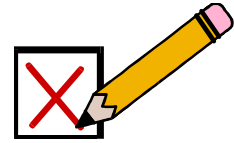


Reality Check



March-April 2002



From the President's desk

By Dave Buck

"So what's RET? I get asked that a lot. You'd think I could produce a clearer answer than, "A bunch of free-thinker / skeptic / secular humanist / agnostic-atheist type folks who get together with like-minded folks," couldn't I?"

Well, it's true that we do more than just *get together*. I mean, sure, we enjoy each other's company—we love to hang out, have fun, tell stories, have dinner together, help each other out, and all that good stuff. And sure, that's how Rationalists of East Tennessee got started five years ago or so, but RET is also a group who gets together for a purpose.

We're proud of our open-to-the-public roundtables and skeptic's book club. I never can remember all the exact titles we've had over the years, but I can spit out general topics like the death penalty, age of reason, evolution vs. creationism, behaviorism, separation of church and state, causality and truth, is parapsychology a science, chaos theory, Mithra vs. Jesus, sibling rivalry, environmental issues, the nature of the uni-

verse, and it goes on and on. Anybody can lead a discussion or suggest a speaker on just about any topic. Bring it on!

RET are people who have a common interest to learn about and discuss issues from a rational perspective. We enjoy being presented with solid theories supported by empirical evidence, logical, well-constructed arguments, and discussing their validity and how they affect our everyday life. We also love to critically examine social issues and ethical frameworks—how *do* we live and how *should* we live.

Finally, I still end up qualifying that not all RETers fit into the categories I mentioned earlier. I tell people, "We have visitors and members who don't consider themselves skeptics, some are theists, some aren't secular humanists, etc. etc." It's the truth. We're very diverse; we share many beliefs and yet rarely do we all agree on something. Our commonality is that we all appreciate a rational approach to answering life's questions. Perhaps that's all I need to say.

-RC

Back to the basics: On progress in science

By Massimo Pigliucci



Question: How do we know that science makes progress without knowing ultimate truths? Doesn't that require a God's eye view?

This is an excellent question that has been debated by many philosophers of science. The general consensus (with a few extreme exceptions from post-modernists) is that science does indeed make progress, although not necessarily at a constant pace and without setbacks.

For example, it seems obvious that the Copernican-Galilean theory that the earth rotates around the sun is in fact a step forward when compared to the Ptolemaic alternative. Similarly, even though Einstein's theory of relativity may be incomplete (see the article on superstrings inside this issue), it is in fact a better theory of how the world works than Newtonian physics.

Yet, since scientists (or anybody else) don't have a

god-like view of truth, how do we know for sure? Indeed, since by definition every past scientific theory was in some sense wrong, doesn't that mean that the current ones are also wrong and will eventually be superseded?

Yes, that's probably true, and yet progress is being made in an important sense. Let's think of scientists as detectives trying to solve a crime. They may or may not be able to pinpoint the culprit with certainty, but they will surely be capable of *excluding* some potential culprits (for example, after checking their alibis). In detective work as in science, progress is made by negative steps, by eliminating other possibilities until the field of candidates (culprits or theories) is reduced to a minimum, maybe eventually to one only).

As in the case of our legal system, the best we can hope for in science is to prove things "beyond reasonable doubt." But given that no other activity can do better, we are advised to keep doing the best science we can.

-RC



Rationally Speaking: Those who understand Bin Laden, By Massimo Pigliucci

Warning: this article is *not* an exaltation of terrorism or a defense of Bin Laden. But the very fact that I have to start with this disclaimer is a sad commentary on the state of freedom of opinion and speech in contemporary US. What I'd like to talk about here is what my compatriot Umberto Eco recently referred to as "the subtle art of making distinctions," an art that seems foreign to much of the post-9/11 discussion or to the thought processes of many of our leaders.

Many commentators initially said that 9/11 brought about a dramatic shift in the American psyche, and that this nation will never be the same after that terrible day. Perhaps, but the change may be more superficial than we thought. A few months after the tragedy, we have a Georgia company selling commemorative medallions made with steel from the World Trade Center, and some families of 9/11 victims marching and suing to seek millions of extra dollars despite the large amount of governmental and private help that was proffered in record time. Bombing or no bombing, some Americans are still more attached to the mighty dollar than to elementary standards of human decency.

Our government doesn't seem to fare much better at the helm of a war-prone president, son of a war-prone president. The US government, on the one hand, insists in calling this a "war" against terrorism (even though, technically, only Congress can declare war—and it hasn't); but, on the other hand, it refuses to treat its prisoners as POWs. Worse, since the Taliban were obviously a ridiculously puny enemy for the mighty US, we are now looking for additional ones, and Bush nonchalantly threatens Iran, Iraq and North Korea, lumping them under the laughable label of the "axis of evil." Never mind that it is difficult to see communist North Korea plotting together with Islamic fundamentalists. Worse yet, Bush's irresponsible actions (for which he gets a whopping 90% approval rate) threaten to simultaneously undo years of work at reconciliation by the South Koreans and to throw the Middle East in an even worse state of affairs than it already is.

As a byproduct of all this, Americans are seeing their civil rights reduced and an already ballooning military budget further increased in the name of a war that—we are told—will last at least seven years (did anybody notice that that is exactly the span of time of two Bush administrations?). I don't know to what extent Bush is doing this with a cynical eye at maintaining power, or if he is simply extremely naïve in his view of the world; but it is interesting to note that leaders as far back as the Ro-

man emperors have always realized that the threat of military danger and terrorism is an extremely efficient way of keeping your own people under control (the Romans tolerated border skirmishes and used them to exercise their legions).

I am most certainly not missing the Taliban. Heck, I think somebody should have kicked their asses long ago. I have no sympathy for people who use religion to subjugate women, annul civil rights and destroy priceless historical monuments. What I am questioning is the assumption that, just by bombing people, we will solve our problems. That is where Eco's "subtle distinctions" become important. We have to make a distinction between condemning and firmly reacting to terrorist acts on the one hand and fooling ourselves into thinking that such reaction will eradicate the problem. The war on terrorism will never be won, just like the equally misnamed and misconceived "war on drugs." That's because to solve these problems we first have to *understand* their roots. Until we acknowledge that people outside the US (especially in the Middle East) have a *justifiable* rancor against America, we will not make progress on either front. That this is the case should be obvious from the similarly endless conflict that has engulfed Palestinian and Israelis. Their differences are pro-

found, cultural and historical, and cannot and will not be solved by blasting each other to pieces.

Where does said anti-US acrimony come from? If you don't know, you haven't paid attention. Even the European allies of the US have repeatedly taken action against what they see as the cultural and economic imperialism of Americans, and if you add the extreme poverty, ignorance, and religious fanaticism of many people in Middle Eastern countries, you have the perfect recipe for disaster. But it takes a much more serious commitment, and the art of making subtle distinctions, to address the problem seriously.

We are told by countless bumper stickers that unity is what makes us great and patriotism is proudly expressed with small flags on big SUVs. But what makes this country great is diversity and its respect. I still hope that Americans have learned from their past mistakes and we are not about to spiral into a second McCarthy era, but that would again require cultivating the subtle art of making distinctions, realizing the difference between understanding and condoning. Are we up for the real challenge?

"Bombing or no bombing, some Americans are still more attached to the mighty dollar than to elementary standards of human decency."

-RC

Deconstructing the dead

By Michael Shermer (www.skeptic.com)



History is not just one damn thing after another, it is also the same damn thing over and over. Fads come and go, in clothing, cars, and psychics. In the 1970s it was Uri Geller, in the 1980s it was Shirley MacLaine, in the 1990s it was James Van Praagh, and to kick off the new millennium it is John Edward. Edward's star is rising rapidly with a hit daily television series "Crossing Over" on the Sci Fi network and a New York Times bestselling book "One Last Time." He has appeared, unopposed, on Larry King Live and has been featured on Dateline, Entertainment Tonight, and an HBO special. He is so hot that his television show is about to make the jump to network television, as he is soon to go opposite Oprah in CBS's afternoon lineup.

Last week an ABC television producer flew out from New York to film me for an investigation of Edward they are conducting. The segment began as a "puff piece" (as she called it), but a chance encounter in the ABC cafeteria with 20/20 correspondent Bill Ritter tipped her off that Edward was, in fact, a Van Praagh clone and that his talking to the dead was nothing more than the old magicians' cold reading trick. After watching the 20/20 piece the producer immediately realized what was really going on inside Edward's studio. She began to ask a few probing questions and was promptly cut off by Edward and his producers. ABC was told they would not be allowed to film inside the studio and that they, the Sci Fi network, would provide edited clips that ABC could use.

The video clips I was shown make it obvious why Edward does not want raw footage going out to the public--he's not all that good at doing cold readings. Where I estimated Van Praagh's hit rate at between 20-30%, Edward's hit rate is around 10-20%. The advantage Edward has over Van Praagh is his verbal alacrity. Van Praagh is Ferrari fast, but Edward is driving an Indy-500 racer. In the opening minute of the first reading captured on film by the ABC camera, I counted over one statement per second. Think about that--in one minute Edward riffles through 60 names, dates, colors, diseases, conditions, situations, relatives, and the like. It goes so fast that you have to stop the tape, rewind, and go back to catch them all. When he does come up for air the studio audience members to whom he is speaking look like deer in the headlights. In the edited tape provided by Edward we caught a number of editing mistakes, where he appears to be starting a reading on someone but makes reference to something they said "earlier." Oops!

Edward begins by selecting a section of the studio audience of about 20 people, saying things like "I'm getting a George over here. I don't know what this means.

George could be someone who passed over, he could be someone here, he could be someone that you know," etc. Of course such generalizations lead to a "hit" where someone indeed knows a George, or is related to a George, or is a George. Now that he's targeted his mark, the real reading begins in which Edward employs cold reading, warm reading, and hot reading techniques.

1. Cold Reading. The first thing to know is that John Edward, like all other psychic mediums, does not do the reading--his subjects do. He asks them questions and they give him answers. You ask lots of questions and make numerous statements, some general and some specific, and sees what sticks.

2. Warm Reading. This is utilizing known principles of psychology that apply to nearly everyone. For example, most grieving people will wear a piece of jewelry that has a connection to their loved one. Edward knows this about mourning people and will say something like "do

you have a ring or a piece of jewelry on you, please?" His subject cannot believe her ears and nods enthusiastically in the affirmative. He says "thank you," and moves on as if he had just divined this from heaven. Edward is facile at determining the cause of death by focusing either on the chest or head areas, and then exploring whether it was a slow or sudden end. He starts with the head. If he gets the nod, he takes the hit. If the

subject hesitates at all, he will quickly shift to heart attack.

3. Hot Reading. Sometimes psychic mediums cheat by obtaining information on a subject ahead of time. I do not know if Edward does research or uses shills in the audience to get information on people, or even plants in the audience on which to do readings, but in my investigation of James Van Praagh I discovered from numerous television producers that he consciously and deliberately pumps them for information about his subjects ahead of time, then uses that information to deceive the viewing public that he got it from heaven.

Most of the time, however, mediums do not need to cheat. The reason has to do with the psychology of belief. This stuff works because the people who go to mediums want it to work. The simplest explanation for how mediums can get away with such an outrageous claim as the ability to talk to the dead is that they are dealing with a subject the likes of which it would be hard to top for tragedy and finality--death. As those who traffic in the business of loss, death, and grief know all too well, we are often at our most vulnerable at such times. -RC

"Fads come and go, in clothing, cars, and psychics. In the 1970s it was Uri Geller ... to kick off the new millennium it is John Edward."

Notes on the Founding Fathers

By Daryl Houston

Here's a little quiz for you. What do Oliver Ellsworth, Abraham Baldwin, and Hugh Williamson have in common? They were the only members of the Constitutional Convention of 1787 who entered the ministry at some point. Ellsworth, who opposed the abolition of the foreign slave trade, later quit religion to study the law. Baldwin too decided against his original course, declining later in life a proffered divinity professorship at Yale. And Williamson was bitten by the philosophy and science bugs and abandoned his Presbyterian ministry. Other members of the convention who had narrow brushes with the ministry include James Madison, who reconsidered his early idea of becoming a man of the cloth, and William Samuel Johnson, who resisted his father's wishes that he become a preacher.

James McHenry and Charles Cotesworth Pinckney, two more faithful members of the convention, were members of Bible societies. Other contributors to the convention who are notable for having been churchgoers are Richard Bassett, Jacob Broom, William Few, David Carroll, David Brearly, and Thomas Fitzsimmons. Brearly even helped to write his Episcopal church's prayer book. I'll bet you've never heard of Brearly or his brothers in God. I'll bet most Christers who speak of the founding fathers and their piety have never heard of Brearly either.

Surely there were some names at the bottom of the Constitution that are more familiar to us. There's Thomas Jefferson, of course, and everybody knows he was pious and morally spotless. And then John Hancock. He must have been important. And then there was John Penn and good old Samuel and John Adams and Benjamin Franklin. Right? They're the religious souls in whose name Christers want to plaster the 10 commandments all over the place. Actually, the only person on that list whose name can be found at the bottom of the Constitution is Ben Franklin, who had a common law wife and kids as his main familial diversion and a nameless woman with bastard children as a sideline. Ben is known much more for his aphorisms based on common sense and his patronage of civic causes such as libraries than for any sort of piety. I don't think he's the one who based the Constitution solely on the 10 commandments.

To hear the notions of lots of Christers, you'd think that the Constitutional Convention was a big love-fest that started and ended in peaceful spontaneous prayer each day, the members holding hands in a big circle

"To hear the notions of lots of Christers, you'd think that the Constitutional Convention was a big love-fest that started and ended in peaceful spontaneous prayer each day, the members holding hands in a big circle and asking for Yahweh's help in guiding the country. Far from it."

and asking for Yahweh's help in guiding the country. Far from it. As with any board meeting or similar grouping of powerful, headstrong people making important decisions, there was conflict. It took 100 days to write the Constitution, and many of the people who were involved in the beginning had bowed out by the end. Of the 55 who were initially invited to take part, only 39 signed. Some, like Elbridge Gerry (whose name and behavior we have to thank for the term "gerrymander") refused on the basis that the constitution was "full of vices," including inadequate representation of the people and dangerously ambiguous legislative powers. Others, such as John Lansing Jr., homed in on the dangers of consolidating government. William Blount missed a month of the convention, but signed reluctantly at last. Alexander Hamilton thought the Constitution was deficient in many respects. Luther Martin walked out during the middle of the convention and fought the ratification of the Constitution to the end on the basis that it aggrandized the rights of states and individuals to the detriment of the nation.

Note what's missing here: Religion. The Constitution deals with other issues. Nowhere in the text of the Constitution does the word "God" appear. The only passage of the document that contains any reference to religion is the following clause:

"No religious Test shall ever be required as a Qualification to any Office or public Trust under the United States."

And that clause, though theoretically honored in letter, is disregarded in spirit, as no one professing non-belief would ever be welcomed into national public office. The Constitution does not contain the word "kill" and makes no reference to bearing false witness. It imposes no sanctions for coveting thy neighbor's wife. There is in fact

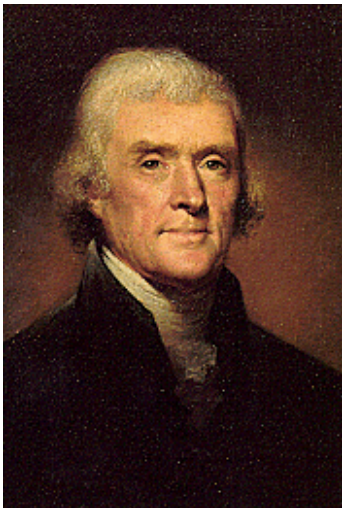
nothing even similar to the 10 commandments contained within the Constitution.

Many Christers, I suspect, confuse the Constitution with the Declaration of Independence, which does mention God. Here's the first sentence:

"When in the Course of human events, it becomes necessary for one people to dissolve the political bands which have connected them with another, and to assume among the powers of the earth, the separate and equal station to which the Laws of Nature and of Nature's God entitle them, a decent respect to the opinions of mankind requires that they should declare the causes

which impel them to the separation.”

"A ha," the Christer says, "that's where God comes in. Jefferson clearly appeals to good old Yahweh." Of course, I maintain that it's still up for debate. Jefferson



Thomas Jefferson

mentions the Laws of Nature and Nature's God separately. It could be argued on my side that he conceded that there was a god who set up natural laws and created people (Jefferson also mentions a Creator in his next paragraph), but that the god then took off for the hills and let the world run on its own. Jefferson's word selection here, and the doctrine implicit in the document that people should be in charge of their own destiny only back up the idea

that he's not exactly calling on the Hebrew god here. It's pretty widely acknowledged

that Jefferson and some of his peers were Deists, which means that they believed more or less what I've described. Christers ignore the historical record and argue in other directions, of course, and that's fine. It's not the point here.

What does matter here is the relevance of the Declaration of Independence to the laws of our nation. Discounting the fact that without a Declaration of Independence, we might not be our own nation with its own laws, there is no relevance. Have you ever read the declaration? It's an indictment of King George III on a number of very specific charges and a justification, based upon that indictment, of the U.S.'s severance of ties with England. That's all it is. Again, there is no reference whatsoever within the document to the 10 commandments or the Bible or even explicitly to the Christian god. Moreover, the fundamental tenet of the declaration (universal equality and the right to life, liberty, and the pursuit of happiness), is based in large part on French philosopher Montesquieu's Spirit of Laws, which is based in large part on the work of John Locke.

The final confusing document I'll cover herein is the Bill of Rights. For the most part, the Constitution deals with matters of government -- how and when elections will take place and how old you have to be to hold office and how the checks and balances work. Civil liberties are addressed briefly in the amendments to the Constitution, of which the first 10 make up the Bill of Rights. And the amendment that causes state/religion controversy is the first. It reads as follows:

“Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances.”

The amendment offers protection of and from religious beliefs. It states explicitly that Congress will establish no religion and will make no laws prohibiting the free exercise of religion. So if Congress endorses or mandates Christian prayer under any circumstances, it is violating the first amendment. On the other hand, if Congress monitors your home and tosses you in jail for practicing Christianity, it is also violating the first amendment. This amendment states plainly that religion is not the business of the federal government. What it doesn't state is that Congress can govern the establishment of or impediment to religion within the states. Other amendments that affect all states apply specifically and verbally to "the United States," while this amendment simply restricts Congress's behavior.

It's your individual state constitution that determines what your religious rights are. The Tennessee Constitution, for example, reads as follows:

“That all men have a natural and indefeasible right to worship Almighty God according to the dictates of their own conscience; that no man can of right be compelled to attend, erect, or support any place of worship, or to maintain any minister against his consent; that no human authority can, in any case whatever, control or interfere with the rights of conscience; and that no preference shall ever be given, by law, to any religious establishment or mode of worship.”

Compare this to another portion of the Tennessee Constitution: “No person who denies the being of God, or a future state of rewards and punishments, shall hold any office in the civil department of this state.”

No wonder people are confused about what determines their religious rights. The long and short of it is that our federal government documents in no way reflect the 10 commandments and confer no right or require-

ment upon anyone to post the 10 commandments on government facilities. To suggest that the laws of our country are founded on the 10 commandments is to display ignorance of our laws and rights. And to suggest that the founding fathers came up with the Declaration of Independence, the Constitution, or the Bill of Rights over open Bibles during a Southern Baptist prayer meeting is simply wrong. Don't let the Christers use that argument. If you weren't armed to rebut before, you should be a little better armed now.

“No religious Test shall ever be required as a Qualification to any Office or public Trust under the United States.”



Roundtable: On causality

By Massimo Pigliucci

One of our recent roundtable discussions covered the intriguing and controversial concept of causality. What exactly do we mean when we say that something causes something else?

This may seem the usual abstract philosophical discussion on which members of the Rationalists of East Tennessee thrive, but that is of little interest “in the real world.” Well, think again. Literally billions of dollars impinge on a good understanding of what causality is, for example in the case of highly controversial (for some) statements such as “smoking causes cancer.” Or consider the debate about what “caused” the 9/11 bombings (see *Rationally Speaking* in this issue). Or again, what caused Andrea Yates to kill her five children?

One of the things that was clear from our discussion is that a good approach to understand the discussion on causality is to look at its history. We therefore started by considering Aristotle’s ideas about four different forms of “cause” that help explaining what happens around us. We then moved to consider Galileo’s apparently simple idea that a cause is the set of necessary and sufficient conditions to bring about an effect. Despite its appeal, it turns out that most events are “caused” by a variety of factors, not all of which are necessary and several of which may have to occur simultaneously for the effect to materialize.

A classic theory of causality was presented by skeptic

philosopher David Hume, who said that in order for us to talk about cause-effect relationships two phenomena need to be contiguous (i.e., they have to happen one after another), the cause has to precede the effect, and the two have always to co-occur. But it turns out that modern science has uncovered plenty of phenomena (for example in the realm of quantum mechanics, but even in biology) where some or all of these conditions don’t hold, and yet we still meaningfully talk about causes and effects.

John Stuart Mill was the first philosopher to use a pragmatic approach to the study of causality, proposing criteria that are essentially still used today by most scientists when they set up experiments to verify their hypotheses.

A very modern view of causality is probabilistic in nature, and can be best understood by using the example of smoking and cancer. Smoking causes cancer not in the simple sense that if you smoke you will get cancer. It is also not true that the only way to get cancer is to smoke. Yet, if you do smoke (and if your genetic constitution is of a certain type) you are more *likely* to get cancer. Much more likely, it turns out.

The quest for understanding causality continues, but our discussion at least introduced us to the basic concepts and gave us an appreciation of the problem. -RC

Forum: Against (completely) free enterprise

By Massimo Pigliucci



In the last issue of *RC*, Al Westerfield argued for the libertarian position. I would like to offer some reflections of a somewhat different nature.

It is interesting that Al starts out citing that champion of free enterprise, Adam Smith. What is usually neglected about Smith is that while promoting as free a capitalist system as possible, he realized and recognized the need for social (political) controls over economic activities, since he was much too sophisticated a thinker not to realize that unbridled human greed has never produced particularly good results.

Westerfield goes on to state that the beauty of free enterprise is in the mutual agreement of the parties involved, where the motivating factor is price. Few would argue that—in terms of financial considerations only—this is not indeed a very elegant and functional system.

The problem is that human interactions are not reduced to financial transactions. All economic activity has implications for human relations and the environment which are very difficult to quantify in monetary terms. Indeed, many modern economists realize that if we truly

factored in human, societal and environmental impacts into our economic calculations (such as the estimation of the gross domestic product of a country), unbridled capitalism would not be on the winning end of the stick.

So, contrary to Westfield’s conclusion, Smith’s “invisible hand” has *not* been shown to lead to the greatest good for the greatest number, but rather to a system in which human values are discounted in favor of the bottom line. The devastating practical results, from the continuous destruction of our environment to corporate scams such as Enron’s are there for all to see.

I am most certainly not suggesting to abandon capitalism per se. When controlled, as it is in most of the more progressive societies in the world (such as many European countries, and even to some extent the US), it can bring a good balance between economic prosperity and quality of life. But being human means that quality of life is immensely more important than simple economic prosperity, as Smith clearly realized back in 1776.

-RC



Philosopher's Corner: Truth & Liberty

By David Buck

In February's philosophy roundtable we discussed 3 theories of Truth: Correspondence, Coherence, and Pragmatic. Instead of determining which was best, I came to realize that we use all three.

As a reminder, Correspondence theory says that a statement is true when it matches what is observed or 'I believe it when I see it.' Coherence theory says that something is true if it coheres with other propositions in a system or 'I see it when I believe it.' And Pragmatic theory says nothing is worth considering true unless it makes a difference in practice, or 'I believe it when I see it when it's there.'

So for example, for the statement 'Ebenezer St. is flooded', I use correspondence theory to say it's true because I look out my window and see that the road is flooded. For the statement, 'there are alien spaceships that come visit earth', I use coherence theory to say it's 'false' because it doesn't match up with many other true statements about science. And, for the statement, 'naps make my son less crabby' I use the pragmatic theory to say it's true because I've tested it and used it successfully to accomplish my goal (i.e., a non-crabby son).

March's philosophy roundtable discussed Mill's position that the free expression of ideas should never be hinderer, unless such expression hinders the liberty of another.

Mill's social and political writings, in addition to occasional articles, consist of the short treatise *Considerations on Representative Government* (1806), *Thoughts on parliamentary Reform* (1859), the essays *On Liberty* (1859) and *On the Subjection of Women* (1869), *Essays on some Unsettled Questions of Political Economy* (1831, 1844) and *The Principles of Political Economy* (1848). The method appropriate to these topics consisted in seeking a *via media* between the purely empirical method and the deductive method.

An obvious set of questions that emerged from the discussion was: if America is based on Mill's ideal—as most Americans would readily agree—why is polygamy illegal? Why is doctor-assisted suicide illegal? Why is marijuana smoking illegal? Why is gay marriage illegal?

-RC

Book Club: The Elegant Universe

By Phil King



Have you ever wondered how physics theories come about? Which comes first--the observations or the theory? Both Newton and Einstein *developed* theories of gravity because they observed gravity at work in the world. String theory has the remarkable property of *predicting gravity!* Edward Witten, one of the pioneers of string theory, said, "The fact that gravity is a consequence of string theory is one of the greatest theoretical insights ever."

On April 14, 5:00 p.m., at Borders Books, the Skeptic Book Club will be discussing Brian Greene's *The Elegant Universe*. This excellent book not only investigates a possible unified theory for the way our universe functions, but also provides the reader with insights into how the physicist seeks to understand our universe.

Up to now, quantum mechanics and general relativity are at odds with each other. They can both accurately predict observations in their respective domains, but they can't both be "right" as an ultimate description of the physical universe.

Imagine a universe where everything can be explained by tiny, vibrating strings. While it is unlikely that such strings will ever be seen (it is optimistically estimated that this would require an accelerator the size of

our galaxy), if string theory can be shown to be right during the next several decades, not only will the quantum theory/general relativity impasse be solved, but it could lift the veil of mystery hiding the deepest truths of our universe.

There's still a lot of work to be done though. It could even be centuries before string theory is fully developed and understood. The mathematics of the theory is so complicated that, to date, no one even knows the exact equations describing it. However, physicists are in the process of building a mammoth accelerator in Geneva, Switzerland, called the Large Hadron Collider. While we may never see a "string," we *may* be able to see some experimental evidence that substantiates string theory. String theory predicts, because of supersymmetry principles, the existence of "superpartners" of the known elementary particles. Such "superpartners" have never been observed. When the Large Hadron Collider is turned on around 2010, it may be able to find these particles. John Schwarz, of the California Institute of Technology, has said, "Supersymmetry ought to be discovered before too long. And when that happens, it's going to be dramatic."

-RC

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Rationalists of
East Tennessee

Mail to:

We're on the Web!
At www.rationalists.org

Announcements and Upcoming Events



Saturday, April 6, 6:30 PM: Potluck dinner at the Ledendeckers with David Noelle. RSVP to 982-8687 for directions.

Sunday, April 7, 10:30 AM: Brief business meeting followed by roundtable at the Candy Factory with guest speaker David Noelle whose topic will be "The Neurological Basis for Religious Experience or What's Really Going on in the Brain when someone has a supernatural experience." Socializing at 10:00 AM.

Sunday, April 14, 5:00 PM: Skeptic Book Club at Borders on "The Elegant Universe" by Brian Green.

Sunday, April 21, 10:30 AM: Philosophy roundtable at the Candy Factory on "Can Virtue be Taught?" Socializing begins at 10:00 AM.

Saturday, April 27: Spring Pot Luck with DJ Grothe at Marsha Doyle's. RSVP Marsha at 769-5076 for directions.

Sunday, April 28, 2:00 PM: Guest Speaker, DJ Grothe from the Council for Secular Humanism will speak on "Mind Siege: How religious-political extremists seek to Talibanize the United States." This will be held at the Tennessee Valley Unitarian Universalist Church on Kingston Pike. Coffee and snacks will be served at 1:30 PM.

Sunday, May 5, 10:30 AM: Roundtable discussion at the Candy Factory, Board Room, on the relationship between intuition and rationality. Socializing at 10.

Sunday, May 26, 5 PM (Notice! Special date!!): Book club discussion on "Ten Theories of Human Nature," at Borders Books in West Town.

Camp Quest. Applications for counselors and campers for June 1 - 9, 2002 are welcome. Contact Aleta Ledendecker 982-8687 for information and forms.

Rotating Dinners. New diners are welcome, since the greater the numbers of participants, the more interesting the mix will be. Please contact Mellrose Flockhart at 681-0377 or EFlockhart@AOL.Com, if you would like to join. Call now if you are not already a registered diner and want to get in on the action for the next round.

Announcement: The Unitarian Church in Chattanooga is looking for speakers for their Sunday morning forums. If you are interested contact Helen Solomon at 4117 Ealy Road, Chattanooga, TN 37412, 423-867-9505.

Please, send announcements and events to pigliucci@utk.edu

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