eliminating comprehensive doctrines from public discourse is unfairly restrictive to some citizens and therefore suppresses robust debate. (4.) Science itself, as an epistemic method engaged in by subjective agents, is inherently subject to investigator biases, and therefore is no better or worse than other forms of inquiry.

First, regarding fallacious appeals to authority: it ought to be remembered that not every appeal to authority is fallacious. It stands to reason that when true expertise exists on a topic, it is not fallacious to appeal to that expertise. Appeals to expert authority are necessary and responsible when one personally lacks the needed expertise. It follows that such appeals are strengthened when they can be made to a majority expert consensus. Of course this does not guarantee that experts are always right, but it is never reasonable to disregard expert opinion in

favor of non-expert opinion. This holds true from auto repair to medicine, and of course for climate science.

As for the second likely objection: I have not proposed that making pseudoskeptical claims in public policy debates ought to carry an official penalty, any more than straightforwardly arguing from comprehensive religious doctrines ought to carry an official penalty. To enforce such prohibitions would indeed amount to censorship. What I have proposed, consistent with Rawls' own understanding of public reason, is to extend jurisdiction of public reason beyond constitutional essentials and basic justice to all public discourse and political advocacy regarding science and public policy. Recognizing the need for informed and neutral public discourse, especially regarding scientific matters and legislation about them, is not meaningfully different from recognizing the need to exclude religious and otherwise controversial metaphysical views from influencing legislation on questions of constitutional essentials and basic justice. Rather, such insistence endorses and supports responsible and intellectually circumspect public discourse regarding science and public affairs. Furthermore, I have argued that making pseudoskeptical claims in public policy discussions is morally condemnable. However, even this is not a call for censorship of free speech. It remains the case that one should have the freedom to say many things that nevertheless ought to be morally condemned.

The third objection is closely related to the second, but aimed straightforwardly at Rawls' conception of public reason in and of itself. The argument is that public reason as a concept is too restrictive, and unfairly disallows seriously held comprehensive doctrines from entering the public discourse generally. While I agree with Rawls' insistence on public reason and find such counterarguments unconvincing, it is worth noting that Rawls does, as a proviso, allow for the

inclusion of comprehensive doctrines in relevant public debates provided they are consistent with or accompanied by public reasons. There is indeed good reason to stick with the limits of public reason in a pluralistic society, but it is beyond the scope of this paper to mount a general defense of Rawls' public reason. It is enough to note that the issue itself is separate. Even if one were to cede this point, it remains possible to allow comprehensive doctrines to play a role in public discourse generally, while nevertheless maintaining that with regard to science and public policy one still ought to limit one's arguments to those consistent with current scientific consensus for the reasons already stated above.

Finally, regarding the claim that scientific consensus is not neutral, but is itself influenced by personal bias and public opinion: it must be admitted that no epistemological method is necessarily free from human bias. Nevertheless, proper scientific process mitigates such burdens of judgment, perhaps better than any other tool of inquiry at our disposal. Indeed, the success of science is tangible in its broad application and in technological advancements from healthcare to space travel. To deny the obvious success of science as a tool for inquiry, precisely because it strives to mitigate human prejudice, is naïve at best; at worst it represents the height of pedantic sensationalism.⁴¹

V. Concluding Remarks and Recommendations

We live in a society that too often manufactures scientific controversy where none exists. Scientific questions do not belong in the category of things that can be settled by general public debate. Nevertheless, our private comprehensive doctrines can influence the way we interpret scientific data, thus compounding the problems associated with cognitive asymmetries, with implications for public debate and subsequent public policy decisions. In matters such as global warming, cognitive asymmetries (informed by private comprehensive doctrines), when mixed

into the public sphere, can have far reaching consequences on the health and well-being of their possessors and of others.

Because our patterns of cognitive analysis set up the conditions for similar beliefs to follow, and because we are not isolated citizens but are bound to influence one another directly and indirectly, unwarranted beliefs create a condition of moral hazard that ought to be taken seriously. Many academics, professional journalists, and most politicians are well placed, and often well equipped to detect and counter pseudoskeptical assertions in advance of the general public. Indeed, journalists are ideally positioned to counter pseudoskeptical claims by providing greater coverage of legitimate scientific consensus. As a consequence of the greater public responsibility such professionals have, it is a graver ethical breach when these figures indulge in pseudoskeptical assertions regarding science and public discourse.

Thus, as maintained above, it is worth concluding (1) that ethical obligations of inquiry extend to every voting citizen insofar as citizens are bound together as a political body; such an ethics of inquiry creates a burden of critical circumspection, even reasonable skepticism, as a form of civic responsibility. (2) It is morally condemnable to put forward unwarranted public assertions contrary to scientific consensus (pseudoskeptical assertions) when such consensus is decisive for public policy and legislation. As a corrective to such communicative missteps, an ethics of inquiry relevant to public debates will connect with an ethics of discourse emphasizing the need to extend the limits of public reason to all public debates involving science and questions of public affairs. (3) Given a paired ethics of inquiry and public discourse, it is imperative upon educators, journalists, politicians and all those with greater access to the public forum to condemn, factually and ethically, pseudoskeptical assertions without equivocation whenever they are voiced in the realm public of affairs.

¹ Philip Kitcher (1997) “An Argument about Free Inquiry.” *Nous*, vol. 31, no. 3, pp. 279-306. See additionally Kitcher (2001) *Science, Truth, and Democracy*. Oxford: Oxford University Press.

² See Kitcher (2001) p.97.

³ See Kitcher (2001) p.97.

⁴ Specifically, Kitcher has in mind research with implications for underprivileged groups. For instance, he argues that some forms of research regarding race and sex can serve to promote prejudice and stereotypes, even when such research aims at debunking stereotypes. The reason for this, Kitcher argues, is because in a society that tends to hold a negative prejudice against a given minority group, any information is likely to be filtered in such a way as to either be misunderstood to support preconceived stereotypes, or else ignored all together. See Kitcher (1997). For a refutation of Kitcher’s position, see Robert B. Talisse and Scott F. Aikin, (2007) “Kitcher on the Ethics of Inquiry,” *Journal of Social Philosophy* Vol. 38, no. 4, pp. 654-666.

⁵ Scott F. Aikin and Michael D. Harbour, (2010) “The Ethics of Inquiry and Engagement: The Case of Science in Public” *Public Affairs Quarterly*, vol. 24, no. 2, pp. 155-166.

⁶ In Aikin and Harbour’s article, Thomas Nagel is identified as an example of someone who, despite his awareness of cognitive asymmetries, creates a situation in which his speculations actually encourage their distortion. See Thomas Nagel (2008) “Public Education and Intelligent Design,” *Philosophy and Public Affairs* vol. 36, pp. 187-205. In their article, Aikin and Harbour also identify Richard Dawkins as someone who contributes to the polarization of creationists and proponents of “intelligent design” (ID), namely by refusing to debate them. Though I agree with the general thrust of Aikin and Harbour’s article, I disagree with their use of these two examples. I reject Nagel’s conclusions in the abovementioned work, yet for the present purposes, the more salient point is that Aikin and Harbour need not mitigate their condemnation of Nagel for his complicity regarding the asymmetries they identify. When intelligent design proponents quote Nagel as defending their right to discuss ID, as an equally scientific alternative to evolution in science classrooms, they are correct to do so, for Nagel does lend his voice and celebrity to their cause. While, in my judgment, Nagel is woefully mistaken in his reasoning and ought not to have made such arguments in the first place, this is a separate matter. Since Nagel overtly supports (without any distortion) presenting intelligent design alongside evolution in science classrooms, there is no reason for critics to tread lightly around his disregard for the asymmetries to which he contributes. For a complete refutation of Nagel’s position, see Robert Talisse, Scott Aikin, and Michael Harbour, (2010) “Nagel on Public Education and Intelligent Design,” *Journal of Philosophical Research* 35, pp. 209-219. On the other hand, Richard Dawkins has often explained that his decision not to debate creationists *is* based upon his understanding of what Aikin and Harbour call cognitive asymmetries (though Dawkins does not use that term), and on his refusal to play into just these. Now, it is the case that evolution is a legitimate scientific theory, and that ID, notwithstanding Nagel’s protests, is not. It is also true that science does not tend to advance via staged debates, for even if such debates might be informative for some, the risk of misrepresentation or misinterpretation is high when debating before (rather than teaching to) a public that tends to lack sufficient scientific literacy. Yet in our contemporary cultural environment, evolution and creationism are portrayed regularly as if they are on the same, potentially legitimate playing field, and are both deserving of full public attention. Indeed, the fabricated “debate” between these positions is often portrayed as if it is a matter that could be decided by scientifically uneducated laypersons. Thus, the argument I will advance in this paper supports Dawkins’ decision not to provide a public forum for creationism, even while it shows why it would be inappropriate for Dawkins to ignore creationists and creationism/ID proponents. Dawkins has indeed spent a great deal of time engaging opponents of evolution in his writings, interviews, and other forms of scientific outreach (a simple YouTube search for Dawkins on the topic will show him to be quite active in this regard). Furthermore, the argument I will make in this paper lends moral support to Dawkins’ efforts to counter creationists in the public realm.

⁷ The term “rhetorical asymmetry” is not to be understood as discrete from political and cognitive asymmetries, but rather the term is used to place emphasis on the rhetorical consequences that both forms of cognitive asymmetry engender.

⁸ Rawls describes constitutional essentials as matters of structure and procedure regarding governmental bodies and the political process. Rawls also includes basic civil rights and liberties, which are to be recognized equally for all citizens, in this category. Questions of basic justice can be understood as foundational for and supportive of constitutional essentials. Thus Rawls considers the difference principle and all discussions of fair opportunity to be about questions of basic justice. Rawls’ primary concern in his writings regarding public reason is to establish that

these categories, first and foremost, are the domain of public reason when it comes to open political advocacy. However, Rawls does not rule out the possibility of profitably extending public reason to other discursive categories. See Lecture VI section v. in Rawls' (1993) *Political Liberalism* New York: Columbia University Press pp. 227-330.

⁹ The claim (to be advanced in section III) is not that all asymmetries are comprehensive doctrines, but that comprehensive doctrines plausibly influence cognitive asymmetries, and the interpretation of otherwise neutral data points.

¹⁰ Climate change is a good example of how the misunderstanding of science can adversely affect vulnerable populations. Consider the risks posed by global warming for those, such as the elderly, due to heat related illnesses. For a full assessment of such risks see A.J. McMichael, D.H. Campbell-Lendrum, C.F. Corvalan, K.L. Ebi, A. Githeko, J.D. Scheraga, A. Woodward, eds. (2003) *Climate Change and Human Health—Risks and Responses*. Published by the World Health Organization.

¹¹ The fact that opinions about anthropogenic global warming divide down political lines in the United States Congress indicates that political capital within each political party is earned or lost depending on the position one takes on this issue. According to one recent *National Journal* poll, among congressional politicians 95% of Democratic congressional leaders agree that the scientific evidence for human caused global warming is beyond a reasonable doubt. This number is opposed to a mere 13% of Republican congressional leaders who accept the scientific consensus on global warming. http://syndication.nationaljournal.com/images/203Insiderspoll_NJlogo.pdf California Congressman Darrell Issa has vowed recently to make investigation of climate scientists a top priority as Chairman of the “Oversight and Government Reform Committee” in Congress <http://www.nytimes.com/cwire/2010/09/23/23climatewire-rep-issa-would-lead-climategate-probe-if-hou-44766.html?ref=earthof>.

¹² William Kingdon Clifford, (1999) *The Ethics of Belief and Other Essays*, ed. Timothy Madigon, Prometheus Books p.77.

¹³ The ship example is not the only one that Clifford uses in his text. Clifford also uses the example of religious zealots spreading libelous rumors about religious reformers in order to turn a community against them. Clifford argues that belief concerning others without evidence is ethically untenable. See Clifford (1999) pp. 70-71.

¹⁴ See Clifford (1999) p.77.

¹⁵ Ibid. p. 73.

¹⁶ Both claims can be attributed to former President George W. Bush, who famously endorsed the teaching of intelligent design alongside evolution in public schools <http://www.time.com/time/nation/article/0,8599,1089733,00.html>. Bush also argued for an invasion of Iraq, in part based on unverified satellite photos that were erroneously presented as WMD facilities in Colin Powell's 2003 speech to the U.N., which advocated the invasion of Iraq. http://articles.cnn.com/2004-04-03/us/powell.iraq_1_official-iraqi-organization-biological-weapons-labs-state-colin-powell?_s=PM:US.

¹⁷ Some might claim that such conclusions are called into dispute by the Baylor University Surveys on religion (2006, 2008), which have suggested that paranormal/supernatural beliefs decline with regular church attendance, and that those claiming to be non-religious are the most likely to believe in the following: “Atlantis, alternative medicine, telekinesis, psychics, astrology, communication with the dead, haunted houses, prophetic dreams, UFOs and monsters” (*Selected Findings from the Baylor Religious Survey*, September 2006, <http://www.isreligion.org/wp-content/uploads/American-Piety-Finall.pdf>). The idea behind such a claim would be that holding an evidentially unwarranted belief in a deity does not, as Clifford's argument would suggest, correlate with an increased assent to other unwarranted beliefs. This conclusion, however would be, unjustified.

How patterns of fallacious beliefs play out may vary widely. For instance, a belief in the Abrahamic deity and a belief in a haunting spirit may be based equally upon an appeal to ignorance, but holding the former belief may preclude the latter belief. Indeed, it stands to reason that the more devout the belief in the former is, the more likely it is that belief in the latter will be rejected. Consequently, a devout Christian might (under the influence of her Christian beliefs) base her assent to intelligent design on an appeal to ignorance, but her strong Christian beliefs may also make a belief in haunting spirits (otherwise based upon a similar pattern of fallacious reasoning) metaphysically untenable in the context of her Christian world view. Instead, she may be more likely to posit (based on a similar pattern of fallacious reasoning) the existence of demons, whereas less theologically inclined people might posit the existence of haunting spirits. By analogy, specific beliefs and their variables are like weather patterns: both are difficult to predict. At the same time, the foundational quality of one's rational habits, on this analogy, are akin to the aggregate climate which nonetheless affects the weather patterns that are hard to predict. None of this refutes the salient claim being made that a readiness to accept fallacious forms of reasoning in one circumstance sets a precedent for the acceptance of future fallacious forms of reasoning. Still and all, a commitment to proportion one's

belief to available evidence in a circumspect manner will tend to reduce the aggregate amount of fallacious and unwarranted beliefs one accepts. Moreover, the Baylor surveys do not consider belief in a supernatural deity—when that deity is the Christian God—to be supernatural or superstitious, nor does it count Christian religious beliefs (e.g. Transubstantiation, Sacramental Union, bodily resurrection, virgin birth, etc.) among its possible supernaturally-inclined beliefs. Thus, conclusions drawn from the Baylor surveys claiming that the non-religious tend to be more superstitious than the religious are clearly biased from the outset. As well, an analysis published by the Council for Secular Humanism suggests that the 2008 Baylor survey has published misleading findings with regard to religious social trends in the U.S. See “Is the Baylor Religious Survey Reliable?: An Analysis from the Council for Secular Humanism” by Gregory S. Paul <http://www.secularhumanism.org/greg-paul-baylor.pdf>.

¹⁸ I use the term “moral hazard” in a sense akin to its common usage in contract theory. Moral hazard occurs when one party, in this case the ship’s owner, is insulated from serious harm and therefore more likely to take risks at the expense of those more vulnerable to harm. Likewise, since our private beliefs are often thought to be of little consequence, we tend to be more careless with them than we otherwise would be, and this makes society as a whole more susceptible to the negative impacts of uncircumspect belief.

¹⁹ See Clifford (1999) p.77.

²⁰ In parts two and three of Clifford’s essay, titled “The Weight of Authority,” and “The Limits of Inference,” respectively, Clifford goes on to provide guidance and scope regarding the proper grounds of justification and circumspection necessary for warranted belief. Clifford suggests, as does the conclusion of this paper, that warranted belief is measured in terms of its potential for verification. Clifford wrote in a time before the intense professionalization that is the hallmark of 21st century science, and in this paper, Clifford’s animating concerns are invoked in the context of the modern scientific process, which Clifford anticipates in his discussions.

²¹ This paper accepts the fact/value distinction as described by David Hume in Book III, Part I, Section I of *A Treatise of Human Nature* (1739). For a recent work challenging the fact/value distinction, see Sam Harris’ (2010) *The Moral Landscape: How Science Can Determine Human Values*, Free Press. I disagree with Harris’ argument while remaining sympathetic to many of his conclusions. While a refutation of Harris’ method is beyond the scope of this paper, the relevant arguments against his position have already been made by Hume, and much of the work in Anglo-American philosophy that has followed Hume on the topics of ethical naturalism and non-naturalism.

²² This is not to suggest that Clifford is a verificationist, but to acknowledge that Clifford’s strong categorical condemnation of unwarranted belief is unhelpful absent a distinction between unwarranted assertions regarding facts, and assertions of taste in the realm of value.

²³ It can be argued that an ethics of inquiry demanding circumspection and due diligence in advance of assertions represents a baseline moral position that is implicit to philosophy itself. For an examination of such an argument see Lawrence Torcello (2011) “Sophism and Moral Agnosticism, or How to Tell a Relativist from a Pluralist,” *The Pluralist* vol. 6 no. 1.

²⁴ The majority consensus view of scientists specializing in climatology is that global warming is occurring at dangerous levels as a result of human activity. For an analysis of the scientific consensus which takes into consideration the level of expert credibility (in terms of peer-reviewed publications) among most scientists confirming anthropogenic climate change, versus the very small minority that do not accept the consensus, see William R.L. Anderlugg, James W. Prall, Jacob Harold, and Stephen H. Schneider, (2010) “Expert Credibility in Climate Change,” *Proceedings of the National Academy of Sciences of the United States*, June 21(online ahead of print edition) <http://www.pnas.org/content/early/2010/06/04/1003187107.full.pdf+html>.

²⁵ For a useful discussion on approaching expertise as a layperson, see chapter 12 of Massimo Pigliucci’s (2010) *Nonsense on Stilts: How to Tell Science from Bunk*, University of Chicago Press. Chapter six of the same book has a thoughtful analysis of the science of climate change, and the political factors thwarting an effective response to global warming.

²⁶ See chapter 2 of George Monbiot’s (2007) *Heat: How to Stop the Planet from Burning*, South End Press. It is plausible to argue that no significant collective action has occurred regarding global warming since the organization of the International Panel on Climate Change in 1988.

²⁷ There is reason for pessimism regarding serious efforts to curb global warming. It is of moral significance that those most responsible for anthropogenic climate change are increasingly unable to understand, or admit, the impact their actions are having on the world’s poorest populations, which are least able to prevent or adapt to this ongoing crisis. Recent polling (at the time of this writing) in the United States suggests that nearly one in two citizens believe that the seriousness of global warming has been exaggerated, the same statistic applies to the number of US citizens who disbelieve that global warming is due to human activities. Those who do believe that global warming is due to human activities is down 11% from 2003. In 2003, a Gallup poll found that 61% of U.S. citizens believed that

human activity has caused global warming. According to Gallup only 50% of U.S. citizens attributed global warming to human activity in 2010 <http://www.gallup.com/poll/126560/Americans-Global-Warming-Concerns-Continue-Drop.aspx>.

At the same time, the United States is the second largest emitter of CO₂ per capita, having been recently surpassed by Australia http://www.ucsusa.org/global_warming/science_and_impacts/science/each-countrys-share-of-co2.html. In Australia those who understand that global warming is occurring, and correctly attribute it to human activity is down from 52% in June of 2008 to 44% in March of 2010 <http://www.gallup.com/poll/141782/Australians-Views-Shift-Climate-Change.aspx>. In the United Kingdom, informed beliefs regarding anthropogenic global warming are disappearing faster than arctic ice sheets: <http://pubs.usgs.gov/imap/i-2600-c/>. A BBC poll conducted in February of 2010 shows that 25% of people in the UK do not believe global warming is happening, which is up 10% from a similar poll in November of 2009 <http://news.bbc.co.uk/2/hi/8500443.stm>. The percentage of adults in the UK believing that global warming is a definite reality dropped from 44% to 31% between 2009 and 2010. The UK is the 9th largest CO₂ emitting population per capita. A recent poll determined that most Canadians rank climate change as the most important issue needing to be addressed by world leaders: <http://www.nanosresearch.com/library/polls/POLNAT-W10-T423.pdf>. Unfortunately, the Canadian government itself is out of step with the realities of climate science. As an editorial titled “Science in Retreat” in the science journal *Nature* reports: “Since Prime Minister Stephen Harper came to power, his government has been sceptical of the science on climate change and has backed away from Canada's Kyoto commitment. In January, it muzzled Environment Canada's scientists, ordering them to route all media enquires through Ottawa to control the agency's media message.” Editorial, (2008) *Nature* 451, 866, February 21 | doi:10.1038/451866a; Published online 20 February 2008: <http://www.nature.com/nature/journal/v451/n7181/full/451866a.html>. Canada remains the third largest producer of CO₂ per capita http://www.ucsusa.org/global_warming/science_and_impacts/science/each-countrys-share-of-co2.html. In Germany, which is the seventh largest CO₂ emitter per capita, a recent poll for *Der Spiegel* finds that only 42% of Germans are concerned about global warming, which represents a sharp decline from 62% just four years earlier: <http://www.spiegel.de/wissenschaft/natur/0,1518,685946,00.html>.

²⁸ The most notable example of harm from AIDS denialism is the estimated 330,000 AIDS related premature deaths and 35,000 infant infections between the years 2000 and 2005 alone, under the administration of former president of South Africa and AIDS denier Thabo Mbeki. http://www.natap.org/2010/newsUpdates/011910_02.htm. Regarding denialism of the safety or efficacy of vaccinations for preventable diseases, anti-vaccination movements in the US and Europe threaten the effective establishment of herd immunity, and there has been a recent increase in cases once greatly reduced by vaccination. Before 1976, for example, whooping cough took the lives of approximately 9,000 children yearly. With the advent of vaccinations, this number was reduced to 1,000 cases in the first year of wide implementation, 1976. With the rise of anti-vaccination misinformation in the US, cases of whooping cough increased to 10,000 cases annually in 2008 <http://articles.latimes.com/2010/feb/05/opinion/la-oe-fumento5-2010feb05/2>.

²⁹ The term “pseudoskepticism” was used by the late sociologist Marcello Truzzi to refer to scientific skepticism that, in his eyes, fails to remain neutrally agnostic about the supernatural. I am not using the term in Truzzi's sense. Since scientific consensus is arrived at through the organized skepticism inherent in the scientific process, I am using the term pseudoskepticism to label unwarranted denial of established scientific consensus. For Truzzi's use of the term, see Marcello Truzzi (1987) “On Pseudoskepticism,” *The Zetetic Scholar*, No.12, 13 pp. 3-4.

³⁰ Pseudoskepticism, as I use the term, can be understood in relation to three propositions put forth by Bertrand Russell in “On the Value of Scepticism” (1928). As Russell puts it: “There are matters about which those who have investigated them are agreed; the dates of eclipses may serve as an illustration. There are other matters about which experts are not agreed. Even when the experts all agree, they may well be mistaken. Einstein's view as to the magnitude of the deflection of light by gravitation would have been rejected by all experts not many years ago, yet it proved to be right. Nevertheless the opinion of experts, when it is unanimous, must be accepted by non-experts as more likely to be right than the opposite opinion. The scepticism that I advocate amounts only to this: (1) that when the experts are agreed, the opposite opinion cannot be held to be certain; (2) that when they are not agreed, no opinion can be regarded as certain by a non-expert; and (3) that when they all hold that no sufficient grounds for a positive opinion exist, the ordinary man would do well to suspend his judgment.” Though Russell himself speaks of unanimity, the spirit of his claim is more precisely bound with majority consensus, and Russell's own example of Einstein (if we are to count Einstein himself as an expert in this context), serves to illustrate that majority consensus is closer to what Russell actually has in mind. After asserting his skeptical propositions, Russell goes on to argue that if these simple propositions were to be accepted, they would “revolutionize human life.” Keeping the insights of Clifford and Russell in mind, one ought to conclude that a properly informed ethics of inquiry (extended to non-

experts) must discourage non-experts from asserting their speculations into public discourse, when such claims are counter-factual to informed scientific consensus. Furthermore, such an ethics of inquiry will promote agnosticism proportionate to the evidence. See Bertrand Russell “On The Value of Skepticism” (1928), which is contained in the collection of Russell’s papers titled *Skeptical Essays*, Rutledge (2004).

³² For examples of work addressing the role of public reason in specific debates, see Lawrence Torcello (2008) “Is the State Endorsement of Any Marriage Justifiable? Same-Sex Marriage, Civil Unions, and The Marriage Privatization Model” *Public Affairs Quarterly*, Vol. 22, No. 1, pp. 43-61, as well as Torcello (2009) “A Precautionary Tale: Separating the Infant from the Fetus.” *Res Publica* Vol. 15 No.1, pp. 17-31.

³³ There are no comprehensive doctrines consisting exclusively of scientifically verifiable facts, though some may be more amenable to scientific facts than others. For an exploration of how cultural views influence the interpretation of scientific facts, see Dan M. Kahan and Donald Braman (2006), “Cultural Cognition and Public Policy,” *Yale Law and Policy Review* Vol. 24, No. 1, pp. 149-172.

³⁴ For an examination of scientific denialism and strategies for combating it, see the European Public Health Association’s statement on Scientific Denialism: (2009) “Scientific Denialism: What Is It, and How Should Scientists Respond?” *European Journal of Public Health*, Vol. 19, No. 1, pp. 2-4.

³⁵ The need for scientific researchers to engage with the public in order to minimize the effect of cognitive symmetries is emphasized and further developed by Aikin and Harbour (2010).

³⁶ A good example is the recent “debate” about climate change on West Virginia Public Broadcasting NPR <http://www.wvpubcast.org/newsarticle.aspx?id=12858>. The debate pitted the CEO of an energy company highly invested in coal against Robert Kennedy Jr. Neither of the debaters have scientific expertise in climatology. (Kennedy, while accepting scientific consensus on climate change, holds pseudoskeptical views associated with the anti-vaccination movement. See Novella [2007] “The Anti-Vaccination Movement,” *Skeptical Inquirer*, Vol. 31.6. http://www.csicop.org/si/show/anti-vaccination_movement/.) Far from shedding light on the issue of climate change, such debates obfuscate the scientific facts of climate change, and make it difficult for an informed public to act on the matter.

³⁷ See Russell (1928).

³⁸ One might suspect that a scientific consensus is wrong or one might be ideologically opposed to its conclusions. This does not change the fact that one’s personal opinions ought to have no legislative merit on issues needing scientific confirmation. Therefore, even if one does not welcome scientific opinion, there can be no epistemic justification for advocating an opposing view in the public realm regarding matters requiring informed legislation. Though I am suggesting that it is often the case that comprehensive doctrines influence pseudoskeptical views, the more salient point is that whatever the source of pseudoskeptical views, public reason must stick to scientific consensus when such consensus exists.

³⁹ John Rawls, (1993) *Political Liberalism* Columbia University Press, pp. 224.

⁴⁰ *Ibid.* Lecture V. section 1. p. 215.

⁴¹ For an informative analysis of modern criticisms against science see Pigliucci (2010), chapter eleven.