

Toward a Better Bioethics

Commentary on “Forbidding Science: Some Beginning Reflections”

Jason Scott Robert

Received: 9 February 2009 / Accepted: 9 March 2009 / Published online: 7 May 2009
© Springer Science+Business Media B.V. 2009

Abstract It has been argued that bioethicists too often tend to represent the interests of scientists and not of the broader polity. Indeed, bioethicists seem predisposed to discard the voices and viewpoints of all but the *cognoscenti*. Focusing particularly on human pluripotent stem cell research, this commentary explores a variety of characterizations of bioethics and bioethicists in relation to forbidding science. Rather than proselytizing or prohibiting, bioethicists should work in partnership with scientists and publics to craft scientifically well-informed and morally sophisticated debates about forbidding science.

Keywords Controversy · Deliberation · Expertise · Human pluripotent stem cell research · Moral architecture · President’s Council on Bioethics · Public engagement

Introduction

In “Forbidding Science: Some Beginning Reflections”, Kass (2009) grapples with both senses of the ambiguous phrase, “forbidding science”: (1) forbidding science qua science that is morally or otherwise controversial, and (2) forbidding science qua the act of prohibiting or outlawing science or scientific activities. As the former Chairman of the President’s Council on Bioethics rightly indicates, there is no necessary connection between these two senses. That is, controversial science may not warrant proscription, and proscription itself can be morally controversial. Yet it certainly is the case that certain forms of scientific inquiry demand regulation and even proscription. Science is forbidden and constrained all the time, justly and with

J. S. Robert (✉)

Center for Biology and Society and School of Life Sciences, Arizona State University,
Box 874501, Tempe, AZ 85287-4501, USA
e-mail: Jason.Robert@asu.edu

merit—consider rules governing research with animal and human subjects and with certain classes of chemicals.

While these kinds of rules are generally (though not universally) deemed to be good for science and good more broadly, other attempts to forbid science are less well received. Research with human embryonic stem cells represents a forbidding type of science, and rules governing such research that were introduced via executive order during the administration of President George W. Bush in the United States, represent a fine example of “forbidding science” in the other sense. Bush restricted the use of public funds for such research, though he did not forbid the research as such, even while he found it morally troubling. Those with other sources of funding—from states, or from private interests—were free to conduct human embryonic stem cell research, and some states and private corporations have provided considerable financial support for this research. Even so, Bush’s decision was a controversial one. There were extreme responses, from those who disagreed completely with the decision and the reasons cited by Bush, to those who were dismayed that Bush did not go far enough toward outlawing all human pluripotent stem cell research. There were also some more nuanced responses: some of those who agreed with the decision to step back and evaluate the scientific and ethical aspects of the research, nonetheless disagreed with the reasons Bush gave.¹ But these nuanced views were swamped by the extremes, with scientists, politicians, and bioethicists carrying on a simplistic and superficial debate. This simplistic and superficial debate continues, now in the context of President Barack Obama’s February 2009 Executive Order lifting Bush’s ban on federal funding for human embryonic stem cell research, wherein some commentators celebrate the triumph of reason over politics, while others lament the retreat of sound ethics.

Public expectations for stem cell research are high. So, too, are public concerns about how to realize those expectations at minimal moral cost. The promised benefits include therapies and cures for all manner of disease and disorder from Alzheimer’s Disease to Zellweger Syndrome, as well as increased understanding of early human development. The perceived moral costs include the devaluation of incipient human life, the potential exploitation of women for eggs for research and therapies, the practice of creating part-human chimeras and the prospect of creating interspecies blastocysts, and the lack of federal oversight and regulation of human pluripotent stem cell research from bench to bedside.

How should these disputes about the scientific and ethical complexities of human pluripotent stem cell research proceed? And who are the appropriate disputants? Are

¹ Bush’s position was something of a compromise; on moral (religious) grounds regarding the sanctity of life and worries about complicity, Bush opposed federal funding to create or to study newly created human embryonic stem cell lines, but he did not ban the research altogether. While non-federal funding sources were not constrained by his Executive Order, the intention was to limit federal involvement in human embryonic stem cell research. The standard political and bioethical response to Bush’s restriction was to promote a radically pro-research perspective, according to which limits on research should be rare or nonexistent. A minority of commentators (e.g., Baylis and Downie 2005; Baylis and Robert 2006) attempted to moderate extreme views by promoting *well-justified* human embryonic stem cell research, as against promoting all human embryonic stem cell research all the time, but on scientific and secular ethical grounds. For a sober and compelling assessment of the national context in the United States for debates about human pluripotent stem cell research, see Zwanziger (2008).

these debates the proper province of scientists alone, as some might maintain? Should they instead be undertaken within a democratic decision-making framework, where executive order, legislation, or ballot measure will carry the day? And what role should bioethicists play, if any, regarding both senses of forbidding science?

Kass issues a “cautionary word ... about bioethics and bioethicists, the self-appointed ‘experts’ in moral matters biomedical”. He is, quite simply, not impressed with bioethicists. As he indicates, bioethicists do not adequately represent a diversity of viewpoints on moral issues, and they appear to have bought into an economy of knowledge whereby expertise—whether about science or about ethics—is sufficient for public proclamation on moral matters. Kass prefers to dispute both the expertise of bioethicists and the sufficiency of expertise. Valid or not, this view does not call into question the desirability of bioethics and of a role for bioethics in complex disputes about ethics and values. Rather there is a need for a better bioethics, and better bioethicists.

With regard to stem cell biology, many scientists and commentators have tended to promote the angle of ‘us versus them’ in public discussions, and also in scientific journals, leaving little room for nuanced perspectives on the morality, propriety, and scientific and prospective therapeutic value of human pluripotent stem cell research. In these ‘us versus them’ debates, scientists have found both willing allies and mortal enemies amongst the bioethicists engaged in the debates. The conservative Kass focuses criticism on more liberal bioethicists, happy to function as advocates for science; the libertarian Ronald Bailey, in his loosely argued book on *Liberation Biology*, focuses criticism on more conservative bioethicists, who would stand in the way of what he sees as scientific progress (Bailey 2005; Brian and Robert 2008). Most bioethicists have failed to help foster more constructive and mutually respectful discussions about controversial science, instead preferring to fuel the flames of such divisive debates. Generally, Kass stands as a notable exception, though he is rarely interpreted in this light.

Bioethics as Bio-Evangelism?

While some commentators have fervently attempted to discredit any and all human pluripotent stem cell research, bioethicists have been largely strongly supportive of this research, although this support has not always been unconditional. There are, for instance, arguments about how to acquire human eggs ethically (Winickoff 2006; Baylis and McLeod 2007), about whether somatic cell nuclear transfer really is the scientifically and socially preferred technique for deriving human embryonic stem cells (Giacomini et al. 2007), and about how to proceed from apparent successes in non-human animals to human clinical studies (Lo et al. 2005; Robert 2006). But these debates are almost all undertaken within the framework that there is nothing intrinsically evil about human pluripotent stem cell research. Notably, these debates have almost all been undertaken not between but rather among bioethicists and stem cell scientists. Would that there were more collaborative debates of this sort. Much more frequently, bioethicists’ support of human

embryonic stem cell research has verged on evangelical: proselytizing rather than critically probing, in pursuit of victory at the expense of truth.

Accordingly, some bioethicists have actively promoted the most excessive hype about pluripotent stem cells, portraying them as magic bullets that, once injected into diseased tissue, intrinsically ‘know’ exactly what to do and immediately set out to repair hearts, brains, and blood. They have also pretended that the only obstacle between benchside and bedside was the Bush White House—that with federal funding (alongside targeted state funding, as in California) of all kinds of human stem cell research, cures for debilitating disease would be available now, or at least within the next five years. They have also helped to frame the public discussion in terms of two extremes: destroying mere embryos (described as simple clumps of cells) and killing grandma by not pursuing the magic bullets.

Of course, these bioethicists are not alone in perpetuating such fantasies; they are taking part in a much more complex drama, sometimes as bit players, sometimes on center stage, sometimes as promoters, alongside scientists, lawyers, journalists, and public relations gurus.

The end result is a vast overestimation and misrepresentation of the powers of stem cells, a vast underestimation of the complexities of development (both with regard to human biology and to the research and development ‘pipeline’), and a vastly skewed political landscape for public engagement in science policy. However, there are alternatives. Not simply alternatives to human embryonic stem cell research, though several of these are being pursued, most notably in regard to inducing pluripotency in differentiated cells (see Müller et al. 2009 for a recent review). More to the point, there are alternative ways to frame the science, ethics, and politics of this research toward more productive ends. This would require willing and able participants, including scientists, bioethicists, regulators, funders, and others, who begin with the starting point that the ethics of contemporary science is neither cut-and-dried nor black-and-white, but rather open-ended and every shade of gray.

Bioethics as Impediment to Progress?

Scientific inquiry—and not just human pluripotent stem cell research—is an inherently political activity. Science is collaborative within and between labs, and within and between academia, government, and industry. Scientific research is undertaken in the context of social, institutional, regulatory, ethical, and economic pressures, both locally and more globally. Scientists are therefore situated at the interface of complex and competing interests as they aim to uncover fundamental truths, advance knowledge, and foster further discoveries and applications. It remains unclear how scientists should proceed, and what roles ethicists should play, at the intersection of science and society.

Ironically, despite the evangelism of some bioethicists, scientists are typically quick to judge bioethicists as impediments to scientific progress. Indeed, sometimes they do impede scientific research, where that research raises serious moral problems (Kalichman 2006; Benatar 2007). Scientists often see bioethicists as—

and, indeed, some bioethicists see themselves as—moral police, on patrol to curb the bad behavior of scientists, or as moral firefighters, called in to quell the flames of moral dispute. Both images of the bioethicist suggest that they have a certain kind of expertise or moral knowledge that makes them uniquely suited to resolving ethical disputes—even if there is no such thing as moral knowledge. Accordingly, they are part of the hulking bureaucracy of contemporary academia, serving on institutional review boards, animal care and use committees, embryonic stem cell research oversight committees, and conflict of interest committees, rendering expert advice and interfering in scientists' ability to get on with their research. Furthermore, increasingly scientists are required to pay for their services, usually by adding them to grants at the eleventh hour in order to demonstrate to funders that they care about the societal dimensions of their research. This is, at best, an unhappy marriage, arranged on short notice and coerced almost at gunpoint.

Moreover, most bioethicists have no science background, whether formal or informal, generally would not attend a scientific congress nor even a local biology seminar, and even find science boring. They are, as some scientists have intimated, know-nothing-know-it-all. Yet when bioethicists *are* interested in science, there are barriers to how much science is good for them: sometimes, especially when housed in Philosophy departments, bioethicists are under institutional pressure not to fraternize with scientists, not to publish in science journals, not to take part in interdisciplinary research, not even to secure release time from teaching to participate in scientific grants.

A happy marriage of a socially responsible scientist to a scientifically literate ethicist is unfortunately rare. Of course, this may be the wrong metaphor to pursue. One might instead imagine ethicists as navigators of uncharted scientific terrain, helping to guide scientists along the journey of discovery—but this runs the risk of perpetuating the image of the know-nothing-know-it-all. Or one might imagine ethicists as handmaidens of scientific discovery—but this runs the risk of collapsing into evangelism (another version of know-nothing-know-it-allism, but one more friendly toward science). Are there better options?

Bioethics as Moral Architecture?

I see my work as a bioethicist not as akin to membership in a moral police force or fire brigade or quasi-religious sect, but rather as an architect of moral space. This image, introduced by philosopher Margaret Walker (Walker 1993; Robert 2007), portrays the ethicist—or, in her original usage, the ethics consultant—as one who helps to design spaces, both figurative and literal, that foster open and constructive dialog, discussion, and debate about moral issues. As a moral architect, the bioethicist does not police behavior, put out fires, or render expert judgments. Instead, she helps to expose, explore, and explain the values, interests, and commitments of stakeholders, aiming at mutual respect and understanding—if not always agreement—amongst diverse parties. She does so by fostering an atmosphere of frankness and honesty, resisting dichotomies and other polarizing tactics, and knowledgeably and adeptly structuring progressive dialogs.

Scientists may be co-architects or, alternatively, participants in these moral spaces. In my efforts at moral architecture, I do not cast ethicists and scientists either as adversaries or paramours, but rather as differently skilled and critically important participants in a complex challenge: to understand, elucidate, and articulate the technical, ethical, social, and political aspects of science.

But bioethicists and scientists are not the only interested parties here. Stem cell research—and biomedicine and biotechnology more broadly—affect everyone. This means that bioethicists must create spaces for public engagement in deliberations about science and technology. Of course, scientists often complain about the low level of public understanding of science. Insofar as public understanding is, in fact, low, the scientific community is partially to blame for this state of affairs—overstated promises of the magical powers of stem cells or genes have negligible educational content. When scientists do take on public education efforts, too often they insist on oversimplifying the science, eliminating from their presentations any mention of uncertainty or fallibility. Meanwhile, many bioethicists are willfully ignorant of the details of the science and the practices of scientists, and they also tend to oversimplify the ethics into unrepresentative, partisan dichotomies. There remains a distinct need for scientists and bioethicists willing to accept the challenge of presenting the details of the science, warts and all, and of the ethical debates, nuance and all, in ways accessible to regular people (Robert 2008).²

Moral architecture is admittedly abstract. It is also intensely demanding, requiring various high level competencies on the part of the ethicist: the capacity to understand (and to explain) the science and the moral, epistemic, and other values and interests on the table; the ability to build trust between participants; the skill to facilitate difficult conversations; and the energy, courage, and wisdom to maintain such literal and figurative spaces over time to improve their efficiency and efficacy. In a public forum, the moral architect must be able to sketch the rough outline of the scientific terrain, pausing to elaborate on salient or complicated issues, and to provide an overview of the moral landscape, inviting comments and questions throughout in order to ensure substantive understanding of the key issues. He will ask hard questions, offer provisional answers, and, often, learn something in the process.

In addition to these individual competencies, there are also institutional requirements, including a commitment to support and reward interdisciplinary research and community engagement. One critically important institutional strategy is to embed bioethicists in life sciences units, rather than segregating them in Philosophy departments. Obviously, only certain kinds of bioethicists will welcome such appointments—those with knowledge of and interest in biology above and beyond generic ethical issues. Yet embedded bioethicists have a much greater opportunity than outsiders to keep abreast of scientific advances, build trust with scientists, and effect change both locally and more broadly. They also face a critical challenge: to avoid co-optation and the temptation of evangelicalism. Despite this

² See also the introduction to a special issue of this journal on the ethics of communicating science (Garrett and Bird 2000).

challenge, bioethics in situ, construed as moral architecture, is critical in advancing knowledge in scientifically and socially responsible ways.³

What is especially rewarding about bioethics in situ is the opportunity to explore the ethical and conceptual issues in a forward-looking or ‘upstream’ way. Rather than waiting for a problem to occur and calling in the bioethicist to help solve the problem—promoting an adversarial relationship between scientists and ethicists—bioethicists and scientists and other stakeholders may work together to identify problems and perhaps to prevent their worst manifestations, a far better approach for all concerned. To this end, though with variable success, some units have developed ‘benchside consultation’ services to provide immediate ethical advice, and to move ethical deliberation upstream (Pilcher 2006; de Melo-Martin et al. 2007; Cho et al. 2008), while others have attempted to formalize ‘real-time technology assessment’ to foster ethical and societal deliberation during the research and development process, rather than only after new technologies are ready for the market (Guston and Sarewitz 2002). These are all important strategies in the quest for a better bioethics.

Conclusion

It is good for neither science nor bioethics nor public policy nor public welfare for bioethicists and scientists to operate adversarially or at cross-purposes; but neither should they necessarily be linked romantically, or at least not within a romance characterized by unconditional love and trust. Building a structure takes both bricks and mortar and, ideally, a little foresight in planning and cooperation in execution. Recall the two senses of forbidding science: (1) science that is morally troubling, and (2) moral or regulatory attempts to prohibit science. The bioethicist as moral architect has a crucial role to play in regard to both senses. With respect to (1), bioethicists might engage interested publics as well as scientists in educational efforts to scrutinize the science. With regard to (2), bioethicists might engage scientists as well as interested publics in efforts to justify the science and/or negotiate limits on the science. In both cases, what is in question are the internal and external logics of science in the contemporary world; how science should work, and what role it should play in the world, cannot be taken for granted—for they are at the heart of the dispute.

The key points here are not unique to stem cell research, though stem cell research is a valuable test case. The science is constantly changing; so, too, is the ethical landscape, and the political backdrop is dynamic and pliable. It is not too late to work upstream, to deliberate collaboratively, and to engage actively in constructing better, more productive, less divisive debates about the virtues and limits of human pluripotent stem cell research, on the joint basis of scientific knowledge and moral reasoning across a broad swathe of interested stakeholders.

³ For arguments about environmental ethics in situ that dovetail with mine about bioethics in situ, see Nelson (2008).

Bioethicists who act as arsonists rather than architects—whether advocating for science or agitating against it, do a disservice to society.⁴

Acknowledgments My research is supported by the Center for Biology and Society, the Institute for Humanities Research, and the Lincoln Center for Applied Ethics at Arizona State University, as well as by the James S. McDonnell Foundation. I am grateful to Jenny Dyck Brian and the editors for valuable feedback on drafts of this commentary.

References

- Bailey, R. (2005). *Liberation biology: The scientific and moral case for the biotech revolution*. Amherst, NY: Prometheus Books.
- Baylis, F., & Downie, J. (2005). An embryonic debate. *Literary Review of Canada*, 13(2), 11–13.
- Baylis, F., & McLeod, C. (2007). The stem cell debate continues: The buying and selling of eggs for research. *Journal of Medical Ethics*, 33(12), 726–731.
- Baylis, F., & Robert, J. S. (2006). Human embryonic stem cell research: An argument for national research review. *Accountability in Research*, 13(3), 207–224.
- Benatar, D. (2007). Unscientific ethics: Science and selective ethics. *Hastings Center Report*, 37(1), 30–32.
- Brian, J. D., & Robert, J. S. (2008). Biotechnology, bioethics, and the future: A review of Ronald Bailey's *Liberation biology*. *Theoretical Medicine and Bioethics*, 29(2), 125–128.
- Cho, M. K., Tobin, S. L., Greely, H. T., McCormick, J., Boyce, A., & Magnus, D. (2008). Strangers at the bedside: Research ethics consultation. *The American Journal of Bioethics*, 8(3), 4–13.
- de Melo-Martin, I., Palmer, L. I., & Fins, J. J. (2007). Developing a research ethics consultation service to foster responsive and responsible clinical research. *Academic Medicine*, 82(9), 900–904.
- Garrett, J. M., & Bird, S. J. (2000). Editorial overview: Ethical issues in communicating science. *Science and Engineering Ethics*, 6(4), 435–442.
- Giacomini, M., Baylis, F., & Robert, J. S. (2007). Banking on it: Public policy and the ethics of stem cell research and development. *Social Science & Medicine*, 65(7), 1490–1500.
- Guston, D. H., & Sarewitz, D. (2002). Real-time technology assessment. *Technology in Society*, 24(1–2), 93–109.
- Kalichman, M. (2006). Ethics and science: A 0.1% solution. *Issues in Science and Technology*, Fall, 34–36.
- Kass, L. R. (2009). Forbidding science: Some beginning reflections. *Science and Engineering Ethics* (this issue).
- Lo, B., Zettler, P., Cedars, M. I., Gates, E., Kriegstein, A. R., Oberman, M., et al. (2005). A new era in the ethics of human embryonic stem cell research. *Stem Cells*, 23(10), 1454–1459.
- Müller, L. U., Daley, G. Q., & Williams, D. A. (2009). Upping the ante: Recent advances in direct reprogramming. *Molecular Therapy*. doi:10.1038/mt.2009.72.
- Nelson, M. P. (2008). On doing helpful philosophy: Commentary on 'Redefining ecological ethics: Science, policy, and philosophy at Cape Horn'. *Science and Engineering Ethics*, 14(4), 611–614.
- Pilcher, H. (2006). Bioethics: Dial 'e' for ethics. *Nature*, 440(7088), 1104–1105.
- Robert, J. S. (2006). The science and ethics of making part-human animals in stem cell biology. *FASEB Journal*, 20(7), 838–845.
- Robert, J. S. (2007). Systems bioethics. *The American Journal of Bioethics*, 7(4), 80–82.
- Robert, J. S. (2008). Nanoscience, nanoscientists, and controversy. In F. Allhoff & P. Lin (Eds.), *Nanotechnology and society: Current and emerging ethical issues* (pp. 225–239). New York: Springer.
- Walker, M. U. (1993). Keeping moral space open. *Hastings Center Report*, 23(5), 33–40.

⁴ To the extent that the President's Council on Bioethics, under Leon Kass, took the science seriously while simultaneously stimulating—or attempting to stimulate—a broad ethical conversation about moral values and human well-being, Kass should be considered a fledgling moral architect. We would all do well to learn from his efforts, even and perhaps especially where we disagree with his specific conclusions.

- Winickoff, D. E. (2006). Governing stem cell research in California and the USA: Towards a social infrastructure. *Trends in Biotechnology*, 24(9), 390–394.
- Zwanziger, L. L. (2008). Roots and branches of the U.S. national debate on human embryonic stem cell research. In K. R. Monroe, R. B. Miller, & J. Tobis (Eds.), *Fundamentals of the stem cell debate: The scientific, religious, ethical & political issues* (pp. 108–133). Los Angeles: University of California Press.