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Motto of the month:

A true skeptic will not believe the evidence of his own eyes -- especially when a magician is running the show.

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Creationism invades the Tri-State Region

Bill Oliver, Professor and Chair of the Chemistry Department at Northern Kentucky University, spoke on his experiences with creationism and on the recent efforts of the fundamentalist mission organization Answers in Genesis to build a "museum" in Boone County. Oliver was raised in a fundamentalist church and is therefore familiar with the mindset of those who feel Genesis must be read literally and the earth must be only about 6000 years old, and has undergone a world-wide flood which Noah's family survived on the ark, along with two of every species of animal. This presumably includes the largest and fiercest dinosaurs, since nothing in Genesis excludes them.

As preposterous as this sounds, this is exactly the position of the young earth creationists represented by Answers in Genesis. They will not advance their young earth position in most forums; instead they work to gather support from other religious folks who are inclined to "rally round" Christians who are being attacked by scientists, in much the same way that African-Americans rallied around O. J. Simpson, whether they believed him guilty or not. It has been Bill's experience that many churchgoers who are inclined to support creationism are not aware that the leaders of creationism adopt such an extreme position with regard to the literal truth of Genesis.

Although Northern Kentucky and Cincinnati have largely been free of creationism activities, Answers in Genesis appears poised to change that. There is little doubt their efforts at building a museum will be followed by attempts to have "intelligent design", "abrupt appearance" and other euphemisms for creationism taught in the public schools. This has been the experience in other locales, i.e. San Diego, where creationists have settled and built such a creation museum.

It is not clear what approaches should be taken to combat them, beyond vigorously resisting their efforts to incorporate their religion into the public schools. Bill did not recommend debating them in a public forum since long experience has shown that their naive arguments are much more appealing to non-scientific laypersons than the more difficult, sometimes mathematical, scientific points that need to be made. Furthermore, experience has shown that these so-called Christians are not above distortions and outright lies during debates. While we all deplore the building of their "museum", they can legitimately point to the fact that they are building it on private property with private funds. Bill

pointed out that this argument was hard for him to argue against personally, especially since he was not a resident of Boone County. It is sad that Northern Kentucky, which has largely been free of creationist influence, has to endure this assault on common sense. Experience has taught us, however, that the creationists' influence will still be minor, since they are such a tiny minority, even of most conservative Protestant churches. It was pointed out that future efforts opposing the museum and other creationist initiatives would profit from association with some mainstream ministers who are opposed to the creationists.

William R. Oliver
Northern Kentucky University
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President's Corner
CSICOP meets the X-Files and Speculative Science wins.
[Wizard holding up a candle]

The Friday luncheon speaker at the First World Skeptical Conference was Chris Carter the creator and executive producer of the X-Files. The award winning show, which incidentally is moving to Sunday nights, is one of the big successes on the Fox Network especially among Generation X-ers. Mr. Carter was a charming, personable, defender of his creation and he received a generally warm welcome from the large crowd of skeptics. Carter explained that he personally was a supporter of science and that he had a brother who had graduated from Berkeley with a Ph.D. in physics. In fact he went so far as to state, I am a skeptic not a believer, or purveyor of pseudoscience but I do use it in story telling. He told a long anecdote about a high school physics teacher who sent him a copy of Sagan's *Demon Haunted World* with the request that he consider following each episode with an epilogue, a "Why File" which documented the real scientific investigation of the paranormal based on Sagan. Carter thought it was a great idea but not consistent with the dramatic and entertainment value of the show. He also disagreed with the value of a "this is just a story" disclaimer at the end of the show.

Carter argued that the X-Files, "while not as balanced as skeptics would like, has a smart, intelligent basis in good science." Scientists were used to see that the show was "responsible to real hard science." He seemed somewhat proud that the show reached no conclusions about the truth of paranormal claims despite leaving the viewer with a strong suggestion that they may exist. The "mysticism, ghosts, and magic were necessary for the drama just as they were for Shakespeare" etc, etc. In fact he had intended that the balance between shows which leaned toward the paranormal and those which turned out to have natural solutions be pretty even. Unfortunately, "those stories were really boring. The plausible, rational, mundane answers were just bad for story telling."

Carter let his guard slip a couple of times which I believe gave a peek into his inner thought processes. He admitted to being a believer in conspiracy theories because of government actions during the sixties. That's why they have those frozen aliens up at Wright Patterson air base. More than once he made the point that people need to believe in something "beyond our temporal lives, an after life, a God." "There is, beyond the facts, a need for a spiritual life." The background message was that science by dispatching mysteries was eliminating the emotional and spiritual benefits of bad thinking. Carter left a large rhetorical question floating out there for what seemed like a long time.

"How does science create hope in the world?," he asked. The audience wondered what he wanted as Carter mentioned cancer from cell phones and other technological urban legends. He seemed genuinely pleased to have exposed the missing ingredient in science! Then he described the X-Files as fiction based on "speculative science." After listening to Chris Carter I think that's the science where you invent the facts to support your drama and present the package as a documentary. He's good at it, which isn't good for skeptics.

Joe Gastright, President
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From the Un-Easy Chair
The Sokal Hoax

by Wolf Roder

By now it is well known that New York University physicist Alan Sokal managed to get a hoax paper published in the Duke University journal of cultural criticism *Social Text*. I quote from the paper at some length below, to make it quite clear Sokal made assertions which will strike the rational person as nonsense, and should have been noticed by a thoughtful high school graduate. Emphasis on the most egregious points is mine, not Sokal's.

It is important to read this, because the editors of *Social Text* have defended their action by claiming they do, indeed believe there is a scientific external reality, only our interpretation is "socially constructed", i.e. science is made up of man-made rules like a ball game. Of course the fashionable postmodern, critical editors believe in a real world in some sense, otherwise they could not drive cars or turn on TV. But they fell for the hoax because it flattered their ideology, their idea that all knowledge is merely an arbitrary agreement among powerful groups, mostly dead, white males. The ideology insists "knowledge" is constructed so that feminists, Blacks, native peoples, and other marginalized groups have "science" every bit as "valid" as modern science. In other words, creationism, chiropractic, ayurveda and other new age nonsense may be as valid as physics.

Cultural criticism began with the social sciences and history arguing these fields are mere opinion. Only when similar claims were made about physics and chemistry did scientists pay attention. Yet, to scholars not totally bereft of sense and besotted by the Newage, it is clear there are facts and accurate interpretations, valid and nonsense generalisations in economics, sociology, and history every bit as compelling as in the hard sciences.

From: Alan Sokal, "Transgressing the Boundaries: Toward a Transformative Hermeneutics of Quantum Gravity" *Social Text* 46/47, vol 14, no 1 and 2, Spr/Sum 1996, pp. 217-252 (footnotes omitted).

pp 217-218

But deep conceptual shifts within twentieth-century science have undermined this Cartesian-Newtonian metaphysics; revisionist studies in the history and philosophy of science have cast further doubt on its credibility; and, most recently, feminist and poststructuralist critiques have demystified the substantive content of mainstream Western scientific practice, revealing the ideology of domination concealed behind the facade of "objectivity". It has thus become increasingly apparent that physical "reality," no less than social "reality," is at bottom a social and linguistic construct; that scientific "knowledge," far from being objective, reflects and encodes the dominant ideologies and power relations of the culture that produced it; that the truth claims of science are inherently theory-laden and self-referential; and consequently, that the discourse of the scientific community, for all its undeniable value, cannot assert a privileged epistemological status with respect to counterhegemonic narratives emanating from dissident or marginalized communities. These themes can be traced, despite some differences of emphasis, in Aronowitz's analysis of the cultural fabric that produced quantum mechanics; in Ross's discussion of oppositional discourses in post-quantum science; in Irigaray's and Hayles's exegeses of gender encoding in fluid mechanics; and in Harding's comprehensive critique of the gender ideology underlying the natural sciences in general and physics in particular.

p. 222

The key point is that this invariance group "acts transitively": this means that any space-time point, if it exists at all, can be transformed into any other. In this way the infinite-dimensional invariance group erodes the distinction between observer and observed; the π of Euclid and the G of Newton, formerly thought to be constant and universal, are now perceived in their ineluctable historicity; and the putative observer becomes fatally de-centered, disconnected from any epistemic link to a space-time point that can no longer be defined by geometry alone.

"Crystals are bound to have magical psychic powers, how else could they be used to make such pretty jewelry."

-- bio-astrologer Esmeralda von Lowenzahn-Dentdelion

Various skeptics have written, phoned, or e-mailed your editor about last month's opinion from Esmeralda. They claim her quote was not clear, in that we do not know whether the primitive humans ate the dinosaurs, or the dinosaurs ate the

primitive humans. I would like to set the issue straight, her statement is perfectly confused and totally ambiguous. Thank you.

-- editor
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Creationist Museum
Attention Biology, Geology & Archaeology Departments

On Wednesday, 8/28/96, at 7:00 PM, a hearing was held at the Boone County Administration Building in Burlington, KY, to discuss the rezoning of 40 acres of land near Big Bone Lick State Park from agricultural use to recreational. The land, which is being purchased by a religious ministry called "Answers in Genesis", will be used to develop "Genesis Park", a "Creation Museum and Family Discovery Center". This "museum" will not be a scientific museum but, rather, a religious amusement park displaying natural artifacts to promote creationism -- a literal interpretation of the creation story of the bible to supplant the scientific theory of evolution.

The Boone County Comprehensive Plan for development of the county describes the rich paleontological and archeological finds in the Big Bone Lick area and encourages further research. It states:

Properly interpreted, Big Bone Lick State Park has the potential for becoming a unique educational site, as well as a National Historic Landmark. The State Parks Department, and local citizens groups, are actively promoting the construction of a proper museum for Big Bone Lick, with ongoing archaeological and paleontological research as part of its interpretive mission. It has been estimated that the development of this site as an archaeological "theme" state park would triple tourist visitation, and provide non-invasive economic development for western Boone County.

"Answers in Genesis" uses part of this passage in their application for rezoning to suggest that their "museum" is consistent with the Comprehensive Plan's intentions for the area. They state:

The plan encourages tourism in the form of a "proper museum" at Big Bone Lick. Certainly a "proper" and professionally designed and managed museum only four miles east of Big Bone Lick would also be advantageous to Boone County. A major plus in our plan is the fact that the county will benefit at absolutely no expense to tax payers and with no government funds being used. (Double the attractions for Boone County at no additional cost!)

What "Answers in Genesis" fails to say is that their "museum" would feature paleontological and archaeological artifacts only to misinterpret their historic and scientific significance. They would degrade the integrity that the area now possesses and stifle the chances of any real scientific research from continuing to develop.

The Free Inquiry Group, Inc. encourages anyone who is interested to help defend this area from the intrusion of yet another amusement park. We especially hope that members of the scientific community will speak out against the harm that such a facility will do to the credibility of the Big Bone Lick site. Hearings are open to the public, residence in Boone County or Kentucky is NOT a requirement.

-- from Elizabeth Oldiges
Further Comment

The "Answers in Genesis" site is on US 42 at a junction with SR 338. This is approximately half-way between the State Park and the intersection where I-75 and I-71 divide. The area is fairly rural and the site itself farmland. Local residents are protesting the rezoning of the forty acre plot as they fear it will disturb their bucolic quiet, and increase auto traffic. The County authorities and their professional planning staff take the attitude the validity of the ideas being displayed in the future museum are not an issue in this Zoning Case, only the adequacy of the noise, visual, and sanitary provisions of the site.

-- editor
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Book Reviews

The Eagle and the Rose

The Eagle and the Rose: A Remarkable True Story

by Rosemary Altea

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We learn from the dust cover that "Altea is an internationally renowned psychic medium. Traveling extensively around the world, she shares her amazing gift, demonstrating that we don't die. She has founded a healing organization based in England with patients worldwide,..." The book is endorsed by the author of The Celestine Prophecy and available from the Quality Paperback Book Club. It is bound to become a bestseller.

The author recounts her growing up as a desperately unhappy Cinderella to her three sisters, totally unloved by her mother and repeatedly beaten by her absentee father. Yet, she was always different. All her life she had visitors at night, in her dreams, and in broad daylight. She was married young to an unsatisfactory, philandering husband. She gave birth to one daughter after two miscarriages. After fourteen years the husband deserts her destitute in the north of England, and she has to go on welfare.

It is at this time she enters a spiritualist circle, in which friends immediately recognize her great psychic gifts. She describes a learning and training period, in which she acquires a Spirit Guide, the Grey Eagle of the title. He is a gorgeous Apache warrior and shaman, who seems to hail from the novels of Zane Grey rather than New Mexico. It is amazing how many spirit guides are North American Indians, not South American, or African, or Siberian.

Her description of psychic work is very straight forward, not to say mundane. She hears, sees, or feels spirits everywhere, sometimes invisible, or as ghostly apparitions, but most often solid like you and me. In fact, the reader gets the impression she is more at home with spirits than real human beings. The spirits of the dead are eager to communicate through her with their still living relatives. There is never any doubt, her reports always confirm to the client she is really in touch with the right person. Only one slightly questioning scientist figures in the narrative. He is quickly won over when his long dead grandfather is able to help him with a technical research problem. What this book lacks in intelligence, it makes up in dullness.

If this was a book about experiences with baking bread or making wine, I would not doubt a word the author says. Her matter of fact manner recounting psychic, spirit, and healing experiences is quite convincing. Her life story, however, is scattered throughout the volume, and the most coherent narrative only appears in the last chapter. When she meets the spiritualists the first time a friend drives her "down some long rutted country lanes, which were really no more than dirt tracks,"(p. 22) later the same trip is described as "only a fifteen-minute drive"(p. 40). In a deep trance the medium is unaware what she is saying or what is going on. "This is why we always made sure we had on a tape recorder at all times during the evening."(p. 61) Yet, when a dead woman is speaking through her body, "I stood on one side of my body, listening and in sympathy with everything I had heard,..."(p. 69).

-- Wolf Roder

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way that certain mathematical notions that seem to spring out of sheer invention from creative minds turn out to be exactly the tools that are needed to describe the physical world."(p. 142) Some scientists have thought it not too much to assert mathematics is the language in which God created the Universe. Mathematics in this view is truly a garden of poetry, which has a clear and shining beauty of its very own.

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Osserman's little book has a good deal of material to learn and think about. Despite the absence of numbers and algebra there is nothing simple or easy about following his reasoning. There plainly is no effortless way to acquire an understanding of modern cosmology.

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[Circles on curved surfaces]

We know we live on a spherical earth in a large universe because we can see the sun and stars revolve around us daily. If we inhabited a planet like Venus with an impenetrable atmosphere could we still determine the shape of the world we live on? Osserman takes us through an interesting demonstration how we could yet determine the sphericity of the earth. This thought experiment then leads to demonstrating how we can determine we live in a curving universe even though we can't see it.

Osserman's little book has a good deal of material to learn and think about. Despite the absence of numbers and algebra there is nothing simple or easy about following his reasoning. There plainly is no effortless way to acquire an understanding of modern cosmology.

-- Wolf Roder
Satan's Silence
Short Book Note

Satan's Silence: Ritual Abuse and the Making of a Modern American Witch Hunt
Debbie Nathan and Michael Snedeker
(New York: Basic Books, 1995) xvi + 317 pp.

Most of us remember news stories about ritual satanic child abuse, such as the McMartin pre-school case in California, or the Kelly Micheals case in New Jersey. Nathan and Snedeker examine the entire issue from the viewpoint of a modern witch hunt, with explicit references to the Salem past. Childrens' caretakers were accused of grotesque and impossible criminal activities, by words laid into the mouths of babes, by obscurantist professional too ignorant or too ambitious to see the consequences of their actions, and never inclined to retract. The book is dedicated to the victims still incarcerated in prisons.

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Tales from the Paranormal A Paradigm for Paranormal Behavior

by Wolf Roder

tone-deaf (-def') adj. not able to distinguish accurately differences in musical pitch --tone'deaf'ness n. (Webster's New World Dictionary of the American Language)

Let us say I know a person, a friend, who is totally tone- or tune deaf. Let me explain what I mean by this. Most of us, most human beings can enjoy music: symphonic, opera, popular, or even far out ethnic music, vocal and instrumental music. We can enjoy many kinds of music even if we may not be able to tell the fine points of difference between one philharmonic orchestra and another, or one famous singer and his or her greatest rival. On one end of a continuum many persons have perfect pitch and can enjoy the very best performances with a discriminating taste. A few individuals are extremely talented not only to hear but to make the best of song and instrumental music. My friend is on the other extreme of this continuum. Music, except for the simplest clear vocal childrens songs, is a complete jumble of unintelligible sound. Let me emphasize this friend has no hearing deficit, and no difficulty following the spoken word.

How then does my friend even know that such a thing as music exists? Quite obviously, because it is all around him, and everybody it seems spends lots of time listening. Something like 70 percent of non-advertising time on radio is devoted to the sounds of music of one kind or another. There is a multi-billion dollar industry churning out records, tapes, and performances. Individual musicians are celebrated on television and in print for their work. Biographies of composers from Bach to Zeller, and of performers from Abbado to Zappa are there for him to read. He is, in other words, left in no doubt he is missing something. Even though he is unable to make any sense of the music sounds, he is forced to accept that other people do.

Imagine humankind were constituted differently. Imagine all of us were as tone-deaf as my friend, and music makers and listeners existed in exceedingly small numbers. There would be no music industry, no public performances, no celebrated singers or instrumentalists. If rare enough, people with musical talent would have a difficult time finding and recognizing each other. The rest of us would consider them a small coterie, devoted to activities we could only consider unreal or nonsense. A group occupied with making senseless noises. Even within that small coterie, most people could not really properly follow the music, or hold a tune, or play an instrument. What is ordinary talent with us, the ability to play an instrument so-so, might be the ability of one person in a million. What we would consider a good performer, would be born only once in a hundred or two hundred years.

In the situation described how would ordinary people know music really exists? Consider the enormous variation in musical talent which in fact exists, from my tone-deaf friend on one extreme to the most talented performer at the other. This variation would still exist, so that among the few music lovers, only one in a hundred could sing passably. But the ordinary member of the music coterie, someone who could not make music himself, would in most instances be the one trying to explain music to the ordinary tone-deaf mortal. Meanwhile all the members of the music coterie would exalt the capability of someone who has, by our present standards, merely a fair to good capability to play whatever instrument would exist in the absence of a music industry. Playing on a comb maybe. This person himself might brag about his talent, or might belittle it, saying something like: "You should have heard, so-and-so, a really great performer long ago and far away." The ordinary tone-deaf mortal would merely shake his head saying: "I can't hear what you are talking about, I don't think it really exists, you are deceiving yourselves."

Now consider psychic capacity as such very rare ability, with a wide variation of very few people with smaller and

lesser capabilities. Imagine a truly able psychic is born only every century or two. Most people who claim psychic abilities really have none, or only the tiniest bit. Like musicians, they have off days, when nothing will go right. Average instrument players among us often refuse to play in public, thus like psychics they may be shy. Not every performance is good. Transferring thought by telepathy works only sometimes incompletely; viewing a remote scene may be jumbled. People who have no psychic abilities could only shake their heads and say: "You are deceiving yourselves." How could the psychic-deaf multitude be made to accept there really is such a thing?

This parable is meant to be provocative. Tell me how you can be sure psychic talents if very rare do not exist? (e-mail to: roder@uc.edu)

-- editor
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In The News

Last month we published the questions used by the National Science Foundation to gauge Americans' understanding of science. This month we publish the answers -- at least as well as your editor could assemble them. (In parentheses: percent answering correctly among college graduates, sub-sample size n=260.)

Public Understanding of Science - Science Literacy

Answers to "the questions."

True - False Questions

The center of the earth is very hot (83) yes, so we infer from the increase of temperature with depth.

All radioactivity is man-made (86) Hell, no. Aside from that nuclear furnace which is the sun, many minerals are radioactive, i.e. contain radioactive elements.

The oxygen we breathe comes from plants (90) I thought it came from the air, and ultimately was liberated from water - plants are merely intermediaries.

It is the father's gene which decides whether the baby is a boy or girl (74) Actually it is his x or y chromosome, not a gene.

Lasers work by focusing sound waves (56) Actually, light is stimulated, amplified, and emitted as a coherent narrow beam.

Electrons are smaller than atoms (64) Yes, since they are parts of atoms.

Antibiotics kill viruses as well as bacteria (59) No way, we have no means of killing viruses in the body.

The universe began with a huge explosion (46) known as the Big Bang, at least that is the leading theory at this time.

The continents on which we live have been moving their location for millions of years and will continue to move in the future (89) Actually, continents ride on large plates (which include major parts of ocean bottom) which move, this is known as plate tectonics, formerly called continental drift when it was thought only the continents move.

Human beings, as we know them today, developed from earlier species of animals (61) Monkeys and apes to be precise.

Cigarette smoking causes lung cancer (92) Well, it contributes strongly, but a person can get lung cancer without ever smoking, and not every smoker contracts lung cancer.

The earliest humans lived at the same time as the dinosaurs (59) No, Fred Flintstone is wrong. Dinosaurs died out about 65 million years ago, first human beings lived about 2 million years ago, so there is about a 60 million year hiatus.

Radioactive milk can be made safe by boiling it (70) No, and not by pasteurizing it either.

A majority of American workers are members of a union or other collective bargaining organization (57) No, only about 15.5 percent of the labor force is unionized.

Tariffs, that is taxes on imported goods, benefit some groups at the expense of others (84) Yes, those who make the same goods internally at the expense of all consumers.

A general increase in the tax on goods imported into the United States is likely to result in an increase in the amount of American goods sold to other countries (60) No way, especially not if other countries raise tariffs in retaliation.

One of the best ways to increase the productivity of labor is to encourage greater investment in equipment, machinery, and other capital (67) Yes, no amount of motivation, time and hard work will much improve farming with a hoe, but give a man a tractor...

In a market economy, the level of wages will depend primarily on the level of output per worker (46) The general

level, yes; what an individual gets depends more on market forces, ie. supply and demand.

Multiple choice questions

Which travels faster, light or sound (86) Light, 299,793 km/s in a vacuum; speed of sound depends on the medium in which it travels and the temperature of that medium, in air 333 m/s, in water 1407 m/s, in solids 3 to 5 thousand m/s (approximately). Light also slows slightly when not travelling through a vacuum; the amount depends on the medium.

Does the Earth go around the Sun, or does the Sun go around the Earth? (43) actually neither, both revolve around their common center of gravity, which is however deep inside the sun because the sun is much larger and more massive.

How long does it take for the Earth to go around the Sun: one day, one month, or one year? (66) One year; however, there are two sorts of years. The one we use most is the tropical year, which is the amount of time between two successive coincidences of the sun with the vernal equinox, and is about 365.2422 days. The sidereal year is the amount of time for the sun to make one complete circle in the sky relative to the background stars, and is about 365.2564 days. The difference between the two is about 20 minutes per year.

If you were to hear on the news that the Federal Reserve Board is going to tighten the money supply, would you expect interest rates to go up or go down? (83) Up, but I may be mistaken, sometimes they do their own thing.

If you had \$1,000 to invest and did not want to lose it, which one of the following investments would be safest for you to buy: municipal bonds, US treasury bonds, preferred stock, or common stock? (72) Would you trust a borrower who is billions in debt and not willing to restrain spending to bring his budget into balance?

Explain in your own words questions

What is DNA? (43) Deoxyribonucleic acid, also known as a chromosome, a string of bases (adenine, cytosine, tyrosine, and guanine) in the cell nucleus, which acts as program for building the individual's tissues.

What is a molecule? (19) The smallest unit of a chemical compound, consists of several atoms held together by electric forces (electron exchange/sharing).

Why is there a hole in the ozone layer? (31) This refers to a thinning of the quantity of ozone in the lower stratosphere. It is thought to be caused by certain man-made and released gases (CFC's) which act as catalysts in breaking up the ozone molecule.

Where is the hole in the ozone layer? (27) The greatest thinning has been measured over the Antarctic continent, but some also exists over north polar regions.

Are there any harms or dangers which might result from a hole in the ozone layer? (49) Since ozone absorbs ultraviolet rays from the sun, these will increase, they contribute to causing skin cancers, which may thus increase in number.

What do you believe is the primary cause of acid rain? (11) Sulphur and nitrogen oxides released into the atmosphere by burning fossil fuels. These combine with water to form sulfuric and nitrous acids. There are however some, few natural acid compounds in the atmosphere from vulcanism, forest fires, lightning, etc.

What does the term "free trade" mean to you? (24) Trade of goods and services among nations with no, or minimal tariffs and other restrictions, including bureaucratic, quality or health restrictions.

Now please think of this situation: Two scientists want to know if a certain drug is effective against high blood pressure. The first scientist wants to give the drug to 1,000 people with high blood pressure and see how many experience lower blood pressure levels. The second scientist wants to give the drug to 500 people with high blood pressure, and not give the drug to another 500 people with high blood pressure, and see how many in both groups experience lower blood pressure levels. Which is the better way to test this drug? Why is it better to test the drug this way? (some understanding 63) This is the standard experimental model in which one group gets the treatment (blood pressure medicine), while the control group receives a placebo. If all 1000 persons received the treatment, we could not tell if some outside trend (e.g. a popular diet fad) had changed the blood pressure of the group. With a split sample any changes in the treatment group which do not appear in the control group can be ascribed to the medical treatment.

What does the concept "theory" mean to you?

While there is broad consensus that theory building is the primary objective of science, this level of conceptualization is relatively rare in the public and not universal among graduates of science, engineering, or medical programs. The measurement of the understanding of scientific inquiry at this level is compounded by the dual meaning of theory in American English. In the usage employed in the preceding paragraph, we mean theory to refer to

comprehensive sets of statements about the operation of various aspects of nature, or the development of models of natural processes. This usage would apply to generalizations or models in the biological, social, or physical sciences. At the same time, theory is often used in everyday language to refer to speculations or suppositions not yet supported by evidence. For example, it is common to hear a person dismiss a speculation by another person by saying that it is 'only a theory,' meaning that there is no evidence, or insufficient evidence, for that conclusion. Ironically, this is almost exactly the opposite meaning of the term as used in science.

Science & Engineering Indicators (12.ed) 1996, chap. 7, p. 9

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Letters to the Editor

To the State Capitol

You are my representative and senator in the Ohio General Assembly. Please oppose HB 692. Supporters of this bill claim that they just want to encourage students to think, but their real intent is to mislead students about evolution. If they really want students to think, they would demand that questions be raised about all scientific concepts. But they appear to want only questions about evolution to be raised. The bill's supporters are just prejudiced against evolution.

They may also say that there are no scientific problems with the other concepts, and only scientific problems about evolution. They err when they say this. Evolution is as well confirmed as any other concept in science. You don't have to actually see something happen to confirm that it occurred. Adequate physical traces are enough to test and confirm it. Mainline science accepts evolution and has no problem with it, as does mainline religion.

Anti-evolutionists would introduce misleading teaching into the classroom. They would say, for example, that there are no transitions between different species. This is not true. There is a well documented series of intermediate species. For example, the australopithecines, such as "Lucy" are apes, but no ape has the posture that "Lucy" had. Anti-evolutionists should not be allowed to bring their misleading teaching into classrooms.

-- Andrew O. Lutes

Mansfield News-Journal, Sunday 30 June 1996, p. 8A

House Bill 692, discussed in the paper on June 2nd, is not designed to encourage students to think, but to mislead them about evolution. If it is an educator's function to encourage students to think by challenging scientific principles, then why doesn't the legislation demand evidence for and against everything else accepted by the scientific community be presented in the classroom -- such as atomic theory, germ theory, gravity, and the spherical shape of the earth!

Evolution is a well established scientific principle. There is empirical proof how the earth and its inhabitants came to be. Testable predictions, in empirical style, can be made of what physical remains will be found. Denying this denies the historical sciences, such as paleontology, and history itself -- whose evidence can't be discovered in a laboratory, but can be uncovered and compared to predictions. The most important scientific organizations in the United States have endorsed evolution. The scientific community questions how, not whether, evolution occurred. Scientists who don't accept evolution are simply part of the constant fringe that buzzes around the edges of real science, and should be compared to those who believe in flying saucers. Anti-evolutionists say they want reasonable questions about evolution brought up, but their real interest is to teach students that evolution didn't happen.

Anti-evolutionists would do this by giving misleading information. They would say, for example, that there is a lack of transitional fossil species, something that even Darwin admitted. What anti-evolutionists won't tell is that the fossil record has grown richer since Darwin, that many transitional fossil species have been identified, and that every transition creates two gaps -- between itself and the two it is in between. Anti-evolutionists, in effect, unreasonably demand remains of every species that has ever existed.

John Scopes was not fighting for the right to teach anything, but to present science as accepted by the scientific community. To not do this is to misinform students about the state of knowledge.

-- Andrew O. Lutes

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News from James Randi

Date: Thursday, 18 July 1996

RE: TWO MATTERS of INTEREST

Good friend Carol sends me the first item, a bit of welcome news:

Today, Judge Peter K. Leisure of the United States District Court, Southern District of New York, dismissed in its entirety the lawsuit brought by the Church of Scientology against Time magazine and reporter Richard Behar, who ran a cover story (May 6/91) called, "Scientology: The Cult of Greed." It was a really brave, well-written piece that exposed this dangerous cult. The reporter, says Carol, went on to win various journalism and media awards for his efforts ... and was also sued by the Church of Scientology on six counts of libel. This puts to an end the \$416 million lawsuit. In two previous decisions, the Judge had dismissed all but one libel claim against the magazine, and today the remaining unresolved claim was dismissed, ending the suit.

Hallelujah!

I agree with Carol that, at least for now, the First Amendment is alive and well.

On another front: I'm sure that most of you are aware of the scurrilous attack being made against me by e-mail from someone known as "Renate Zellmann" who claims to represent something called APCRIS (the Association for the Protection of Children's Rights in Society) said to be active in Holland, Denmark and Norway. Postal mail, too, has made the rounds, and many copies have been sent to me that way. This lunatic, whether or not he/she actually represents any group at all, has chosen to believe a crazy woman in Toronto, Canada, named Michelle Landsberg, who has a reputation for being arrogant, ignorant, a rabid feminist, and simply wrong -- but vicious in the extreme. Worse, she writes for a Toronto paper called The Star, which tolerates her lies because she sells papers. Landsberg wrote about "proof" she had "heard" that I was and am a child molester.

The letters arrive postmarked "London, UK," with no return address and attack both CSICOP and myself as promoting child molesting. This is pure crap, urban folklore which has been circulating for months now.

Question: Can anyone out there determine (a) whether this APCRIS group really exists, (b) whether there is someone named Renate Zellmann (and if so, an address), and (c) what other places this bullshit may have shown up? I'm raring to go after any loonies we can identify, but I suspect that this is another of those out-of-the-shadows anonymous things. These slimeballs throw rocks, but won't put up their fists. I need a nose to punch.

James Randi

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