Thinking Critically about Science and Religion: *disClosure*
interviews Massimo Pigliucci

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Jeff West and Viva Nordberg
Thinking Critically about Science and Religion: disclosure interviews
Massimo Pigliucci

Dr. Massimo Pigliucci is currently a Professor in the Department of Ecology and Evolution at State University of New York, Stony Brook. While his research primarily explores the ecological and evolutionary genetics of plants, he has also earned a doctorate in Philosophy and writes regularly on the philosophy of science. In addition to his substantial academic work, he lectures nationally to student and skeptical groups on issues related to science and science education, particularly those surrounding evolution and the battles over its place in the science classroom. He has also written extensively on these topics in popular newspapers and journals like *Free Inquiry*, *Skeptic*, *Skeptical Inquirer*, and *Philosophy Now*. These writings and others related to skepticism and humanism can be found at his website http://www.rationallyspeaking.org. A fundamental goal of his work in this area is the nurturing of critical scientific discussion in public debate. He previously taught at the University of Tennessee at Knoxville, where he helped to establish Darwin Days, a program of events with the dual function of commemorating Charles Darwin’s groundbreaking research on evolution and educating others as to its continuing significance.

Dr. Pigliucci visited the University of Kentucky in January 2004 to participate in the Spring Seminar and Lecture Series on Religion and Identity sponsored by the UK Committee on Social Theory. He lectured on the logical frameworks of evolution and creationism, outlining several arguments from his book *Denying Evolution: Creationism, Scientism, and the Nature of Science*. In particular, he emphasized the need for combating both the scientific fallacies of creationism and the counterproductive hubris of scientism. He stressed that this latter goal must be accompanied by a rethinking of science education that would incorporate theories of how the brain works in order to produce better critical thinkers among the next generations of science students. After the lecture, Dr. Pigliucci met with two members of the disclosure collective, Jeff West and Viva Nordberg, to discuss the various creationist and Intelligent Design movements, their development and diffusion by various religious and ideological groups, and how these movements are affecting science policy and practice in the United States.

disclosure: Let’s start at the beginning. How did you, as an evolutionary biologist, become involved in these discussions of evolution, creationism, and questions of what is being taught in public schools?

Massimo Pigliucci: It was a very specific beginning. I had moved to the University of Tennessee in 1995 and in 1996 the Tennessee legislature tried to pass an anti-evolution law. I’ve forgotten the details of the law, but it was something on the lines of mandating equal time for creationism and evolution in local high schools. The law did fail in committee, but it raised a controversy that went beyond the state. The BBC [British Broadcasting Company] came both to Knoxville and Nashville to document the whole thing. There I was, a freshly appointed assistant professor of ecology and evolutionary biology, and the state legislature tried to pass an anti-evolution law. So, I was actually discussing this situation with some students and a couple of colleagues over a beer one evening and said we’ve got to do something pro-active instead of reactive about it. At that time, the threat of that particular piece of legislation had passed, but we couldn’t just wait for these things to happen and then react. It seems to me that as educators and as scientists we needed to do something about it from a more proactive perspective. So, I started looking into the creationist literature, and I started to examine their logic and the history of the controversy. One of the first things that we did was to organize an annual series of outreach events that we called Darwin Day. It normally happens around Feb. 12 because that was Darwin’s birthday and if we had to pick a date, why not that one? That’s a series that has been going on since 1997 at the University of Tennessee and will keep going in the foreseeable future. It is really geared towards trying to
explain what evolution is about as much as possible to the general public and more generally what the nature of science is and then get into the more complex questions of the interactions of science and religion. We have keynote speakers come from outside. We have a series of documentaries that are shown and discussions that follow them. We have faculty and grad students available for discussions on topics related to science and evolution throughout the day. That's what got me started.

dC: Along the lines of why it is important for the public to understand science, I would like to push it a little further, and ask why within public education, teaching science is that much more important than a religious perspective?

MP: Well, I wouldn't put it in terms of being preferred over a religious perspective. I would think of it differently. As you know, there is a constitutional separation of church and state in this country which means that public schools simply cannot teach any particular religion - or at least they shouldn't be teaching any particular religion - while on the other hand they should be teaching science. So, the asymmetry comes fundamentally from that point of view. Furthermore, it seems to me that one would be hard put to argue that there is not enough religious education in this country. I mean if you want a religious education you can get it anywhere: just walk into the church of your choice, go to the Internet, go to your neighbor, talk to anybody, and read a bunch of books. It is hard to argue that there is not enough religion permeating our society. I know that some people, especially some fundamentalist Christians, do feel persecuted and feel that religion is being excluded from the social milieu, but I think that if one looks at it from a rational, objective perspective, it is a hard position to defend. Every politician that I know invokes God at every turn and, as I said, if you do want to know anything about any particular religion it is really not difficult.

On the other hand, if you want to know something about science, then things are not that easy. Yes, it is true that you can go into a bookstore or library and pick up a science book, but science, unfortunately, is not quite that easy to digest. It requires work, especially science as a method of approaching questions about the natural world. If you pick a typical book on popular science it will tell you about the wonders of the universe and give you pictures of Saturn and Jupiter and so on, but it usually doesn't tell you how we know that the interior of Saturn is made mostly of certain chemical components in a certain state and at a certain temperature. You can't just look at a picture of Saturn and know that that is the case. Obviously, that information is going to come from somewhere else, but you are going to be hard pressed to actually find a book on general astronomy that explains that sort of stuff. You need a science educator to do that job. So, I think the asymmetry comes from these two perspectives. On the one hand, there is a constitutional separation of church and state in this country, and on the other hand you can get a religious education anywhere, but you cannot get access that easily to good, high quality science education. I guess that would be my answer to that question.

dC: For the folks reading this interview who may not have a familiarity with your book Denying Evolution (2002), could you lay out for us the range of positions that exist within the biblical creationist perspective.

MP: There is a large range. Eugenie Scott with the National Center for Science Education a few years ago published a paper on this. She is an anthropologist, and she laid out the full spectrum of positions. Roughly speaking, they start from a young earth literalist interpretation of the Bible where the earth is 6,000 years old and the flood happened 4,000 years ago. The earth was created in 6 days, and the universe was created in 6 days. That is one extreme. There is an even more extreme version of that. These are the flat-earthers; they actually believe the earth is flat. Those are the fringe; there are really few of those.

Of the main creationists, one of the large creationist groups is the so-called 'young earth creationist' group, as I just described. Then you start sliding closer and closer to what science accepts. You actually have old earth creationists, for example, who do accept that the earth is billions of years old, and they don't accept, therefore, that the universe was created in 6 literal days. They say that each of the days [in Genesis] correspond to an epoch, a long unspecified period of time. But they see
a day to day intervention of God in the workings of the natural world. Sliding closer to a more secular or scientific view (these are not one and the same, of course) then you have people who simply say, “Well, I do believe in God and believe that evolution is the way God does things in the living world.” And then, of course, sliding further down then you’ve got people who say that evolution is an entirely natural process and God did create the universe but that is the only thing he did. He set the laws in motion and essentially everything went from there.

Now, within the last couple of categories that I just outlined there is an interesting group of folks who label themselves as ‘Intelligent Design’ proponents. Intelligent Design is the most recent version of creationism and, in some sense, it is the most intellectually advanced version of creationism. These are people who accept a lot of science and accept quite a bit of evolutionary theory. They certainly don’t believe in a young earth or at least they claim not to believe in a young earth. But what they do claim is that there are certain complexities in the living world that simply cannot be explained by natural processes and that’s where you have to have an intelligent designer coming into play. They tend to be vague on what these things that cannot be explained exactly are.

Intelligent Design as a creationist movement started fairly recently, but, in fact, it goes back centuries, if not millennia actually, as a basic idea. It was articulated in the early 1800s by William Paley [e.g. in Natural Theology, 1854] before Charles Darwin published the Origin of Species (1871). In fact, Darwin took those arguments so seriously that a whole chapter of the Origin of Species is devoted to refuting Paley’s arguments. Now, William Paley is famous for having come up with the analogy of the watch and the watchmaker. Paley said that if you walk down a beach and you find a rock then you have no problem accepting that the rock has been there for a long period of time and have no trouble accepting that the rock is the result of natural processes. But if you find a watch then you immediately start asking yourself where does the watch come from, it doesn’t belong on a beach. Who was the watchmaker? You immediately infer that somebody made it. According to Paley, you can make the same argument for complex biological structures such as the human eye. It turns out that over the course of the following century and a half, biologists have come up with a very good explanation for how the human eye actually evolved step by step over long periods of time. So, modern Intelligent Design supporters don’t use the eye anymore as an argument or they tend not to use the argument of the eye anymore. They scale it down to the level of molecular evolution. They agree that yes, evolution can explain structures such as the human eye, but it cannot explain say, the complexity of biochemical pathways.

If you think about it, that’s exactly the same argument that Paley was using, but now it is brought down to a level that has retreated in some sense, to the level in which science has not gotten yet as an explanation because we’ve been studying the human eye for centuries, but we’ve been studying biochemical pathways for only a few decades. To me, it is essentially the same argument – it is an argument from ignorance. By that I mean, the argument simply says that since we don’t have a natural explanation for this then it must be supernatural. That is a logical fallacy. It doesn’t follow that because you don’t have an explanation of something at the current moment that therefore there has to be a supernatural explanation for it. Nobody really seriously applies that reasoning in any other area of experience. Imagine that you try to start your car tomorrow morning and your car doesn’t start. You check that the gas is there and the key is turning and everything seems fine so it must be that God doesn’t want me to go to work. It doesn’t follow. You wouldn’t go that way. You would just say well I have no idea what’s going on with my car, but it must be something mechanical so I’m going to call the mechanic. That, to me, is the same situation with Intelligent Design proponents.

That spectrum of positions makes it pretty difficult for a biologist to answer a creationist critique because you have to know where these people are coming from. The span of positions is so large that you have to realize that an argument that may work with an old age creationist might not work with a young earth creationist because they are fundamentally different positions. They are much more different among themselves then scientists tend to be on the details of evolutionary theory.
dC: What do you feel is the purpose behind this pursuit of an acceptance of Intelligent Design as a scientific theory? It seems like by positing a supernatural explanation for things that we don’t know then the pursuit of science is just ended. In your interactions with various proponents of these ideas, what sense do you get of their end goal?

MP: Well, it is quite clear that Intelligent Design is on a collision course designed to essentially terminate science as we know it. Of course, they would deny that, but it is pretty easy to figure out. In fact, there is a book that just came out called Creationism’s Trojan Horse: The Wedge of Intelligent Design (2003). One of the co-authors is Barbara Forrest, who is a philosopher of science. The book is a scholarly analysis of the Intelligent Design movement, not a verification of their argument. It just traces the history, the argument, the people and so on. It is quite clear that these people have absolutely no interest in science; they have absolutely no interest in the pursuit of knowledge. They have a religious agenda, and they want to impose that religious agenda. They figured out that - this is interesting - that the American public might be more open to an Intelligent Design-like argument than to a straight creationist argument for an interesting reason. Most of us feel more comfortable with compromise positions than with extreme positions. So, if you can put yourself in a situation in which you depict Intelligent Design as a compromise between a straight evolution, secular vision of the world and a straight creationist vision of the world, a lot of people are likely to go for it and think, “Oh yeah, this sounds good.” You come across as the guy who walks the path in the middle, and there is quite a bit of appeal to that.

The problem, of course, is that there is no path in the middle here. I mean, you’re either doing science or you’re not. Science by definition has no role for the supernatural. Not because science is denying the existence of the supernatural. There are plenty of scientists who believe in God, but they deny that the supernatural has any role to play in science and scientific explanations because, as I pointed out before, once you say “Well, one of the possible explanations is ‘God did it,’” there is no where you can go from there; there is no testable hypothesis, there is no follow-up you can do from that. It is essentially nonreplicable, even if true. That is the paradoxical part. There is absolutely no use for that sort of explanation because it is not an explanation at all. It doesn’t lead you anywhere. It is not an explanation in the scientific sense of the term. So, there is no possible compromise. But, if you present yourself as the reasonable guy who walks the middle path you are more likely to gain support than if you go around thumping your Bible and yelling that evolutionary biologists are going to go to Hell. It is just more appealing to the mainstream, average guy, the average position. The problem is, as I said, this is done as a stealth attempt. It is quite clear that these people don’t want to compromise. They do want to impose a religious agenda. It is just that they figure that this is the more likely way to succeed, at least in the foreseeable future.

The other part of it is, there cannot be a reasonable compromise and the reason most people do not understand that is they don’t have a good understanding of the nature of science. It is quite clear that that is where Intelligent Design proponents come from and that is where they are going. In fact, interestingly, probably the major organization, that pushes the Intelligent Design movement, the Discovery Institute, which is a think-tank out of Seattle, at one point on their web page had a document that was prepared by Phillip Johnson, who is a retired lawyer at UC Berkeley and who basically started the modern Intelligent Design movement by publishing a series of books in the late 1980’s and early 90’s. The document was called “The Wedge,” and it was a step-by-step program against secular science, which highlighted several of the things that creationists would have to do, including making Intelligent Design more palatable to the general public, gaining access to politicians, and so on with a lot of details. That document was taken off of the Discovery website as soon as people started pointing out that there was a problem with this sort of thing. But there are copies around, of course, because people downloaded it. The Barbara Forrest book reprints the entire document and analyzes the whole strategy bit by bit. Phillip Johnson actually still publishes a regular column on the Discovery website that is called ‘The Wedge’ in which he gives an update on how the movement is doing and what advances they make. They said themselves that this was a stealth strategy except that they made the mistake at one point of publishing that document on the
Internet without thinking, I guess, that non-creationists might have access to that document and say, "Hah, so this is what they are really trying to do." It is so bizarre, because it is not even that the idea of Intelligent Design as a stealth movement is something that scientists made up. They told us that that's what they were going to do. It was plain black and white and available for everybody to download.

dC: Could you provide a few more details about what is in the Wedge document?

MP: In a series of five-year periods starting in the mid 1990s, it lays out a strategy of first trying to get out what they call 'academic publications,' trying to get out books and articles published in academic journals or academic practice, trying to put out some valid literature that would support Intelligent Design. Then, it moves from there to the publication of op-ed pieces in major newspapers touting the Intelligent Design movement and referring to that academic literature. Then, after that, getting access to politicians, making them read the op-ed pieces and convince them that it is a good idea to promote that kind of stuff in science classrooms and, therefore, have legislative measures to offer it in science classrooms. They followed exactly that strategy.

Now, they skipped, largely, the academic part, which is interesting because they were supposed to do some research and publish research. They did publish a few books. Well, as far as I can tell, there was one book by William Dembski (1998) called The Design Inference: Eliminating Chance through Small Probabilities which was published by an academic publisher, Cambridge University Press. The interesting thing is The Design Inference actually says very little about Intelligent Design, creation, and evolution. There is only one reference to evolution right in the middle of the book, and it is only a couple of paragraphs. The rest of the book is a fairly complicated exposition of certain ideas in probability theory. This is, of course, why it got published by an academic publisher because if it had been a book on Intelligent Design, it wouldn't have gotten through the peer-review process. They can't do much more in that area. There is no such thing as scientific research on Intelligent Design — you can't do it, so there is not much you can do [to promote it in academic forum]. What they have been able to do very successfully is produce a series of popular books in that area: Darwin's Black Box published by Michael Behe (1998), several of Phillip Johnson's books, Dembski wrote several books after The Design Inference. All of these books are published for the general public and all of them are trying to support Intelligent Design, but none of them are academic books.

What happened is they immediately started with the op-ed pieces and lobbying of the legislature base. A couple of years ago the Discovery Institute sent a delegation to Congress. One of the things that emerged from that was the famous (or infamous depending on who you ask) Santorum Amendment to the No-Child-Left-Behind legislation. The Santorum Amendment, proposed by Rick Santorum in Pennsylvania, essentially was trying to introduce some language to the effect that Intelligent Design and creationism should be taught. The amendment did not pass in the original version. It passed in a slightly modified version. It is interesting because it clearly shows that this is part of the same tactics because the amendment was written in a way that very few scientists would actually disagree with. The amendment was a call for teaching students critical thinking in the sciences and teaching them to critically evaluate different scientific theories. Well, what scientist is going to disagree with that? But, then in parentheses, it adds 'such as the theory of evolution'.

Now, wait a minute. Why are you picking on the theory of evolution here? There are a lot more controversial scientific theories. So, either you leave it as a call for general critical thinking, which is great. Nobody would have had any objection to that. Or if you really have to give an example, then give examples of controversial, really controversial, theories within science and give more than one example. Basically, evolution, which is definitely not controversial within science, is the only example that they picked. So, it is quite clear [what they were doing]. Once again, these people are smart, but not too much in my opinion, because they play too often with their cards upon the table. Philip Johnson wrote an op-ed piece after the Santorum Amendment was passed, advising local creationist groups on how to use the Santorum Amendment in order to get school boards to do something about the teaching of evolution, to curtail the teaching of evolution, and admitted that he provided the language to Rick
Santorum for that amendment. Now, how much more plain can you get? Therefore, unlike what Santorum himself said, it had nothing to do with promoting critical thinking in science classrooms. It had all to do with a stealth promotion of Intelligent Design. Again, these people don’t seem to be very subtle about it. They do these things and then they come out and say, hah, look at how well I come across.

dC: Related to the topic of science and religion, you mentioned in your book that Sir Templeton and his group are funding researchers who are exploring the biological foundations of moral or religious questions. When the foundation funds a particular study on a topic such as forgiveness, it seems that they frame it in terms of asking a particular question, not by dictating answers as the Intelligent Design people seem to do. Could you talk a little bit more about this group?

MP: The Templeton Foundation was founded by Sir John Templeton, who has a significant amount of money. None of the prizes are larger than the Nobel prizes, but they are pretty hefty. They also give research grants in the range of the hundreds of thousands of dollars, comparable to a National Science Foundation grant. The stated purpose, if you go to the Templeton Foundation website, is to encourage the scientific understanding of religion. Now, you would think that as a religious person the last thing you would want to do is to encourage the scientific understanding of religion. Often, what I hear from religious people is that science should be separate and should not interfere with the religious sphere. So, how come we now have a whole Christian foundation encouraging scientific research on religion? Well, Templeton’s position is that science can help us discover the same sort of religious truth that religious leaders have been taking about forever and can, therefore, validate religion. I think science cannot do any such thing because, in that sense, the two worlds really are distinct because science cannot investigate the supernatural. There is just no way you can do scientific research on the supernatural, so that research program is doomed from the beginning.

In practice, however, what is happening is that some serious scientists have accepted Templeton’s funding, and I criticize them for that. Not because their research is questionable. For example, the study on forgiveness in animals. There is Francis Duval at Emory University, a well-respected primatologist, and he is interested in that sort of stuff. So, I talked to Francis and asked, “Why did you accept money from the Templeton Foundation?” And he said, “Well, because money is money and I needed it and didn’t care if it comes from the National Science Foundation or the Templeton Foundation.” But I do care because the problem is that even though Francis’ research is beyond any doubt - I know the guy personally and completely trust the quality of his research and this is not a matter of putting that into doubt - but it is the use that the people in the Templeton Foundation are going to make of that sort of research that worries me. Since they provided the money, they have access to the research and a kind of access to the research that other people don’t have. They have certain controls. Would you trust the results of a study on the effect of smoking on cancer if it is funded by Phillip Morris? I wouldn’t. You can make a very reasonable argument if you are researching cancer that “Well, money is money. I’m going to just do my research and do my best.” And you may even believe that you are going to do your best, but I don’t. I’m going to question that at some level, even some subconscious level, your research is going to be biased. You know, I don’t believe in completely objective science, as a scientist. I don’t.

dC: You mentioned that in the case of Templeton, he is attempting to validate religion through science. Yet, in contrast to this view, Stephen Jay Gould proposed the idea of NOMA or the non-overlapping natures of these two entities. Could you give us a basic sense of the idea of Gould’s theory and give us a few of your own thoughts on what he has presented?

MP: NOMA stands for non-overlapping magisteria, or non-overlapping areas of inquiry. For one thing, it wasn’t really Gould’s original idea. There were plenty of people that put forth something along those lines. Gould put a name on it and published a book about it. The idea basically, as Gould (2002) put it in his book Rock of Ages: Science and Religion in the Fullness of Life, is that religion deals with the area of ‘what ought to be,’ or morality, and science deals with ‘what is,’
with what the natural world looks like. He was invoking what in philosophy is referred to as the naturalistic fallacy, that you cannot divide ‘what ought’ from ‘what is’ in order to say this is what separates them. That sounds pretty good. After all, scientists are not usually interested in publishing on morality. Religious people, whenever they try to interfere with science, fail; from Galileo and Copernicus on there has been a long history where the church and other groups attempt to take back what they have done. To some extent, that is reasonable and a viable model. It does have some problems and the problems are important to understand.

First of all, let’s start with the philosophical basis for that distinction. The naturalistic fallacy was proposed first by David Hume, a skeptic philosopher of the 18th century. However, if you actually go and read *Enquiries Concerning Human Understanding* (1777) by Hume, you will see that from the way he puts it he was complaining about the fact that a lot of his colleagues, philosophers at the time, were going from ‘what is’ to ‘what ought to be.’ They were inferring moral rules from natural reality without being careful how you go from one to the other. Hume’s problem was with how they were making the argument, not that they were making the connection. Hume did not come up with the term ‘naturalistic fallacy,’ that was a much later term, used by George Edward Moore in the twentieth century in a slightly different context. But the naturalistic fallacy is not a logical fallacy in the sense that you cannot go from ‘what is’ to ‘what ought to be’. Hume was simply complaining that you cannot automatically do that; that you cannot observe things in nature and say, therefore, here is how we should behave. Every time you do that, the burden of proof is on you and it is necessary to argue how you actually make that connection. So, the philosophical basis of NOMA is different than Gould made it sound. As to the question of whether Gould hadn’t actually read Hume or whether it was convenient for him to put the reasoning in that way, I have no idea. But it seems that philosophically, there are a few questions.

The second thing is that for most people, and perhaps the more important for most people, is that it depends on what you mean by religion and it depends on what you mean by God and it depends on what you mean by morality. All these things are ill-defined in Gould’s book. So, Gould in some sense wants his cake and wants to eat it too, because he knows there is a clash between science and some kind of religion. He was certainly not sympathetic to creationists. In fact he said in the book that science does have a clash, in fact a direct clash, with organized religion. But that means, therefore, that NOMA is no longer true. If you can argue that certain areas of religion or types of religion are impacted or in fact completely destroyed in terms of factual basis by science, then there goes NOMA. You don’t have a separation anymore. If you are saying that geology demonstrated that the flood did not happen 4000 years ago, therefore, then, if you insist on taking that as the literal truth of the Bible, then the Bible is just not true. Period. That’s an inescapable consequence of that sort of reasoning, which of course I tend to agree with. But it seems to me that it questions the whole NOMA thing.

So, if you want a NOMA position, then you have to retreat to a more esoteric version of religion, for example, that espoused by the Catholic Pope. The Catholic Pope, a few years before the NOMA idea came out, wrote a letter first to the Pontifical Academy of Sciences, that evolution is a fact and needs to be accepted. The book by the Pope says that evolution needs to be accepted as a fact and then at one point it was explained that it applies to human beings. He followed that up with a encyclical, which is where popes can write down their thoughts in a more extensive and more academic way. It simply was called “Fides et Ratio” or “Faith and Reason.” Basically, that is the NOMA principle that he was laying out, before Gould actually published it using those words. Certainly the Pope, who is well-versed in both philosophy and religion, tried to put forth the strongest possible argument for a NOMA-like separation of the two. But the way you can do that, as I said, is by retreating into a more esoteric version of religion, where the Bible is taken not as a literal description of how things are or were, but a metaphorical one.

Well, if you are retreating into a metaphor and consider your religious text as a metaphor, then of course there is no conflict between science and religion because now you are no longer making factual statements. So, by definition then you are not going to run into a problem with science because science is not concerned with metaphors. Then, it becomes a matter of some people may or may not like a
particular metaphor and may or may not find it useful as a moral guidance, but that has nothing to do with science. That's another problem with NOMA. It does work, but only for certain kinds of religious belief. To say, therefore, that there is no problem with science and religion or with science and God is a bit ingenuous. There is no problem between science and certain kinds of conceptions of religion and God, but there are definitely problems with other conceptions.

I also happen to think that there are additional problems with the NOMA principle. Remember, in the original definition of Gould, science deals with fact and religion deals with morality. But hold on, religion is not the only human enterprise that deals with morality. We have a long tradition of secular philosophy dealing with morality which, in my personal opinion, has a lot more insightful comments to make about morality than religious traditions. So, you have to be careful in allocating the sphere of morality only to religion. Obviously, religion has to do with morality, nobody questions that. But it is not the only human endeavor in terms of morality. There is a heck of a lot of other stuff that goes into our understanding of morality and to allocate it strictly to religion seems to me to give too much to religion. There are other approaches to morality. Finally, there is another problem. It turns out that science actually has engaged in the study of morality, in the biological basis of morality. So, even there, the distinction is not quite as clear-cut as Gould would like it to be.

**dC**: Obviously, as indicated by the theme of this journal issue, religion provides an identity for a lot of people. People who are non-religious, whether atheist or secular or defined another way, are also searching for an identity. Recently, a new movement, called the Brights, has emerged as an attempt to support people who are non-religious. Could you comment both on what you think is the draw for people to identify with the Bright movement and also what you think of it?

**MP**: I have a little doubt about the Bright movement. In some senses, I think it is a good idea; probably not a good name. I don't think that secular people or non-religious people - I'll call them non-religious people, which encompasses a whole variety of other people - are drawn to an organized group. I think they have their identity pretty much figured out just as much as any other person. They are searching for some kind of recognition in society. What they feel, and I think for good reason, is that they are marginalized. They are the last marginalized group in society; even gays are not marginalized as much as non-believers at this point. That is saying something because, as you know, there is still a lot of bigotry about gay rights. In fact, that is where the Bright idea came from to begin with. What they did was to say, look, let's try to learn from a movement of marginalized people that has made huge strides, huge progress in society in the last twenty or thirty years. How did they do it? They did it in part by a strong network of organizations. Gay people have had a large amount of political influence because of their ability to organize. That's something that humanists and non-religious people have done, not as successfully, but they've tried to move in that direction.

One reason that hasn't worked as well is because the gay movement has one very clear objective: the recognition that a gay lifestyle is just as good as any other lifestyle and should be respected as such. Secular humanists or non-religious people don't have a unique objective -- they have all sorts of different positions. A friend of mine who was trying to organize a non-religious coalition told me that the problem is like herding cats because everyone has an independent way of thinking. That is part of the problem with that movement. But one of the other things that gays did successfully was to label themselves by using the word 'gay' in a positive fashion. So, they turned it around and they made society basically accept a positive term, something that at least means happy thoughts basically. That is where the Bright name came from. Brights are very careful to explain that Bright is not meant to imply that these people are brighter than others. It is not used as an adjective, it is used as a noun. And that is why I sympathize with that group. I think it is a clever way of putting it. On the other hand, unfortunately, this is a society in which the subtle points get lost very easily. Most people go for the sound-bite and, therefore, you are not going to get to the point where you are explaining, "No, I don't mean it as an adjective." Forget it, by that point your message has been lost. So, that is my take on the Bright movement.

Now, going back to the identity question. I really think that non-religious people have an identity which can be different from one non-
West and Nordberg

a religious person to another just as is the case with religious people. It is not as if all religious people have the same identity in any meaningful sense of the word. If the identity is just that we all believe in God, that is okay, but since God means very different things to different people then I would question that that is the same identity. I don’t think that a fundamentalist Christian or Muslim has the same identity as a Unitarian, for example.

The same thing goes for non-religious people. There is an identity there and the identity is based on some fundamental ways of understanding the world. We tend to understand the world in terms of natural causes. We tend to understand things in terms of local meaning and not universal meaning. We don’t think that there is a universal meaning to life, but that does not mean there is no meaning. We tend to think that we construct the meaning for our own lives as we go, as a work in progress. I have always felt that your life is sort of an artwork— you keep working throughout your life and then what you get in the end is what you get in the end. The whole point is the process, it isn’t where you get by the end of it. Morality-wise, we don’t think that morality comes from a religious authority, it comes from a natural source. But quite frankly, our morality is not that different from most religious people. It is very different from fundamentalist religious people, but it is not different from mainstream people and I think there are good reasons for that.

I think that, in fact, a basic sense of morality does not come from a supernatural source, so that even people who think that it comes from a supernatural source find themselves boggled when they find non-religious people who seem to have espoused the same lines. To me, the obvious explanation there is because well, you don’t get it from God either. You get it from the fact that you are a biological being of a certain kind, a social being, and you are living in a certain culture that instills it. A friend of mine from Cornell University once put it this way. He was visiting a high school and was asked by a student where he got his morals. The girl asked the question this way, “You seem like a nice person. Where did you get that? How come you don’t go around raping and killing and so on?” And he said, “From my mother. Where did I get it from? The same place you got it from!” It passes from generation to generation. In part, as I said a minute ago, there is a biological basis for a certain, basic understanding of morality, but there is also cultural evidence for these things. It is much more pleasant to be a non-violent, fairly nice person; you are accepted by other people, you live a more pleasant life than if you do otherwise. So, I think that non-religious identity is fairly well-defined. What is definitely missing there is, in fact, the acceptance.

By the way, since we’re on this topic, let me make a distinction that I’ve tried to put forth recently in a couple of essays that I’ve written. I think there is a distinction between respect and tolerance. I don’t want to be respected as a secular person in society, I want to be tolerated. And the difference is that I don’t pretend that other people respect my beliefs in the sense that somehow they are reasonable beliefs. I think that other people probably think that I’m a nutcase or that I’m profoundly misguided because that is what I think about religious fundamentalists. I don’t respect religious fundamentalists from that perspective—I think that those people are seriously misguided and are likely to hurt either themselves or their children in practicing certain kinds of behavior and certainly are likely to negatively affect society. So, I don’t respect them. I do tolerate them, however, in that they have the right to be that way as long as they don’t impose that situation on other people. That is what non-religious people are looking for: tolerance. It is the same for gay people. Gay people really don’t want to people want to be respected, they want to be tolerated. Gay people don’t want every other person saying, oh this is a great lifestyle, how fortunate you are, I wish I could be like you. No, all they want is to be left alone, not penalized for that type of behavior, not to have laws that discriminate against them. And they are getting there, slowly.

Non-religious people on the other hand are not tolerated as far as any other minority group. I mean, we had the first President Bush who in public said that he didn’t think there was any room for an atheist in America—that if you are an atheist, you are not an American. Oh, how dare he! His son has been saying the same thing, not quite as strongly, but pretty much the same message. How dare you! This is a country that is established on tolerance and pluralism. So, I do have a right to be an American and an atheist and whatever the heck I want as long as I don’t go around shooting people or coercing people into the same thing. And that is where I think the problem for non-religious people...
is; it is not a matter of identity, it is a matter of place in society or recognition in society.

dC: It seems to me that much of the problem with the non-religious recognition is that there is no place or space to congregate. There are skeptic meetings, secular humanist meetings, and there are some Internet movements, but there is no recognizable place, like a church for the non-religious.

MP: You are right. Now, this is a fairly recent development. There used to be in the United States in the 1800s large free-thought houses or congregations. Some of the buildings are still around, but they are not functional anymore for a variety of reasons. One is that the United States went through several religious revivals and also because you get back to the herding cats kind of thing. Most non-religious people don’t feel that meek. We don’t have a need to go every Sunday somewhere to a common house. We have our own identities and with our friends there is no strong sense of identity, because we are too different. There is a highly divergent identity within the group. This means that, even though the current statistics indicate that between 10 and 15 percent of Americans consider themselves non-religious, the actual politically active portion of that is minute. And therefore there is no money. You are not going to find a lot of non-religious people willing to give 10% of their income to building a congregation and so on like many religious people do.

But you are right that especially in the last few years I have heard more conversations within non-religious groups that they are finally starting to recognize that this is in fact affecting their status in society because they don’t have that sort of group organization that other groups have. So, to some extent there has been a large push toward establishing and organizing local groups or chapters of non-religious organizations. We are still pretty far from the situation that existed in the United States in the 1800s. The same situation exists in Europe. There is no such thing as a large non-religious group in Europe mostly because large numbers of the population are non-religious. It is not an issue. So, non-religious people in America are much like non-religious people in Europe, but the difference is the cultural environment is quite different and perhaps that kind of behavior is not quite as appropriate as it would be in Europe. It would be a good thing if non-religious people were trying to get organized and make their voice heard politically or otherwise, but I think we’re pretty far from that system.

dC: The situation we have here in the U.S. comes from a very Western tradition of these two facets, in respect to science being separated from religion. As a conclusion to our conversation, how would you respond to those who question why we battle to retain this Western tradition of separation, if other cultural traditions have successfully achieved a synthesis between their spiritual beliefs and science?

MP: I would ask them exactly what they mean by that because as far as I know, science is practiced around the world, not just in the Western world. There are plenty of good scientific institutions in places that are not part of the Western world, for example in India or Japan. I have colleagues in those places, and it doesn’t seem that they practice science in any way different from the way we do. In other words, they actually use what you would call a Western model of doing science. Now, it is true their societies may be organized in quite a different way, but the way they do science is the same. They do keep science and religion separate in other cultures and for a good reason because if you don’t then it is not going to work. If you start mixing certain supernatural explanations when you are looking at results of an experiment you are simply not going to get anywhere because supernatural explanations are simply not explanations that can be used in science. They don’t lead to predictions; they don’t lead to further experiments. So, I actually think the model of science is more universal than just the Western model. You can make an argument that science originated in the Western world, for the science as we know it today and certainly the work of the last three or four centuries. But right now, science is a universal method of doing things and a universal approach to understanding the natural world, which actually transcends the East-West cultural barrier. So, that’s one way to answer that question.

Another way of answering that question is to examine other societies that do have a mix of science and religion in other aspects of
life, not as a certain facet of scientific pursuit, but in the fabric of society in general. There my answer would be, well, a society does what the members of that society feel comfortable with, and incidentally American society does have a lot more of a mix of religion within the society's fabric than most European Union nations, so there is already a distinction there. But if you look at sociological studies comparing the United States to the Western world and to rest of the world, the United States always comes out somewhere in between for example, in indications of religiosity and religious beliefs in the general population. So, the United States already is in fact quite different, recognizably different, from Western European nations in that respect. That is not something that you can do something about. That is a characteristic of a society; a society evolves in a certain way, changes in a certain way according to the historical development of that society. I think my perspective is there is a distinction between mixing science and religion in the science classroom as opposed to having a personal understanding of the world that mixes science and religion in complex ways. Each one of us can make that mix as much as you like. You can go from a completely secular perspective in which in your personal understanding of the world you don't rely on religion at all to 100 percent religion in which you ignore everything that science says. The point of this debate for example is not to convince every single creationist that they're wrong. As a scientist, it is not my job to change other people's beliefs. My job is to make sure that those beliefs don't alter the way science, good quality science, is taught in public school. Every one of us has the right to have our own mix of beliefs about the world. It is part of a pluralistic society. The real danger becomes when one of the groups in a pluralistic society essentially wants to take over and impose their own version of the truth on the others.

Works Cited