Religious Forays into Nanotechnology Policy

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The Project

The promise of nanotechnology has created a great deal of excitement and scientists, politicians, and lobbyists have been working diligently to figure out how to fund and regulate its progress. But the field has also generated significant concern about the social, ethical, environmental, and even the theological and spiritual implications of the technology. This concern is bringing a number of new voices into the debates. For instance, a number of religious thinkers are beginning to argue that religions should play a role in helping to direct nanoscale science and engineering. As with previous instances of technological development – like biotechnology – they are analyzing the predictions about the technology, developing judgments about how these abilities might fit into ethical and religious values, and aiming to influence not only their followers but certain scientific and political processes as well to further the values they espouse. This poster presents the very beginnings of a research project into how religion is being used to shape the political debates over nanotechnology by answering some basic background questions. There are a variety of approaches taken by different people representing different religions. This poster presents some of the most common themes.

Proponents of Religious Dialogue

Those who speak on behalf of religions in the area of nanotechnology policy come from a variety of backgrounds. They include **scientists** and **engineers** who want to link their faith and their work (e.g. Kenell Touryan[1], a mechanical engineer at the USDOE and Tihamer Toth-Fejel[2], an engineer at General Dynamics); **ethicists** (often bioethicists like Philippa Taylor[3], associate director of the Centre for Bioethics and Public Policy); and **theologians** (like Burghard Bock[4], a Lutheran theologian at the Philipps University of Marburg).

"Molecular Machine" from: Anthonares: Chronicling and Commenting on Human Progress, Anthony Kendall at www.anthonares.net

Making their Pitch

Religious spokespeople recognize that the quickest way to get marginalized in a discussion about nanotechnology is to appear "anti-technology." Thus they make sure to emphasize that this is not their position. Philippa Taylor argues:

We need to be clear that biotechnology is not inherently wrong. In fact, technology, generally speaking, is a human good. Humans are technologists by nature and by vocation. After all, we remain under the covenantal obligations to 'Be fruitful and increase in number; fill the earth and subdue it' [Genesis 1:28]. Wise stewardship of our created world requires some form of technology…[3]

The next step in the argument is often that technologies are not value free – they can be used to promote certain values and inhibit certain values. In many ways some religious speakers adhere to a co-production line of argument. Donald Bruce, Director of the Society, Religion and Technology Project of the Church of Scotland argues:

[A] technology reflects values and goals of the society within which it emerges and, in turn, it may alter the values and aspirations of that society.[5]

After establishing the importance of technology in the world and its values, many of these groups call for actions like Guston and Sarewitz's proposal for "Real Time Technology Assessment."[6] They call for the implications of technologies to be assessed before they are integrated into the world. As Philippa Taylor puts it:

The introduction of a new technology often follows a common path – first its development behind closed doors, then the winning over of the public with predictions of life-saving advances, then finally, a regulatory regime to fit the already completed package. Clearly it is much better to have regulatory regimes set up earlier in the process.[3]

Finally they argue that religious thinkers should play an important role in these regulatory regimes because religions have a tradition and claimed authority over ethical questions like: What does it mean to be human? What is human good? and other metaphysical questions which they claim science cannot answer. Donald Bruce explains:

Traditional presuppositions hold that there are moral or societal bounds which restrain what may be technically feasible in intervening in the human condition. These limits are drawn from the insights of the religious and cultural traditions, philosophy and theology, the arts and humanities, and the social sciences.[5]

Spreading the Message

Most of the authors examined argue that spreading this message requires a three-step process. First, religious thinkers must understand the science. Nearly every article gives at least a brief explanation of what nanotechnology is. For instance, ethicist Thomas Pearson strongly argues: "If you don't know the science, you can't do the ethics."[7] Second these issues need to be discussed with other church members and other religious thinkers – which is what most of these articles are intended to do. And third, religions need to engage with the broader society. Many techniques for doing this are posited. Kenell Touryan, for instance, encourages Christian scientists to:

a. Develop supplemental texts for high school and college students that "add the ingredients of the real world missing in secular texts"
b. Help to establish ethical standards for scientists and engineers by developing and participating in commissions
c. Participate in decision-making bodies at the county, city, state, and federal levels to directly influence policy.
d. Recruit and mentor graduate students to guide them to address the issues.
e. Develop systems of communication with international groups to spread the message even farther.[1]

Responses

This research has not progressed far enough to give a clear view of the impact these efforts have had. But their power is being felt, especially by transhumanists.[8] In an extreme example, William Bainbridge – co-director of Human Centered Computing at the National Science Foundation and one of the architects of U.S. federal funding of nanotechnology – sees the power of religion to be an imminent threat to the values he is trying to promote. He interprets the "religiously-based movement" to ban human reproductive cloning as a warning to transhumanists and believes that "Theologians are likely to pronounce AI anathema, and the episode could lead to suspension of public funding for AI research, and even to an outright legal prohibition."[9] He fears that as science disproves the "biblical-world view… there is no guarantee that religion will accept graceful retirement, rather than battle cognitive science to the death."[9] While this is likely an extreme example, it does demonstrate that those who exercise a great deal of control over the development of nanotechnology believe that religiously-justified input into nanotechnology policy is likely to increase in scope and power.

Tower of Babel (Pieter Bruegel, 1563)

The image of the Tower of Babel [Genesis 11: 1-9] is frequently referred to in religious discussions of nanotechnology. The story – of how a people in Southern Mesopotamia attempted to build a tower to the heavens, and how God responded by scattering them and breaking their unified speech into many different languages thereby effectively halting their progress on the project – is invoked as a warning against taking technological projects like nanotechnology too far. Precisely what humans are capable of and how the warning is interpreted, however, varies.[10] Some present the story as a warning against the *pride and arrogance of attempting* to develop abilities that only God can possess. Others take the argument a step farther and seem to suggest that it is a warning of the *dangers of actually developing* God-like powers.

Next Steps for Research

Thus far this research has been confined to a survey of primarily Christian journals and magazines. In order to better describe the variety of motivations behind religious forays into nanotechnology policy, the techniques that religious advocates use to influence the political process, and analyze the impacts that these discussions and interventions are having on politicians, scientists, public opinion, and nanotechnology policy this project will be expanded to look at government documents, a broader survey of religious writings, and perhaps involve a series of interviews. The goal will be to determine whether the ideas and rhetoric traditionally associated with religion are increasingly being used to justify arguments over the direction of nanotechnology and nanotechnology policy.

References

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