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\*\*\*Internet Bad

Internet Bad – General

Web info can become distorted; errors accumulate

McGraw Hill 1 (http://www.mhhe.com/mayfieldpub/webtutor/judging.htm, 7-11-11, AH)

Ultimately, the problem with reliability of information on the Web is like the whispering game children play. Someone whispers a message to the first child, who whispers it to the second, and so on. By the time it gets to the last child, the message is hopelessly distorted. Web pages can work the same way when people get their information from other people's Web pages: The first person who posts information may make a few small errors; the second unintentionally repeats them and makes one or two more; the third makes a few more; and so on. For information seekers it can be impossible to tell where in the chain the information is coming from, but that makes a difference in the information's reliability. So it never hurts to check against a library reference.

The Internet provides unreliable data; search engines distort numbers

Osinga 3 (Douwe, Google's European Engineering Office, 8-19, http://blog.douweosinga.com/ 2003/08/unreliability-of-internet.html, 7-11-11, AH)

Internet is a great medium for knowledge. If you want to know something, Google is a click a way and if you're lucky the answer just one more click. But if you want to know numbers, the Internet is unreliable. The problem is not so much that you can't find the numbers. It's not hard to find a number for the average cost of electricity generation by nuclear reactors. The problem is that you find a lot of different numbers. The problem is how to find out which number is reliable. It is clearly one of the things that the Google PageRank algorithm fails. Pages that are linked to a lot, don't necessarily contain more reliable numbers. If a seperate search engine could be constructed to search just for numerical facts, then reliability could be part of features. Numbers more often quoted are more reliable. Sources that quote numbers that are more often quoted are reliable, etc. Such a search engine could focus on <table> tags and try to work out the meaning of cell values by scanning the horizontal and vertical headers. I would like that.

It is easy to overlook deleterious differences between Internet and real-world data

Schellekens 3 (Maurice, Tilburg University Institute for Law, Technology, and Society, http://rechten. uvt.nl/prins/upload/10120062042604717433452.pdf, 7-11-11, AH)

Since 1997, a number of studies have been conducted researching the quality of health related information of the Internet.1 These studies often found serious deficiencies in the Internet-based information. Mostly, the Internet information was tested against established medical guidelines and expert opinions. At same time, there are only a few known cases in which Internet-based health information has had adverse affects. The lack of quality seems to have surprisingly little effect, but does it? Eysenbach indicates that there may be a substantial dark number, partly because Internet based information may not be recognised as the cause of ill-effects, partly because initiatives to register such events lead a marginal existence and a real systematic registration is lacking.2 Therefore, it is too easy to be content with the existing situation. In a world of information overload, it is often extremely difficult to get a grip on the correctness, completeness and legitimacy of the information and material available on the Internet, let alone the objectivity of the information found.

Scientific information is misleading on the internet

Jacoby & Youngson 4 (David B & R.M, Professor Medicine Physiology and Pharmacology Chief, Encyclopedia of Family Health, p. 1168, AH)

The main problem with consulting the Internet is the enormous amount of information that has been posted. There are millions of Web pages on medicine, and some care is necessary if people are to avoid accessing unreliable information. Some of the information on the Internet is in fact seriously misleading For instance, there are promises of cures for conditions that are beyond scientific medicine. If conventional medicine declares that no treatment is available for a disease, doctors advise that people view such claims with great caution.

Internet Bad – General

Unreliable sources closely resemble reliable sources

Wiley et al 9 (Jennifer, Susan R. Goldman, Arthur C. Graesser, Christopher A. Sanchez, Ivan K. Ash, & Joshua A. Hemmerich, American Educational Research Journal, December, http://casanchez.faculty.asu. edu/pubs/aerj.pdf, 7-11-11, AH)

Three other sources were included to offer incomplete, and unreliable, accounts of seismic and volcanic activity so that across the seven sources, there was variance in accuracy and reliability. The unreliable sites were an astrology site (StarIQ.com) that attributed the Mt. St. Helens eruption to the location of the planets and stars; an inventor’s site (Forceborne.com) that was promoting an engine that did not run on fossil fuels and claimed that oil drilling caused volcanoes to erupt; and a site (the Browning Newsletter; http://www.browningnewsletter.com) written by a corporate forecaster (Iben Browning) who claimed that tidal fluctuations allowed him to predict earthquakes and volcanic eruptions. All sites except the Browning Newsletter site were portions of real sites found via a Google search. Iben Browning was in fact a real corporate forecaster who claimed to have predicted the eruption of Mt. St. Helens and who produced newsletters in the 1980s. His printed newsletters were put in Web format for this set of studies. In general, the unreliable sites were similar in format to the reliable sites. These sites all provided evidence for their positions but also offered unique causal information that could not be integrated into the model suggested by the reliable sites and could not be corroborated with any other source. A total of five erroneous causes for volcanic eruptions were contained in the unreliable sites. The unreliable sites contained a total of 5,090 words.

Scientific journals are declining in accuracy as bad links are increasing

AAUP 4 (American Association of University Professors, http://www.aaup.org/AAUP/ pubsres/academe/2004/MJ/NB/InterRef.htm, 7-11-11, AH)

Internet pages cited as references in scholarly journals tend to disappear over time, leaving supplementary information inaccessible, according to a study by researchers at the University of Colorado that was published last fall in Science magazine. The study, titled "Going, Going, Gone: Lost Internet References," reviewed the references cited in articles appearing in three major publications: The New England Journal of Medicine, The Journal of the American Medical Association, and Science. Internet references accounted for only 2.6 percent of all references in a sample of more than a thousand articles published between 2000 and 2003, but 30 percent of the articles had at least one Internet reference. The researchers found that after two years, up to 13 percent of those references were "bad links," meaning that users trying to gain access to them received error messages instead. Bad links were most frequent among addresses ending in ".com," and least frequent in addresses ending in ".org." Internet addresses may become bad links when an organization shuts down its Web site, takes materials offline, or changes the addresses it uses (often, ironically, in an attempt to make information easier to find). In addition, since "no consensus on Internet reference format exists," it is difficult to ascertain how long ago the author of a publication may have viewed the Internet site referenced. The study notes that as use of Internet references rises, the percentage of bad links will likely climb as well. The researchers conclude that an urgent need exists for new policies for documenting and archiving Internet information used for scientific research, such as requiring scientists to submit a printed hard copy of referenced Internet information.

Science on the Internet risks becoming informal

Kinne 99 (Otto, Germany Ecology Institute, http://www.int-res.com/abstracts/meps/v180/editorial, 7-11-11, AH)

The Internet offers excellent new opportunities for speedy informal exchanges of information among scientists, for discussing theories and hypotheses, for presenting brand new ideas to peers, for igniting creativity and innovation, for collaboration and cooperation, etc. These wonderful opportunities fertilize, but do not replace, quality-controlled formal publishing. We should never allow anyone to blur the line between informal and formal parts of the scientific process.

Internet Bad – General

The Internet encourages publication of unedited & informal content

Kinne 99 (Otto, Germany Ecology Institute, http://www.int-res.com/abstracts/meps/v180/editorial, 7-11-11, AH)

Electronic publishing per se does not automatically affect scientific quality. This depends first of all on scientific performance and control, not on publication technologies. The risks begin where quality safeguards are abandoned or diminished, for example, where authors publish their papers directly and unscreened, where preprints prevail or continuous updating of published works. Unrefereed and/or unedited publishing is supported by some authors in an attempt to increase speed, reduce cost and facilitate dissemination (also in the hope of circumventing referee criticism and unpleasant editorial decisions?). Here thrives the murky soup of blurred information. Continuous updating is a normal process in science. Its place is not formally published articles (these must remain untouched for correct assessments of the authors' accomplishments, literature analysis and documentation), but informal publishings, discussions, meetings, and--above all--reviews, books or handbooks. The latter three are works of lasting value, documenting what we know or not know, how science has developed (been 'updated') and where it might go to in the future.

Using the Internet for scientific research promotes bad, shallow science

Keim 8 (Brandon, Wired Science, 7-17, http://www.wired.com/wiredscience/2008/07/is-the-internet/, 7-11-11, AH)

Using the internet to search for scientific articles is bad for researchers, says University of Chicago sociologist James Evans in an article published today in Science. His argument is a classic computer-versus-paper library dilemma, updated for science: when researchers search online, they tend to arrive at just a few high-ranking articles. Lost is the breadth of scholarship encountered by old-fashioned, page-turning browsing. "As more journal issues came online, the articles referenced tended to be more recent, fewer journals and articles were cited, and more of the citations were to fewer journals and articles," writes Evans, who analyzed the citation patterns of 34 million journal articles that went online between 1998 and 2005. He conclues, "The forced browsing of print archives may have stretched scientists and scholars to anchor findings deeply into past and present scholarship. Searching online is more efficient … but this may accelerate consensus and narrow the range of findings and ideas built upon."

Internet Bad – Empirics

Research data found online is unreliable, empirically proven

BMJ 00 (British Medical Journal, 7-15, http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1173379/, 7-11-11, AH)

The scientific community has welcomed the prospect of using the internet to provide fast and effective distribution of research findings, but the publishing industry has, with a few notable exceptions, yet to support the initiative fully. Another theme was the increasing and sometimes dangerous availability of fictitious medical treatments through the internet. John H Renner, chief medical officer of HealthScout.com and president of the National Council for Reliable Health Information, said he was once able to buy "T Cells" on-line. After purchasing the product, he called the company to report that he had inadvertently "taken the entire bottle" and a secretary told him: "Oh, they won't hurt you." The biggest problem with obtaining health information from the internet is that it is not always easy to decide what is reliable. One panellist referred to a well publicised study that appeared in the professional journal Cancer. J Sybil Biermann and her colleagues at the University of Michigan found that one website reported the mortality for a certain type of bone cancer as 5%, while in reality it was closer to 75%. Such misinformation could be devastating, the panellist said.

Internet Bad – Anyone Can Distort

Anyone can falsify research information on the Internet, proving scientific evidence unreliable

BMJ 00 (British Medical Journal, 7-15, http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1173379/, 7-11-11, AH)

Open access to biomedical information on the internet and through other easily accessible electronic databases has created new opportunities for doctors and patients, but much of the information is subject to manipulation because the ordinary conventions of context and the reliability of provenance are constantly in question. That was one of the major themes of "Freedom of Information," a conference held in New York's Academy of Medicine on 6 and 7 July, sponsored by BioMed Central, which publishes peer reviewed clinical research reports that are available through the internet. "On the internet anything goes and that's all right," said George Lundberg, editor of the online medical website Medscape.com and former editor in chief of the journal of the American Medical Association. "But anyone can be an author and fake the whole thing. How do we filter that?" he asked. One of the issues that came up during the conference was the contrasting benefits and pitfalls of making primary medical research available to consumers. Last year Harold Varmus, then director of the National Institutes of Health, proposed the creation of a complete on-line archive for all medical and biological research that would give everyone easy and free of charge access to the latest medical research.

The Internet is open for anyone, making scientific information vulnerable for contamination

Schellekens 3 (Maurice, Tilburg University Institute for Law, Technology, and Society, http://rechten. uvt.nl/prins/upload/10120062042604717433452.pdf, 7-11-11, AH)

Often a clear statement regarding the source of the information is lacking as well as the name, address and credentials of the information provider. Also, providers fail to update their site on a regular basis and websites usually lack a statement describing what procedure and criteria were used for selection of the content. But even when these indicators are available, it still appears difficult for users to cope with the torrent of information on the Internet and distill the most appropriate information. Given the ever-increasing speed and capacity of on-line networks these problems become ever more prominent. Clear differences exist between the off- and on-line world. In the off-line world, distribution of information is structured through well-established channels such as journals, magazines, books, conference papers etc. Those who have access to professional information are usually professionals or other experts themselves. In contrast, the on-line world offers any individual the potential to distribute and consume information in enormous quantities instantly and at any time. Thus, on the Internet one can find professional information, commercial information, information based on individual experiences, amusement, all listed together in the hitlist of a search engine. Indicators for the quality of online information have not developed at the same pace as the information storage and transporting capabilities. In addition, some claim that quality criteria (indicators) differ in the off and on-line world. Litman for example argues that: “Some of this derived from the magic of digital technology. […] The ability to interact with the content you’re reading changes your relationship with the content and that, eventually, changes both the way the content is written and displayed and what the content means.”3

The Internet is open to public infiltration, tainting factual information.

State U 11 (May, http://www.stateuniversity.com/blog/permalink/The-Internet-An-Unreliable-and-Expensive-Resource-for-College-Research.html, 7-11-11, AH)

Here is why: in light of the fact that the Internet is democratically operated, everybody and his grandfather posts information that might or might not be legit. On such an open space where anyone can share virtually any thought one wants to share, substantive information becomes obscure. A few encyclopedia-like sites have come under scrutiny due to their policy to allow the general public unlimited access to contribute information regarding any subject whatsoever. Where this practice is ideal for a democratic world in which each person’s voice is deemed important and valued, it is equally a hotbed of inconsistencies, inaccuracies and conflicting prejudices. Experts are sometimes available to instill corrections, and sometimes they aren’t. Since this is the way sites work throughout most of cyberspace, the Internet has become a virtual minefield for those who need to find factual information. Malicious and/or fraudulent intent on the part of the posters is of little relevance to researchers; despite the particular motivation, questionable data is, indeed, questionable data. Yes, the Internet has become the most innovative, convenient and world—access source of information in recent years. At the same time, as many nations and cultures contribute to the online databank’s compilation, it is still risky for serious collegiate research, especially for graduate, doctoral and post-doctoral studies.

Internet Bad – Anyone can Distort

Publishing scientific info on the Internet greatly increases chances for falsification

Kinne 99 (Otto, Germany Ecology Institute, http://www.int-res.com/abstracts/meps/v180/editorial, 7-11-11, AH)

Is electronic publishing safe? I do not know. But I know that even the remotest possibility of unauthorized modification of electronically published data will endanger its creditability, and that the first case of uncontrolled post-publication change will discredit this new medium as an alternative to formal print-on-paper publishing. If computer specialists manage to unlawfully enter the 'holy' electronic spheres of the Pentagon and crack safety barriers of banks, can we be sure that they will not--for whatever reason--falsify published scientific data? Science, however, can function properly only if we can definitely exclude such potential abuse, as well as any other source of post-publishing distortion, if we can know exactly what a given author has published where and at what date--and if his/her writings are protectable, archivable and retrievable over long stretches of time.

The Internet is free and anonymous; anyone with an IP address can claim any identity

Xie et al 10 (Yinglian, Fang Yu, & Martín Abadi, Microsoft Research Silicon Valley, http://wenku.baidu.com/view/2f3dfe63 caaedd3383c4d3b8.html, 7-11-11, AH)

The Internet is designed to be open and anonymous. Just by obtaining an IP address, a host can easily connect to the Internet and freely talk to other hosts without exposing its real identity. This open and anonymous architecture, which enabled the Internet to expand quickly, is also the source of security concerns. Attackers can easily hide their real identities behind IP addresses. Dynamic IP address assignment [10] poses challenges to the commonly used IP-based approach to detect, blacklist, and block malicious traffic. When an attacker changes its IP address, legitimate activities that subsequently use the old IP address will be misclassified as bad, while malicious activities from the new IP address will slip through. The numerous proxies and NAT devices also imply that blacklisting can result in denial of service to many legitimate clients that share IP addresses with attackers.

Internet Bad – Reliable Doesn’t = True

Just because something is reliable, it doesn’t make it true

**Schellekens 3** (Maurice, Tilburg University Institute for Law, Technology, and Society, http://rechten. uvt.nl/prins/upload/10120062042604717433452.pdf, 7-11-11, AH)

Reliability of information is a concept that needs clarification. Reliable information has been defined by Vedder and Wachbroit as justified information, information that we would be justified in believing, information that we can trust.4 That means that reliable information is not necessarily true information, it is information that can reasonably be considered to be true given the state of knowledge in the world. Furthermore, we must keep in mind that there is no one-to-one connection between the unreliability of information on the one hand and, possible harm (and subsequently a possible role for the law) on the other hand. Information that can be qualified as reliable (e.g. by an established credibility-conferring institution) may still result in harm to the receiver of this information when he or she uses it but does not have adequate knowledge for doing so.5 As was shown by Vedder and Wachbroit, usability is not the same as reliability.6 It is up to the receiver of information to assess the usability of information for concrete purposes. In fast, open networks the sender can often do no more than give some abstract indications concerning the usability. Nevertheless, an analysis of the role of law is important for various reasons. First, when harm is suffered what is the role of liability law? Second, what is the legal status of the measures suggested in literature on improving the reliability of health-related information on the Internet (e.g. trust marks and other credibilityconferring mechanisms)? Third, in what way do measures taken to enhance the reliability influence a judgment on possible liability and, may we indeed expect that case law on this issue has a possible negative effect on the efforts to improve the reliability of health-related information on the Internet?

“Reliable” information is simply justified information – it is not necessarily true information

Vedder & Wachbroit 4 (Anton & Robert, Anton is Tilburg U. Faculty of Law & Robert is U. of Maryland Institute for Philosophy and Public Policy, http://resources.metapress.com/pdf-preview.axd? code=t7236gk425264u13&size=largest, 7-11-11, AH)

To begin with, we should be clear that by the phrase "reliable information" we mean justified information, information that we would be justified in believing, information that we can trust. It does not necessarily mean, at least directly, information that is true. For example, people in the mid-Nineteenth Century were justified in believing the principles of Newtonian mechanics because the best available evidence and the best available methods at the time largely supported these principles. Even though we now know that these principles are false (and so we are not justified in believing them), that does not change what people 150 years ago were justified in believing. Indeed, the history of science can be seen as a history of efforts to show that claims - though responsibly deemed trustworthy and reliable at the time - were later shown to be false. This should not be surprising since, as our knowledge grows, our evidence becomes more extensive and our investigations become more relined. Consequently, discovering that a belief is false does not necessarily mean that, at an earlier time, people were not justified in believing it or that it was wrong to trust it. What is reliable, trustworthy, justified is a matter of what we already know.

Internet Bad – Current Measures Fail

Laws cannot check the reliability of the Internet

Schellekens 3 (Maurice, Tilburg University Institute for Law, Technology, and Society, http://www. emeraldinsight.com/journals.htm?issn=1477-996X&volume=4&issue=1&articleid=1621554&show=pdf, 7-11-11, AH)

This paper examines what role the law can and should play with regard to unreliable information available on fast communication networks, such as the Internet. Users of electronic information find it increasingly difficult to assess its reliability. The traditional structures for assessing reliability are lacking or function inadequately. Clear social norms have not yet been developed. As regards the law, traditionally liability law is the first legal guard against undesirable societal developments. We conclude however, that liability law is an inadequate remedy for unreliable information. Self-regulatory initiatives such as trust mark seals for websites providing reliable information offer a more promising perspective, although these also have their limitations, especially in the sphere of enforcement and legitimacy. In this paper, self-regulation is nonetheless hailed as an important instrument because it provides an indispensable test-bed for more concrete legal norms derived from reliability criteria for information. Even if self-regulation may not completely materialise, discussion about self-regulation could be a stepping stone to the development of pertinent social norms.

Current measures aren’t enough to ensure reliability of scientific info on the net

Schellekens 3 (Maurice, Tilburg University Institute for Law, Technology, and Society, http://rechten. uvt.nl/prins/upload/10120062042604717433452.pdf, 7-11-11, AH)

The distribution and presence of information on the Internet appears to be a problem of growing importance. Considering the possible negative consequences, it appears desirable that the law plays its part in addressing this problem. Traditionally, the law approaches the unreliability of medical information as a liability problem. This approach is however insufficient. As has happened in many other areas where a new normative solution to ‘online’ problems have been sought, self-regulatory mechanisms appear an interesting option. In this article we have analyzed the pros and cons of the instrument of self-regulation. In many areas of on-line regulation, self-regulation has proven to provide a sound basis to develop new rules. Based on the earlier experiences, we have discussed possible new rules that may help enhance the reliability of medical information on the Internet. These rules need to address those that provide and check medical information and guide them towards more reliable information. The main approach in achieving more reliability seems to be in user education, and by making the reliability of medical information more transparent and thus verifiable. In using earlier proposed criteria for the quality of information, we have proposed a different approach to regulating the reliability of health-related information in an on-line environment.

Internet Bad – Blogs

Blogs are unreliable and heavily biased

Woien & Marcisz 10 (S & N, Regis University & Rueckert-Hartman College for Health Professions, 5-19, http://rhchp.regis.edu/HCE/ReliableEvidence.pdf, 7-11-11, AH)

Use reliable sources. Reliable sources include peer-reviewed journal articles and encyclopedia articles from scholarly experts. Unreliable sources include blogs, websites, and encyclopedias such as Wikipedia that change frequently and that may be written by people with no academic expertise. Use unbiased sources. Ensure that your sources are as unbiased as possible. When sources are overtly biased, they quickly lose their credibility in the academic realm. This especially holds true for finding information off blogs and websites of political organizations with an overtly biased agenda.

Blogs are too subjective to be reliable sources of information

Philpott 9 (TJ, Author and Internet Entrepreneur, 12-15, http://ezinearticles.com/?Are-Blogs-Reliable-As-Information-Sources?&id=3429637, 7-13-11, AH)

Too Subjective. An unregulated blog platform can easily present information or news that leans heavily towards the authors' personal opinions or perspective. Too much subjectivity can easily distort the information being delivered decreasing its real value to the reader. Inaccurate in a haste to 'rush' news inaccuracies happen. Being unregulated or unmonitored for news worthiness a certain expectation of unreliability does exist and therefore must be tolerated and expected. Sometimes Hard to Locate Where do you start to find the most accurate, objective, and authoritative site? Locating a credible blog site you can rely upon for its accuracy is a time consuming and uncertain task.

Blogs are based on general knowledge and personal feelings, bad for research

Lawson 11 (John, Longwood U, 6-7, http://blogs.longwood.edu/socl526summer/2011/06/07/reliable-vs-unreliable/, 7-13-11, AH)

The unreliable source is similar to a blog in which a person writes what he or she is feeling. This information is based on general knowledge. The reliable source is an article in which, a person has conducted a plethora amount of research about a subject, and then write a well articulated paper. Also, the writing techniques are very different. The journal article’s writing style is typical of many research articles. The writing is more complex, short, and straight-forward. The unreliable article’s writing style is easier to comprehend. This article is similar to a conversation. For example “Most people don’t like when I say this, it makes them angry”. Reliable research articles do not have words like I, we, us, etc.

Internet Bad – Impacts

Any risk of false information leads to the death of many

BMJ 00 (British Medical Journal, 7-15, http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1173379/, 7-11-11, AH)

More than 25 million people will use the internet to search for health information, says the Federal Trade Commission. Estimates vary at the number of medically related sites are on the web, but they number at least 100 000. Only about half these sites have their content reviewed by doctors. Panellists agreed that the promise of the web is the promise of global medical information. But what searchers—some curious, some desperate—will find are the good, the bad, and the ugliest of the internet. One medical editor who attended the conference said the danger is medical websites that would lead patients to diagnosis and treat their own conditions. "There's a reason why doctors go through years of training," said Ivan Oransky, editor of Praxis Post, a recently launched medical web magazine (http://www.praxis.mdwww.praxis.md). "It's called clinical experience. That's why peer reviewed websites are so important," he said. Ultimately, most panellists agreed that it would be difficult to guard fully against those who were bent on disseminating false medical information or misleading consumers into purchasing "snake oil" medical treatments. "But the day you can regulate the internet is the day we have one world government," said Lundberg. "It's not going to happen anytime soon."

Unreliable info can be dangerous

Schellekens 3 (Maurice, Tilburg University Institute for Law, Technology, and Society, http://rechten. uvt.nl/prins/upload/10120062042604717433452.pdf, 7-11-11, AH)

Using and trusting upon, what in the end turns out to be unreliable information, may result in damage. For example, in the context of health related information, a wrong diagnosis is made, an inadequate or even dangerous treatment is given, a visit to the doctor is postponed or does not take place at all or a treatment is confined to home remedies. Even a person’s lifestyle (e.g. more exercise) or a diet could be changed. Both patients and health care professionals may rely on information found on the Internet, which in the end turns out to be unreliable. In addressing the question as to whether a party is to be protected against the harm suffered in relation to information, various legal regimes may play a role. Literature has discussed issues such as privacy law,9 intellectual property regimes,10 licenses for selling drugs and medicines11 and finally, regulations on commercial communications and advertisement.12 None of these regulations however, offer direct protection against damages caused by reliance on information. The prime instrument for this purpose is civil liability.

Must be skeptical, misinformation is a matter of life and death

Eysenbach & Diepgen 98 (Gunther & Thomas L, British Medical Journal, 7-16, http://www.bmj. com/content/317/7171/1496.extract, 7-11-11, AH)

The principal dilemma of the internet is that, while its anarchic nature is desirable for fostering open debate without censorship, this raises questions about the quality of information available, which could inhibit its usefulness. While the internet allows “medical minority interest groups to access information of critical interest to them so that morbidity in these rare conditions can be lessened,” 1 it also gives quacks such as the “cancer healer” Ryke Geerd Hamer a platform (http://www.geo cities.com/HotSprings/3374/index.htm ). 2 – 4 Quality is defined as “the totality of characteristics of an entity that bear on its ability to satisfy stated and implied needs.” 5 For quality to be evaluated, these needs have to be defined and translated into a set of quantitatively or qualitatively stated requirements for the characteristics of an entity that reflect the stated and implied needs. So how can we define consumers' “needs” in the case of medical information on the internet? The quality of medical information is particularly important because misinformation could be a matter of life or death. 6 Thus, studies investigating the “quality of medical information” on the various internet venues—websites, 7 mailing lists and newsgroups, 8 9 and in email communication between patients and doctors 10—are mostly driven by the concern of possible endangerment for patients by low quality medical information. Thus, quality control measures should aim for the Hippocratic injunction “first, do no harm.”

Internet Bad – Impacts

The dangers of publishing science on the Internet outweigh the advantages; increased falsification, trash, distortion, misuse, and legal conflicts

Kinne 99 (Otto, Germany Ecology Institute, http://www.int-res.com/abstracts/meps/v180/editorial, 7-11-11, AH)

The scientific process will be damaged where quality submits to quantity, where speed overrules exactness and performance, where we abandon time-tested controls. Computers are not only great in producing progress, they are also great in producing trash. The scientific process abounds with risks of becoming blurred and distorted: neglect of copyright, intellectual property, scientific correctness and honesty; falsification of priority claims; concealed plagiarism or downright stealing of foreign findings and ideas; inappropriate application of scientific techniques and statistical methods; misquotations and misinterpretations of the works of peers; misspellings and misuse of scientific names and of taxonomic rules. In an overall scenario of increasing competition for jobs and professional standing, the pressure to publish and to perform grows, and with it grow numerous temptations. These offer themselves, more conveniently than anywhere else, in insufficiently controlled electronic publishing. E-publishing injects fresh blood into publication processes, but where it lacks appropriate controls it is also conducive to new diseases--potentially more dangerous to science than the old ones--unless we observe and treat the patient with great care! The roles of editors and reviewers in protecting and guiding the scientific process were never more important than they are now, in the beginning age of electronic publishing.

\*\*\*Internet Good

Internet Good – General

The Internet has increased scientific reliability

Thagard 3 (Paul, University of Waterloo Philosophy Department, 1-13, http://collections.lib.uwm.edu/ cipr/image/390.pdf, 7-11-11, AH)

How do the Web and other Internet technologies improve the reliability of the research of scientists like Marie Darwin? Various technologies can help her to avoid erroneous beliefs. By emailing notes and drafts of papers to her students and collaborators, she can get immediate feedback that can correct misconceptions before they become entrenched in her thinking. Similarly, sending her preprints off to an electronic archive gives other researchers a chance to examine her work and suggest improvements. Conferencing over the Web provides another way in which the reliability of Marie's work can benefit from the critical response of her collaborators. Science, like knowledge in general, is an inherently social enterprise in which achieving truth and avoiding error gains enormously from feedback that Internet technologies can help to provide.

The Internet is a more reliable source of scientific information than sources in print

Thagard 3 (Paul, University of Waterloo Philosophy Department, 1-13, http://collections.lib.uwm.edu/ cipr/image/390.pdf, 7-11-11, AH)

Seeking information generally on the World Wide Web is not always a reliable practice. But in the hands of scientists and other careful users, posting information on the Web has several features that can increase reliability. Unlike books and journals which are sent out into the world permanently, it is very easy to update and correct information on the Web. Whereas printed information needs to wait for further publications or new editions to correct errors, changes to a Web site can be made quickly to prevent propagation of erroneous information. Experimental data bases such as those used at CERN and in the Human Genome Project can undergo continuous expansion and correction. Preprint archives are a potential source of misinformation, since the papers sent to them do not undergo the careful reviewing process that precedes journal publication. This problem may turn out to be more acute for psychology than for physics, whose journals have lower rejection rates than psychology journals: a physics paper is probably going to end up published anyway. But the potential for introduction of errors is to some extent compensated for by the ease with which new preprints and emailing among researchers can help to correct earlier mistakes.

The Internet boom is similar to the printing press boom in that it increases access to true information

Thagard 3 (Paul, University of Waterloo Philosophy Department, 1-13, http://collections.lib.uwm.edu/ cipr/image/390.pdf, 7-11-11, AH)

The power of a practice is measured by its ability to help people find true answers to the questions that interest them. After the printing press made many more books generally available, people could use them to increase the total amount of their knowledge. The printing press eliminated the tedious chore of copying books, giving scholars more time to produce new knowledge rather than merely duplicating the old. They could compare and cross-reference different books, rather than producing commentaries on isolated works. The sixteenth century Danish astronomer Tycho Brahe took advantage of the printing press to detect anomalies in old records, to enlist collaborators, and to make corrections in successive additions. Scientists are concerned not only with observational truths, but also with finding explanatory theories that tie together numerous observations. Placing books in the hands of scholars provided them with information that made possible assemblages of information that unite to form new theories. Darwin's realization that natural selection could be the mechanism of biological evolution was inspired by reading Malthus's work on population growth. The printing press thus contributed to the capacity of science to produce theoretical explanations by providing more scientists with more of the conceptual pieces needed to assemble new theories. The World Wide Web is similarly powerful in helping scientists find answers to the questions that interest them. The full range of representational techniques now available on the Web can help people find answers that would otherwise be unavailable. Suppose, for example that you want to understand binary pulsars. A new electronic astronomy journal will include a video simulation: "You will see how two stars rotate around each other: They evolve; one star sucks up matter from the other, explodes in a supernova explosion, and so on. It is a very beautiful way to illustrate a theoretical model" (Taubes, 1996). Similarly, if you are curious about the operation of the new kind of bacteria that have recently been found to be a major cause of stomach ulcers, you can view an animation of Helicobacter pylori.

Internet Good – General

The Internet positively aids scientific development

Thagard 3 (Paul, University of Waterloo Philosophy Department, 1-13, http://collections.lib.uwm.edu/ cipr/image/390.pdf, 7-11-11, AH)

Table 1 summarizes how various Internet technologies can contribute to scientific research. There is great variation in the extent to which these technologies are now being used. Every scientific field now has available to it electronic mail, news groups, and World Wide Web sites, but only physics has an extensive preprint archive. Within different fields, there is also great variability in the extent to which different scientists use technologies such as Web-based databases. For the Human Genome Project and particle physics at CERN, such databases have become essential, but other scientific projects that are less collaborative can handle their data locally in more traditional ways. Visualization using graphically oriented browsers is becoming important for fields such as biomedicine, but may have little impact on other fields. Some of the technologies I have mentioned, such as Java applications, Virtual Reality browsers, and Web conferencing are very new and have so far received little use, although all have promising futures. In describing these various ways in which Internet technologies such as the World Wide Web can contribute to scientific knowledge, I have provided a positive model of how the technologies can be used to foster the development of knowledge in anyone, including nonscientists such as students. At the other extreme, there is the real and frightening prospect of students and other people wasting electronic resources to fill their heads with nonsense gleaned from the many worthless sites on the Web. Internet Epistemology includes the highly critical task of examining and evaluating the large quantities of pseudoscience that the Web is being used to promulgate. My purpose in this paper has been more positive, to describe the Internet at its best in aiding the development of scientific knowledge.

The openness of the Internet is key to accumulating the views of many scientists, contributing positively to reliability

Thagard 3 (Paul, University of Waterloo Philosophy Department, 1-13, http://collections.lib.uwm.edu/ cipr/image/390.pdf, 7-11-11, AH)

The Web has also become a regular tool used by many scientists in the production of their research. Especially in fields like high energy physics and genetics, contemporary science is a huge collaborative enterprise involving international teams of scientists (Thagard, 1997). It is not unusual for published articles in physics to have more than a hundred co-authors, reflecting the diversity of expertise needed to carry out large projects involving complex instruments. Located near Geneva, CERN is a collaborative project of 19 European countries involving several nuclear accelerators and dozens of experimental research projects. Each project involves numerous different researchers from a range of different institutions in the participating counties. Since it began in 1954, CERN has been the source of many of the most important discoveries in particle physics, such as the 1983 finding of evidence for the top quark. The World Wide Web was invented at CERN to improve information sharing among scientists from diverse institutions working on joint projects. It was conceived as a hypermedia project so that scientists could exchange pictorial information such as diagrams and data graphs as well as verbal text. Today, CERN has a World Wide Web team to support experiments, using numerous Web servers (http://www.cern.ch/).

Internet Good – Empirics

The Human Genome Project proves that the Internet contributes positively to science

Thagard 3 (Paul, University of Waterloo Philosophy Department, 1-13, http://collections.lib.uwm.edu/ cipr/image/390.pdf, 7-11-11, AH)

After CERN's programmers initiated use of the World Wide Web for scientific research, they made the software they had developed freely available and international Web use expanded rapidly with the development of more sophisticated browsers. One of the most effective scientific users of the Web has been the Human Genome Project, an international consortium of research institutions working since 1989 to identify all of the approximately 100,000 genes that are responsible for human development. This project is medically important, because many diseases such as diabetes and some forms of cancer have a large genetic component. The identification of all human genes should be a substantial aid to finding genes responsible for diseases, which can potentially lead to new medical treatments. Scientists working on the genome project are producing an astonishing amount of information. If published in books, descriptions of the DNA sequences of all the human genes would require more than 200,000 pages (http://www.ornl.gov/Tech Resources/ Human Genome/publicat/primer/intro.html). However, books would be a poor technology for keeping track of such information, not just because of its quantity, but also because new genes are being mapped daily and a printed text would be instantly obsolete. Fortunately, genome scientists have turned to computer databases to store the rapidly expanding information about gene locations. Storing this information would be useless, however, without effective means for accessing it, which search engines provide. Like CERN, the Human Genome Project is highly collaborative, involving dozens of different institutions in various countries. The arrival of the World Wide Web has been an immense boon to international collaboration on the genome project, with more than twenty-five contributing institutions making their data available on the Web for general access.

Internet Good – AT: Blogs

Research journals are no more reliable than blogs

Olson 5 (Niels, Navy Lieutenant & Med. School at U of New Orleans, 12-18, http://nielsolson.us/ archives/2005/12/blog\_reliabilit.php, 7-11-11, AH)

So how much more reliable are journals than blogs? The work of John Ionnidis is helpful here. His recent article in PLoS, Why Most Published Research Findings Are False, is representative. That article in particular indicates that any single work in a collected body of works (all journals, all textbooks, all blogs) has a certain probability of being wrong, and that, for traditional journals, this probability is high in an absolute sense. Picking up a random journal article, the odds of a correct conclusion are slim.

Blogs can be accurate and are easier to assess credibility with than other sources

Olson 5 (Niels, Navy Lieutenant & Med. School at U of New Orleans, 12-18, http://nielsolson.us/ archives/2005/12/blog\_reliabilit.php, 7-11-11, AH)

On a different tack, an expert blogger might post some exceptionally specific and useful information about their particular research interests in a blog. Unlike the medical column of the typical newspaper, where it is extremely difficult to assess the background, decision-making, and values of the once-weekly 500 word columnist, a blog reader has instant access to the blogger's archives and can rapidly assess their reliability and degree of expertise.

Blogs may be better than textbooks

Olson 5 (Niels, Navy Lieutenant & Med. School at U of New Orleans, 12-18, http://nielsolson.us/ archives/2005/12/blog\_reliabilit.php, 7-11-11, AH)

This, however, has to do with the medium's highly specific hypotheses. Textbooks, on the other hand, are amazingly reliable for general reasoning, though the more specific the clinician attempts to get, the closer to journal articles one has to go. It may be that the clincian would actually be able to get even more specific about a particular patient, and occasionally about a particular issue, through blogs than through journal articles, much as the textbooks are amazingly accurate at 30,000 feet, yet desperately myopic when compared the the truth at ground level. By honing in on the recorded thoughts and actions of one individual, the clinician may gain considerable insight into clinically important things, like the person's values, models of disease, and decision-making processes.

\*\*\*Pseudoscience Bad

Definition of pseudoscience

Dutch 10 (Steven, Natural and Applied Sciences, U of Wisconsin – Green Bay, June 2, http://www.uwgb.edu/dutchs/PSEUDOSC/SciPseudosci.htm, accessed 7-11-11, JMB)

What Pseudoscience Is Demonstrably faulty observations or theories, or elaborate speculation without an adequate basis. Usually Supported by logical fallacies. The only way it's possible to accept faulty data is through faulty reasoning. In open defiance of scientific consensus

The key distinction between science and pseudoscience is valid, unbiased experimentation

Sagan 97 (Carl, PhD in astrophysics from U of Chicago, *The Demon-Haunted World: Science as a Candle in the Dark,* p. 45, JMB)

At a dinner many decades ago, the physicist Robert W. Wood was asked to respond to the toast, `To physics and metaphysics'. By `metaphysics', people then meant something like philosophy, or truths you could recognize just by thinking about them. They could also have included pseudoscience. Wood answered along these lines: the physicist has an idea. The more he thinks it through, the more sense it seems to make. He consults the scientific literature. The more he reads, the more promising the idea becomes. Thus prepared, he goes to the laboratory and devises an experiment to test it. The experiment is painstaking. Many possibilities are checked. The accuracy of measurement is refined, the error bars reduced. He lets the chips fall where they may. He is devoted only to what the experiment teaches. At the end of all this work, through careful experimentation, the idea is found to be worthless. So the physicist discards it, frees his mind from the clutter of error, and moves on to something else.\* The difference between physics and metaphysics, Wood concluded as he raised his glass high, is not that the practitioners of one are smarter than the practitioners of the other. The difference is that the metaphysicist has no laboratory.

Things That Aren’t Science

Science on the fringes of detection isn’t science

Park 3 (Robert L., prof of physics at U Maryland at College Park and dir. Of public info for the American Physical Society, adapted from an article in The Chronicle Review on Jan 31, http://www.webexhibits.org/bogus/1.html, accessed 7-11-11, JMB)

Alas, there is never a clear photograph of a flying saucer, or the Loch Ness monster. All scientific measurements must contend with some level of background noise or statistical fluctuation. But if the signal-to-noise ratio cannot be improved, even in principle, the effect is probably not real and the work is not science. Thousands of published papers in para-psychology, for example, claim to report verified instances of telepathy, psychokinesis, or precognition. But those effects show up only in tortured analyses of statistics. The researchers can find no way to boost the signal, which suggests that it isn't really there

Anecdotal ev not scientific

Park 3 (Robert L., prof of physics at U Maryland at College Park and dir. Of public info for the American Physical Society, adapted from an article in The Chronicle Review on Jan 31, http://www.webexhibits.org/bogus/1.html, accessed 7-11-11, JMB)

If modern science has learned anything in the past century, it is to distrust anecdotal evidence. Because anecdotes have a very strong emotional impact, they serve to keep superstitious beliefs alive in an age of science. The most important discovery of modern medicine is not vaccines or antibiotics, it is the randomized double-blind test, by means of which we know what works and what doesn't. Contrary to the saying, "data" is not the plural of "anecdote."

Russian Ev Bad

Be skeptical of “scientific” ev from Russia – there are official pseudoscientific institutes there

Kruglyakov 2 (Edward, head of laboratory and deputy director of the largest institute of the Russian Academy of Sciences (Budker Institute of Nuclear Physics). He is the State Prize (1986) and Artsimovich award (2001) winner, July/August, http://www.csicop.org/si/show/why\_is\_pseudoscience\_dangerous, accessed 7-11-11, JMB)

The end of the twentieth century was marked by a boom of astrology, mysticism, and occultism in many countries. In the USSR (during the last years of its existence) and then in Russia the situation was even worse in a sense. The system’s collapse and the wreck of old ideals-along with the absence of new ones-caused many people to hope for some kind of miracle. The mass media contributed to this tendency. Through their irresponsibility, pseudoscience has filled newspapers, magazines, radio, and TV. In recent years a new phenomenon has arisen. Pseudoscience has become a powerful, well-organized force. Over the last decade in Russia, about 120 academies have appeared, many of which don't deserve the name “academy.” Some of them give their stamp of approval to professionally inadequate doctors of science in various fields. Others do the same in pseudoscientific disciplines, giving diplomas to astrologers, UFOlogists, and others of the sort. In Russia, even research institutes with pseudoscientific tendencies have appeared. I'll give only two examples: the International Institute of Space Anthropecology and the International Institute of Theoretical and Applied Physics. The first has even managed to attain state accreditation with the help of the Russian Ministry of Science. The second has received financial support both from the Ministry of Science and the Ministry of Defense for the well-known swindle of torsion fields.

AT: Ev from Media

Media-produced scientific evidence has no integrity

Park 3 (Robert L., prof of physics at U Maryland at College Park and dir. Of public info for the American Physical Society, adapted from an article in The Chronicle Review on Jan 31, http://www.webexhibits.org/bogus/1.html, accessed 7-11-11, JMB)

The integrity of science rests on the willingness of scientists to expose new ideas and findings to the scrutiny of other scientists. Thus, scientists expect their colleagues to reveal new findings to them initially. An attempt to bypass peer review by taking a new result directly to the media, and thence to the public, suggests that the work is unlikely to stand up to close examination by other scientists. One notorious example is the claim made in 1989 by two chemists from the University of Utah, B. Stanley Pons and Martin Fleischmann, that they had discovered cold fusion -- a way to produce nuclear fusion without expensive equipment. Scientists did not learn of the claim until they read reports of a news conference. Moreover, the announcement dealt largely with the economic potential of the discovery and was devoid of the sort of details that might have enabled other scientists to judge the strength of the claim or to repeat the experiment

62% of newspaper claims have insufficient scientific support

Goldacre 11 (Ben, The Guardian, June 17, http://www.guardian.co.uk/commentisfree/2011/jun/17/bad-science-health-reporting, accessed 7-11-11, JMB)

Here's what we found: 111 health claims were made in UK newspapers over one week. The vast majority of these claims were only supported by evidence categorised as "insufficient" (62% under the WCRF system). After that, 10% were "possible", 12% were "probable", and in only 15% was the evidence "convincing". Fewer low quality claims ("insufficient" or "possible") were made in broadsheet newspapers, but there wasn't much in it. There are some clear limitations to this paper. The grading of the evidence could perhaps have been more comprehensive, or done by people who were blinded to the hypothesis of the study (or the source); the evidence could have been rated twice, by two raters, and the level of agreement between them assessed afterwards. But overall, I think this is quite an interesting finding, a new one, and a worrying one. It seems that the majority of health claims made, in a large representative sample of UK national newspapers, are supported only by the weakest possible forms of evidence.

AT: Our Author Has a Degree

Title is irrelevant compared to practice

Coker 1 (Rory, prof of physics at U Texas at Austin, Quackwatch, http://www.quackwatch.org/01QuackeryRelatedTopics/pseudo.html, accessed 7-11-11, JMB)

Some confusion on this point is caused by what we might call "crossover." "Science" is not an honorary badge you wear, it's an activity you do. Whenever you cease that activity, you cease being a scientist. A distressing amount of pseudoscience is generated by scientists who are well trained in one field but plunge into another field of which they are ignorant. A physicist who claims to have found a new principle of biology—or a biologist who claims to have found a new principle of physics—is almost invariably doing pseudoscience. And so are those who forge data, or suppresses data that clash with their preconceptions, or refuse to let others see their data for independent evaluation. Science is like a high peak of intellectual integrity, fairness, and rationality. The peak is slippery and smooth. It requires a tremendous effort to remain near it. Slacking of effort carries one away and into pseudoscience. Some pseudoscience is generated by individuals with a small amount of specialized scientific or technical training who are not professional scientists and do not comprehend the nature of the scientific enterprise—yet think of themselves as "scientists."

AT: “Could be Real Sci”

Pseudoscience never leads to science

Coker 1 (Rory, prof of physics at U Texas at Austin, Quackwatch, http://www.quackwatch.org/01QuackeryRelatedTopics/pseudo.html, accessed 7-11-11, JMB)

One might wonder if there are not examples of "crossovers" in the other direction; that is people who have been thought by scientists to be doing pseudoscience, who eventually were accepted as doing valid science, and whose ideas were ultimately accepted by scientists. From what we have just outlined, one would expect this to happen extremely rarely, if ever. In fact, neither I nor any informed colleague I have ever asked about this, knows of any single case in which this has happened during the hundreds of years the full scientific method has been known to and used by scientists. There are many cases in which a scientist has been thought wrong by colleagues but later—when new information comes in—is shown to be correct. Like anyone else, scientists can get hunches that something is possible without having enough evidence to convince their associates that they are correct. Such people do not become pseudoscientists, unless they continue to maintain that their ideas are correct when contradictory evidence piles up. Being wrong or mistaken is unavoidable; we are all human, and we all commit errors and blunders. True scientists, however, are alert to the possibility of blunder and are quick to correct mistakes. Pseudoscientists do not. In fact, a short definition of pseudoscience is "a method for excusing, defending, and preserving errors."

AT: Emotional Claims

Don’t accept their claims to emotion – science may be harder to accept, but it is true

Sagan 97 (Carl, PhD in astrophysics from U of Chicago, *The Demon-Haunted World: Science as a Candle in the Dark,* p. 22-23, JMB)

Plainly there is no way back. Like it or not, we are stuck with science. We had better make the best of it. When we finally come to terms with it and fully recognize its beauty and its power, we will find, in spiritual as well as in practical matters, that we have made a bargain strongly in our favour. But superstition and pseudoscience keep getting in the way, distracting all the `Buckleys' among us, providing easy answers, dodging sceptical scrutiny, casually pressing our awe buttons and cheapening the experience, making us routine and comfortable practitioners as well as victims of credulity. Yes, the world would be a more interesting place if there were UFOs lurking in the deep waters off Bermuda and eating ships and planes, or if dead people could take control of our hands and write us messages. It would be fascinating if adolescents were able to make telephone handsets rocket off their cradles just by thinking at them, or if our dreams could,more often than can be explained by chance and our knowledge of the world, accurately foretell the future. These are all instances of pseudoscience. They purport to use the methods and findings of science, while in fact they are faithless to its nature - often because they are based on insufficient evidence or because they ignore clues that point the otherway. They ripple with gullibility. With the uninformed cooperation (and often the cynical connivance) of newspapers, magazines, book publishers, radio, television, movie producers and the like, such ideas are easily and widely available. Far more difficult to come upon, as I was reminded by my encounter with Mr 'Buckley', are the alternative, more challenging and even more dazzling findings of science. Pseudoscience is easier to contrive than science, because distracting confrontations with reality - where we cannot control the outcome of the comparison - are more readily avoided. The standards of argument, what passes for evidence, are much more relaxed. In part for these same reasons, it is much easier to present pseudoscience to the general public than science. But this isn't enough to explain its popularity. Naturally people try various belief systems on for size, to see if they help. And if we're desperate enough, we become all too willing to abandon what may be perceived as the heavy burden of scepticism. Pseudoscience speaks to powerful emotional needs that science often leaves unfulfilled. It caters to fantasies about personal powers we lack and long for (like those attributedto comic book superheroes today, and earlier, to the gods). In some of its manifestations, it offers satisfaction of spiritual hungers, cures for disease, promises that death is not the end. It reassures us of our cosmic centrality and importance. It vouchsafes that we are hooked up with, tied to, the Universe.\* Sometimes it's a kind of halfway house between old religion and new science, mistrusted by both. At the heart of some pseudoscience (and some religion also, New Age and Old) is the idea that wishing makes it so. How satisfying it would be, as in folklore and children's stories, to fulfill our heart's desire just by wishing. How seductive this notion is, especially when compared with the hard work and good luck usually required to achieve our hopes. The enchanted fish or the genie from the lamp will grant us three wishes - anything we want except more wishes. Who has not pondered - just to be on the safe side, just in case we ever come upon and accidentally rub an old, squat brass oil lampwhat to ask for?

AT: Dogmatism Bad

Dogmatism good – key to progress

Campanario and Martin 4 (Juan Miguel, Dept. de Fisica, Universidad de Alcala, Brian, Science, Technology, and Society, U Wollongong, Journal of Scientiﬁc Exploration, Vol. 18, No. 3, pp. 421–438, http://www2.uah.es/jmc/ai51.pdf, accessed 7-13-11, JMB)

Though it is easy to criticize dogmatism, a certain amount of it can be valuable for scientific progress. That was certainly Kuhn’s view: unless the current paradigm was in crisis, dogmatism in science education and practice has a functional value (Kuhn 1963). Michael Polanyi, a chemist and eminent commentator on science, argued ‘‘that the scientific method is, and must be, disciplined by an orthodoxy which can permit only a limited degree of dissent, and that such dissent is fraught with grave risks to the dissenter’’ (Polanyi 1963, 1013). Similarly, Mitroff concluded that the classic norms of science, such as universalism, disinterestedness, communism and organized skepticism, did not adequately explain the operation of science, and instead proposed that counternorms were equally important, including ‘‘organized dogmatism.’’

Pseudoscience False – Laundry List

Pseudoscience is false – extensive laundry list (also a def of pseudoscience)

Coker 1 (Rory, prof of physics at U Texas at Austin, Quackwatch, http://www.quackwatch.org/01QuackeryRelatedTopics/pseudo.html, accessed 7-11-11, JMB)

Pseudoscience displays an indifference to facts. Instead of bothering to consult reference works or investigating directly, its advocates simply spout bogus "facts" where needed. These fictions are often central to the pseudoscientist's argument and conclusions. Moreover, pseudoscientists rarely revise. The first edition of a pseudoscience book is almost always the last, even though the book remains in print for decades or even centuries. Even books with obvious mistakes, errors, and misprints on every page may be reprinted as is, over and over. Compare this to science textbooks that see a new edition every few years because of the rapid accumulation of new facts and insights. Pseudoscience "research" is invariably sloppy. Pseudoscientists clip newspaper reports, collect hearsay, cite other pseudoscience books, and pore over ancient religious or mythological works. They rarely or never make an independent investigation to check their sources. Pseudoscience begins with a hypothesis—usually one which is appealing emotionally, and spectacularly implausible—and then looks only for items which appear to support it. Conflicting evidence is ignored. Generally speaking, the aim of pseudoscience is to rationalize strongly held beliefs, rather than to investigate or to test alternative possibilities. Pseudoscience specializes in jumping to "congenial conclusions," grinding ideological axes, appealing to preconceived ideas and to widespread misunderstandings. Pseudoscience is indifferent to criteria of valid evidence. The emphasis is not on meaningful, controlled, repeatable scientific experiments. Instead it is on unverifiable eyewitness testimony, stories and tall tales, hearsay, rumor, and dubious anecdotes. Genuine scientific literature is either ignored or misinterpreted. Pseudoscience relies heavily on subjective validation. Joe Blow puts jello on his head and his headache goes away. To pseudoscience, this means jello cures headaches. To science this means nothing, since no experiment was done. Many things were going on when Joe Blow's headache went away—the moon was full, a bird flew overhead, the window was open, Joe had on his red shirt, etc.—and his headache would have gone away eventually in any case, no matter what. A controlled experiment would put many people suffering from headaches in identical circumstances, except for the presence or absence of the remedy it is desired to test, and compare the results which would then have some chance of being meaningful. Many people think there must be something to astrology because a newspaper horoscope describes them perfectly. But close examination would reveal that the description is general enough to cover virtually everyone. This phenomenon, called subjective validation, is one of the foundations of popular support for pseudoscience. Pseudoscience depends on arbitrary conventions of human culture, rather than on unchanging regularities of nature. For instance, the interpretations of astrology depend on the names of things, which are accidental and vary from culture to culture. If the ancients had given the name Mars to the planet we call Jupiter, and vice versa, astronomy could care less but astrology would be totally different, because it depends solely on the name and has nothing to do with the physical properties of the planet itself. Pseudoscience always achieves a reduction to absurdity if pursued far enough. Maybe dowsers can somehow sense the presence of water or minerals under a field, but almost all claim they can dowse equally well from a map! Maybe Uri Geller is "psychic," but are his powers really beamed to him on a radio link with a flying saucer from the planet Hoova, as he has claimed? Maybe plants are "psychic," but why does a bowl of mud respond in exactly the same way, in the same "experiment?" Pseudoscience always avoids putting its claims to a meaningful test. Pseudoscientists never carry out careful, methodical experiments themselves—and they also generally ignore results of those carried out by scientists. Pseudoscientists also never follow up. If one pseudoscientist claims to have done an experiment (such as the "lost" biorhythm studies of Hermann Swoboda that are alleged basis of the modern pseudoscience of biorhythms), no other pseudoscientist ever tries to duplicate it or to check him, even when the original results are missing or questionable! Further, where a pseudoscientist claims to have done an experiment with a remarkable result, he himself never repeats it to check his results and procedures. This is in extreme contrast with science, where crucial experiments are repeated by scientists all over the world with ever-increasing precision. Pseudoscience often contradicts itself, even in its own terms. Such logical contradictions are simply ignored or rationalized away. Thus, we should not be surprised when Chapter 1 of a book on dowsing says that dowsers use newly cut twigs, because only "live" wood can channel and focus the "earth-radiation" that makes dowsing possible, whereas Chapter 5 states that nearly all dowsers use metal or plastic rods. Pseudoscience deliberately creates mystery where none exists, by omitting crucial information and important details. Anything can be made "mysterious" by omitting what is known about it or presenting completely imaginary details. The "Bermuda Triangle" books are classic examples of this tactic. Pseudoscience does not progress. There are fads, and a pseudoscientist may switch from one fad to another (from ghosts to ESP research, from flying saucers to psychic studies, from ESP research to looking for Bigfoot). But within a given topic, no progress is made. Little or no new information or uncovered. New theories are seldom proposed, and old concepts are rarely modified or discarded in light of new "discoveries," since pseudoscience rarely makes new "discoveries." The older the idea, the more respect it receives. No <CONTINUED>

Pseudoscience False – Laundry List

<CONTINUED>

natural phenomena or processes previously unknown to science have ever been discovered by pseudoscientists. Indeed, pseudoscientists almost invariably deal with phenomena well known to scientists, but little known to the general public—so that the public will swallow whatever the pseudoscientist wants to claim. Examples include firewalking and "Kirlian" photography. Pseudoscience attempts to persuade with rhetoric, propaganda, and misrepresentation rather than valid evidence (which presumably does not exist). Pseudoscience books offer examples of almost every kind of fallacy of logic and reason known to scholars and have invented some new ones of their own. A favorite device is the non sequitur. Pseudoscientists also love the "Galileo Argument." This consists of the pseudoscientist comparing himself to Galileo, and saying that just as the pseudoscientist is believed to be wrong, so Galileo was thought wrong by his contemporaries therefore the pseudoscientist must be right too, just as Galileo was. Clearly the conclusion does not follow! Moreover, Galileo's ideas were tested, verified, and accepted promptly by his scientific colleagues. The rejection came from the established religion which favored the pseudoscience that Galileo's findings contradicted. Pseudoscience argues from ignorance, an elementary fallacy. Many pseudoscientists base their claims on incompleteness of information about nature, rather than on what is known at present. But no claim can possibly be supported by lack of information. The fact that people don't recognize what they see in the sky means only that they don't recognize what they saw. This fact is not evidence that flying saucers are from outer space. The statement "Science cannot explain" is common in pseudoscience literature. In many cases, science has no interest in the supposed phenomena because there is no evidence it exists; in other cases, the scientific explanation is well known and well established, but the pseudoscientist doesn't know this or deliberately ignores it to create mystery. Pseudoscience argues from alleged exceptions, errors, anomalies, strange events, and suspect claims—rather than from well-established regularities of nature. The experience of scientists over the past 400 years is that claims and reports that describe well-understood objects behaving in strange and incomprehensible ways tend to reduce upon investigation to deliberate frauds, honest mistakes, garbled accounts, misinterpretations, outright fabrications, and stupid blunders. It is not wise to accept such reports at face value, without checking them. Pseudoscientists always take such reports as literally true, without independent verification. Pseudoscience appeals to false authority, to emotion, sentiment, or distrust of established fact. A high-school dropout is accepted as an expert on archaeology, though he has never made any study of it! A psychoanalyst is accepted as an expert on all of human history, not to mention physics, astronomy, and mythology, even though his claims are inconsistent with everything known in all four fields. A movie star swears it's true, so it must be. A physicist says a "psychic" couldn't possibly have fooled him with simple magic tricks, although the physicist knows nothing about magic and sleight of hand. Emotional appeals are common. ("If it makes you feel good, it must be true." "In your heart you know it's right.") Pseudoscientists are fond of imaginary conspiracies. ("There's plenty of evidence for flying saucers, but the government keeps it secret.") And they argue from irrelevancies: When confronted by inconvenient facts, they simply reply, "Scientists don't know everything!" Pseudoscience makes extraordinary claims and advances fantastic theories that contradict what is known about nature. They not only provide no evidence that their claims are true. They also ignore all findings that contradict their conclusions. ("Flying saucers have to come from somewhere—so the earth is hollow, and they come from inside." "This electric spark I'm making with this electrical apparatus is actually not a spark at all, but rather a supernatural manifestation of psycho-spiritual energy." "Every human is surrounded by an impalpable aura of electromagnetic energy, the auric egg of the ancient Hindu seers, which mirrors the human's every mood and condition.") Pseudoscientists invent their own vocabulary in which many terms lack precise or unambiguous definitions, and some have no definition at all. Listeners are often forced to interpret the statements according to their own preconceptions. What, for for example, is "biocosmic energy?" Or a "psychotronic amplification system?" Pseudoscientists often attempt to imitate the jargon of scientific and technical fields by spouting gibberish that sounds scientific and technical. Quack "healers" would be lost without the term "energy," but their use of the term has nothing whatsoever to do with the concept of energy used by physicists. Pseudoscience appeals to the truth-criteria of scientific methodology while simultaneously denying their validity. Thus, a procedurally invalid experiment which seems to show that astrology works is advanced as "proof" that astrology is correct, while thousands of procedurally sound experiments that show it does not work are ignored. The fact that someone got away with simple magic tricks in one scientific lab is "proof" that he is a psychic superman, while the fact that he was caught cheating in several other labs is ignored. Pseudoscience claims that the phenomena it studies are "jealous." The phenomena appear only under certain vaguely specified but vital conditions (such as when no doubters or skeptics are present; when no experts are present; when nobody is watching; when the "vibes" are right; or only once in human history.) Science holds that genuine phenomena must be capable of study by anyone with the proper equipment and that all procedurally valid studies must give consistent results. No genuine phenomenon is "jealous" in this way. There is no way to construct a TV set or a radio that will function only when no skeptics are present! A man who claims to be a concert-class violinist, but does not appear to have ever owned a violin and who refuses to play when anyone is around who might hear him, is most likely lying about his ability to play the violin. Pseudoscientific "explanations" tend to be by scenario. That is, we are told a story, but nothing else; we have no description of any possible physical process. For instance, Immanuel Velikovsky (1895-1979) claimed that another planet passing near the earth caused the earth's spin axis to flip upside down. This is all he said. He gave no mechanisms. But the mechanism is all-important, because the laws of physics rule out

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Pseudoscience False – Laundry List

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the process as impossible. That is, the approach of another planet cannot cause a planet's spin axis to flip. If Velikovsky had discovered some way that a planet could flip another's spin axis, he would presumably have described the mechanism by which it can happen. The bald statement itself, without the underlying mechanism, conveys no information at all. Velikovsky said that Venus was once a comet, and this comet was spewed out of a volcano on Jupiter. Since planets do not resemble comets (which are rock/ice snowball-like debris with connection whatsoever to volcanoes) and since Jupiter is not known to have volcanoes anyway (or even a solid surface!), no actual physical process could underlie Velikovsky's assertions. He gave us words, related to one another within a sentence, but the relationships were alien to the universe we actually live in, and he gave no explanation for how these could exist. He provided stories, not genuine theories. Pseudoscientists often appeal to the ancient human habit of magical thinking. Magic, sorcery, witchcraft—these are based on spurious similarity, false analogy, false cause-and-effect connections, etc. That is, inexplicable influences and connections between things are assumed from the beginning—not found by investigation. (If you step on a crack in the sidewalk without saying a magic word, your mother will crack a bone in her body; eating heart-shaped leaves is good for heart ailments; shining red light on the body increases blood production; rams are aggressive so someone born in the sign of the ram is aggressive; fish are "brain food" because the meat of the fish resembles brain tissue, etc.) Pseudoscience relies heavily on anachronistic thinking. The older the idea, the more attractive it is to pseudoscience—it's the wisdom of the ancients!—especially if the idea is transparently wrong and has long been discarded by science. Many journalists have trouble in comprehending this point. A typical reporter writing about astrology may think a thorough job can be done by interviewing six astrologers and one astronomer. The astronomer says it's all bunk; the six astrologers say it's great stuff and really works and for $50 they'll be glad to cast anyone's horoscope. (No doubt!) To many reporters, and apparently to many editors and their readers, this would confirm astrology six to one!

Pseudoscience False – Logic

Pseudoscience makes many logical fallacies

Dutch 10 (Steven, Natural and Applied Sciences, U of Wisconsin – Green Bay, June 2, http://www.uwgb.edu/dutchs/PSEUDOSC/SciPseudosci.htm, accessed 7-11-11, JMB)

Logical Structure of Pseudoscience

"Galileo Fallacy" "They laughed at Galileo, and he was right, so I could be right too." They may have laughed at courageous mavericks. They also laughed at clowns. For everyone labeled a crackpot who turns out to be a persecuted genius, there are a thousand who are merely crackpots. The Galileo affair is far more complex than the popular stereotype, and far more interesting. It includes Galileo antagonizing fellow scientists and a healthy dose of politics, Italian style. "Residue Fallacy" After all the bad data is eliminated, there are still a few observations that are unexplained. The real question is this: if 90% of the observations are faulty, why shouldn't we assume the remaining 10% are also faulty? Explanation by Default. If science can't explain something, but the pseudoscientist can, his explanation is probably right. Even if something can't be fully explained, it's often possible to show that a lot of proposed explanations are wrong. Often science can explain the alleged anomaly, but the explanation is concealed or dismissed. We do know how the Pyramids were built. Distortion of the Term "Theory" A theory is any organized body of ideas used to account for some set of observations. Theories can be true (heliocentric astronomy), false (Ptolemy and epicycles) or debatable. Many theories are not in the least doubtful or hypothetical: number theory in mathematics, stress theory in engineering, music theory in music. Some scientists have attempted to defuse this issue by redefining "theory" and restricting it to mean a body of ideas that has been confirmed. Apart from being intellectually dishonest, this definition is flatly wrong and contradicts all historical usages of the word. Attacks on Inference and Deduction. If you go home and find your room trashed and your stuff stolen, will you let the police dismiss it as merely "inferring" that you were burglarized?

Conspiracies Bad

Conspiracy theories are trash – if we prove the arg isn’t plausible, reject it

Dutch 10 (Steven, Natural and Applied Sciences, U of Wisconsin – Green Bay, June 2, http://www.uwgb.edu/dutchs/PSEUDOSC/SciPseudosci.htm, accessed 7-11-11, JMB)

Is It Fair to Reject All Conspiratorial Theories? Erroneous Use of Terms. Often the term "conspiracy" is used incorrectly. Failure to use a simple word accurately doesn't inspire confidence in the person using the word. If there's no attempt at secrecy there is no conspiracy. Planned Parenthood will give you a bushel of literature if you ask. Some people may oppose them, but they're not a conspiracy. Making a common effort or having a common goal is not a conspiracy. Criticism is not persecution, and widespread criticism or opposition does not constitute a conspiracy. It more likely is evidence that the individual is wrong. The existence of a conspiracy is irrelevant to the issues. The objectives may be morally acceptable. The D-Day invasion and the Manhattan Project were clothed in deep secrecy and engaged in deception. By any reasonable definition, they were conspiracies. Sometimes secrecy is necessary. The Constitutional Convention of 1787 decided at its very first meeting not to take minutes because they wanted delegates to feel free to change their minds without being accused of caving in or selling out. Immoral conspiracies are immoral because of their goals and methods, not their secrecy. The problem with Al-Qaeda isn't its secrecy, it's that it flies airplanes into buildings. Conspiracy arguments are intellectually dishonest They are impossible to disprove so they can't be tested. Conspiracy believers can rationalize away any anomaly. The less evidence there is, the more powerful and far reaching the conspiracy is because it is so good at concealing itself. Conspiracies for which there is no evidence at all must be incredibly powerful. Conspiracy arguments are an appeal to emotions instead of facts. The conspiracy argument is designed to arouse anger and create sympathy for the purported victim of the conspiracy. Conspiracy arguments poison the climate of debate. If you doubt the existence of a conspiracy, you must be either a supporter or a dupe. Who can have a meaningful debate in such a climate? It's not proper to dismiss an idea solely because it postulates a conspiracy. It is proper to insist on debating solely on the merits of the argument. For most conspiracy believers, that takes all the fun out of it. You'd think people would be relieved to find out the world is not filled with powerful, malevolent conspiracies, but people fight tooth and nail to hang on to conspiracy beliefs

AT: Publishing = Conspiracy

Not getting published is not because of a “conspiracy” – it’s just because the ev is weak

Strobel 10 (Nick, Prof of Astronomy at Bakersfield College, Aug 22, http://www.astronomynotes.com/pseudoscience.html, accessed 7-11-11, JMB)

Pseudoscience is just the opposite. Hypotheses are often framed in a way that makes them untestable. "Practitioners [of pseudoscience] are defensive and wary. Skeptical scrutiny is opposed. When the pseudoscientific hypothesis fails to catch fire with scientists, conspiracies to suppress it are deduced" (Sagan, 1996). Ah, yes! How many times have we heard that the science journals won't publish the UFO research with charges of bias and close-mindedness on the part of the science "establishment"? Such charges are part of the conspiracy mindset. I'm sorry, but it is not a conspiracy. It is because the UFO evidence is not of the caliber needed to base conclusions upon and less fantastic alternative explanations that don't involve space aliens are not addressed or explored by the author of the proposed paper. Not every truly scientific paper makes it into the journals either but the scientist doesn't complain of a conspiracy. No, the paper was probably rejected because more data needed to be gathered to improve the signal (the confidence level) above the ever-present statistical fluctuations of reality in order to deduce the conclusion reached by the author. Sometimes, too strong a conclusion is deduced from too weak a data set. Another likelihood is that the author did not explore an alternative explanation because they failed to see the assumptions that they were operating under. Our filters can blind us to the obvious.

Method key

Method is key – learning to distinguish between science and pseudoscience is the most valuable thing to learn

Sagan 97 (Carl, PhD in astrophysics from U of Chicago, *The Demon-Haunted World: Science as a Candle in the Dark,* p. 31, JMB)

If we teach only the findings and products of science - no matter how useful and even inspiring they may be - without communicating its critical method, how can the average person possibly distinguish science from pseudoscience? Both then are presented as unsupported assertion. In Russia and China, it used to be easy. Authoritative science was what the authorities taught. The distinction between science and pseudoscience was made for you. No perplexities needed to be muddled through. But when profound political changes occurred and strictures on free thought were loosened, a host of confident or charismatic claims - especially those that told us what we wanted to hear - gained a vast following. Every notion, however improbable, became authoritative. It is a supreme challenge for the popularizer of science to make clear the actual, tortuous history of its great discoveries and the misapprehensionsand occasional stubborn refusal by its practitioners to change course. Many, perhaps most, science textbooks for budding scientists tread lightly here. It is enormously easier to present in an appealing way the wisdom distilled from centuries of patient and collective interrogation of Nature than to detail the messy distillation apparatus. The method of science, as stodgy and grumpy as it may seem, is far more important than the findings of science.

Pseudoscience TOs with Science

Pseudoscience actively crowds out science in public policy

Kudryavtsev et al 98 (Statement from 32 scientists, including Vice presidents and members of the Council of the Russian Academy of Sciences, Directors of research institutes, Members of Russian Academy of Sciences, and Doctors of Science across multiple disciplines, first published in Izvestiya on July 17, http://www.quackwatch.org/01QuackeryRelatedTopics/russian.html, accessed 7-11-11, JMB)

Representatives of many sciences and disciplines -- astronomers, physicists, chemists, biologists, philosophers, lawyers, psychologists -- are concerned by the widespread growth of astrology, alternative medicine, palmistry, numerology, and mystic pseudoscience in Russia and other countries of the world. We wish to draw the attention of the public to the threat of an uncritical attitude to the prophesies and advice of modern "practitioners of the occult sciences," proffered both privately and in the mass media. Those who believe in the dependence of human fate on heavenly bodies, magic substances, or witchcraft need to understand that science can in no way provide support for these beliefs. In bygone times people believed in and used astrology, alchemy, cabalistic mysticism, and alternative folk medicine. These ideas were a substantial part of the mythological and magical view of the world providing a prescientific weltanschaaung and cognitive purpose, for science was taking its first steps. People believed that the heavenly bodies were the manifestations of the forces of gods that could magically influence earthly objects. Physical processes seemed to be the product of cryptic "hidden properties," and chemical elements seemed to be the product of magic. People had no understanding of the nature of chemical and physical interactions. Today, when science understands the main causes by which heavenly bodies influence phenomena on Earth, there are no scientifically based reasons to claim that these occult interactions may influence the destiny of humans. A person's psychophysiological structures are not determined by the position of the stars and planets at the time and place of birth, but by the inherited genetic code and sociocultural factors. Astrology mystically interprets the variations of the geomagnetic field and solar activity that have an effect on human well-being. Solar flares and magnetic storms actually do have an effect on the human psyche and on human behavior, but astrology and quack medicine do not provide an understanding of these phenomena. Living organisms do manifest a feeble electromagnetic radiation, but there is no known scientific evidence to claim the existence of "biofields" or "psychic energy." The astrological calendar does not correspond to actual physical reality, but only provides archaic metaphorical descriptions of astronomical events. Superstitious beliefs and the uncritical acceptance of coincidences as causative undermine our reliance on the capacity of human beings to realistically face the events of life. Astrologers, parapsychologists, and clairvoyants assert untested claims based on pseudoscience; they organize academics and grant degrees. Many people believe in clairvoyance, astrology, and other superstitions to compensate for the psychological discomforts of our time. Others seek the advice of outside authorities in making significant decisions. Personal and social problems, with which one cannot cope, drive one to witches, shamans, and quack therapists. The belief in astral forces provides an opportunity to evade the responsibility for choice and absolves people of accepting their own mistakes. At a time of widespread dissemination of scientific education and great advances in science, we can no longer assume that superstitions will disappear of their own accord. On the contrary, society is now inundated by the "occult sciences." The propagators of pseudoscience and "cryptic knowledge" attempt to take over the mantle, terms, and methods of genuine science. Astrology, for example, attempts to influence political and economic decisions, shamelessly intruding into the private lives of persons. Much of this is encouraged by the mass media, playing on and exploiting human fallibilities. Mystic pseudoscience is an international malady that has stricken many countries of the world. This prompted a public statement in 1975 criticizing astrology by 186 leading scientists (including eighteen Nobel Prize-winners), which was widely acclaimed throughout the world. Today it is time for the community of Russian scientists to confront these issues with all their power. One of the unquestionably great achievements of recent years is the opportunity for people to express their opinions openly. Unfortunately, many people are ensnared by the persuasive power of absurd and dangerous superstitions; they must not be conned by their pseudoscientific attire. No attempts to make magical thinking scientifically respectable can possibly conceal their utter incompatibility with science

Pseudoscience Bad – Laundry Turn

Demarcating clearly between science and pseudoscience key to healthcare, rule of law, and the environment

Stanford Encyclopedia of Philosophy 8 (Sep. 3, http://plato.stanford.edu/entries/pseudo-science/#PurDem, accessed 7-11-11, JMB)

Demarcations of science from pseudoscience can be made for both theoretical and practical reasons (Mahner 2007, 516). From a theoretical point of view, the demarcation issue is an illuminating perspective that contributes to the philosophy of science in the same way that the study of fallacies contributes to the study of informal logic and rational argumentation. From a practical point of view, the distinction is important for decision guidance in both private and public life. Since science is our most reliable source of knowledge in a wide variety of areas, we need to distinguish scientific knowledge from its look-alikes. Due to the high status of science in present-day society, attempts to exaggerate the scientific status of various claims, teachings, and products are common enough to make the demarcation issue pressing in many areas. The demarcation issue is therefore important in many practical applications such as the following: Healthcare: Medical science develops and evaluates treatments according to evidence of their efficiency. Pseudoscientific activities in this area give rise to inefficient and sometimes dangerous interventions. Healthcare providers, insurers, government authorities and – most importantly – patients need guidance on how to distinguish between medical science and medical pseudoscience. Expert testimony: It is essential for the rule of law that courts get the facts right. The reliability of different types of evidence must be correctly determined, and expert testimony must be based on the best available knowledge. Sometimes it is in the interest of litigants to present non-scientific claims as solid science. Therefore courts must be able to distinguish between science and pseudoscience. Environmental policies: In order to be on the safe side against potential disasters it may be legitimate to take preventive measures when there is valid but yet insufficient evidence of an environmental hazard. This must be distinguished from taking measures against an alleged hazard for which there is no valid evidence at all. Therefore, decision-makers in environmental policy must be able to distinguish between scientific and pseudoscientific claims.

Pseudoscience causes bad impacts

Coker 1 (Rory, prof of physics at U Texas at Austin, Quackwatch, http://www.quackwatch.org/01QuackeryRelatedTopics/pseudo.html, accessed 7-11-11, JMB)

Pseudoscience often strikes educated, rational people as too nonsensical and preposterous to be dangerous and as a source of amusement rather than fear. Unfortunately, this is not a wise attitude. Pseudoscience can be extremely dangerous. Penetrating political systems, it justifies atrocities in the name of racial purity Penetrating the educational system, it can drive out science and sensibility; In the field of health, it dooms thousands to unnecessary death or suffering Penetrating religion, it generates fanaticism, intolerance, and holy war Penetrating the communications media, it can make it difficult for voters to obtain factual information on important public issues.

Pseudoscience Bad – Extinction Turn

Pseudoscientific thinking causes extinction – society depends on advanced science – specifically, method is key

Sagan 97 (Carl, PhD in astrophysics from U of Chicago, *The Demon-Haunted World: Science as a Candle in the Dark,* p. 31, JMB)

But there's another reason: science is more than a body of knowledge; it is a way of thinking. I have a foreboding of an America in my children's or grandchildren's time - when the United States is a service and information economy; when nearly all the key manufacturing industries have slipped away to other countries; when awesome technological powers are in the hands of a very few, and no one representing the public interest can even grasp the issues; when the people have lost the ability to set their own agendas or knowledgeably question those in authority; when, clutching our crystals and nervously consulting our horoscopes, our critical faculties in decline, unable to distinguish between what feels good and what's true, we slide, almost without noticing, back into superstition and darkness. The dumbing down of America is most evident in the slow decay of substantive content in the enormously influential media, the 30-second sound bites (now down to 10 seconds or less), lowest common denominator programming, credulous presentations on pseudoscience and superstition, but especially a kind of celebration of ignorance. As I write, the number one video cassette rental in America is the movie Dumb and Dumber. Beavis and Butthead remains popular (and influential) with young TV viewers. The plain lesson is that study and learning - not just of science, but of anything - are avoidable, even undesirable. We've arranged a global civilization in which most crucial elements - transportation, communications, and all other industries; agriculture, medicine, education, entertainment, protecting the environment; and even the key democratic institution of voting - profoundly depend on science and technology. We have also arranged things so that almost no one understands science and technology. This is a prescription for disaster. We might get away with it for a while, but sooner or later this combustible mixture of ignorance and power is going to blow up in our faces.

Psuedoscience Bad – Bad Policy Turn – Russia Proves

Infiltration of pseudoscience into debates causes bad policies – it’s not harmless – Russia proves

Kruglyakov 2 (Edward, head of laboratory and deputy director of the largest institute of the Russian Academy of Sciences (Budker Institute of Nuclear Physics). He is the State Prize (1986) and Artsimovich award (2001) winner, July/August, http://www.csicop.org/si/show/why\_is\_pseudoscience\_dangerous, accessed 7-11-11, JMB)

Astrologers, claimants of extrasensory powers, and newly appeared “scientists” of other “professions” more and more actively push themselves through into the State Duma, ministries, and even into the President’s circle. Here are recent examples: In the Ministry of Emergency Measures, a laboratory of “extrasenses” was arranged, and though no results have been reported yet, the laboratory nevertheless exists and is financially supported. At the Ministry of Defense, a military astrologer is employed. In addition, the Ministry has created a specialized military unit manned with psychics and others who claim special powers. The research is conducted secretly. Such senseless secrecy is advantageous only to dishonest officials. It raises the possibility of corruption and the absence of outside review and control. At the Ministry of Defense, the Extreme Medicine Center was created. At first glance, this seems quite reasonable. However, listen to what they do there, as described by the head of the Center, Professor P. Shalimov: “We test charged water, study man’s aura.” Quite frequently in the mass media we hear complaints about the lack of funds for the army. At the same time, inside the Ministry of Defense large amounts of money are spent supporting various programs with a pseudoscientific orientation. The deputy chief of the President’s Security, General G. Rogozin, in addition to his main duties, was involved in astrological forecasts and occultism. At the end of 1998, Mr. Rogozin, on the basis of his analysis of Nostradamus prophecies, predicted the beginning of nuclear war in July and August 1999. Fortunately, today this person is out of the President’s circle. One academician of the Academy of Natural Science, G. Grabovoy, carried out a psychic check of the readiness of President Boris Yeltsin’s airplane. And recently, the Rossiyskaya Gazeta (a Russian newspaper) revealed to readers how Mr. Grabovoy took part in underground tests of nuclear weapons in Semipalatinsk where he supposedly investigated the influence of some device, “a crystalline module,” on a nuclear explosion. It was asserted that switching on the device makes the force of a nuclear explosion two times lower. But if one can use several such devices simultaneously, the force of explosion could be “nullified.” Under present conditions, it was said the device could be used on atomic power stations to serve as a guarantee against accidents. This entire swindle is apparent to any physicist at once. Nevertheless, I had to carry out the official investigation. It revealed that Mr. Grabovoy never took part in tests of nuclear weapons in Semipalatinsk. Therefore, he did not test “a crystalline module” there. At the same time, it was revealed that this “doctor of technical and phys-math science” has never defended any theses. In lists of the Italian Academy of Science, “academician” Gravovoy was never mentioned. It is sad that the governmental Rossiyskaya Gazeta misled its readers; alas, not for the first time. In the previous State Duma, a rather strange exhibition was arranged, in which the main subject was the so-called sofa-extrasens, which was said to cure nearly a hundred diseases including impotence and frigidity. The same Duma has arranged debates on the problems of the UFOlogical safety of Russian people. To understand how this could happen, I cite the statement of the deputy chair of the State Duma Ecological Committee, doctor of technical science (!) V. Tetelmin: Science revealed a sufficient number of examples of natural bioresonance processes affecting the human organism. For example, at the Earth, there are many well-known geopathogenic zones. Their basic property is that there, the procession of time is changing. So scientists detected that precise watches failed in the region where the Tunguska meteorite fell, in regions of nuclear weapons tests, near Chernobyl, and in other “fatal” places. . . . It was noticed that places with anomalous proceeding of time are located there, where there are flows of large amounts of water along the circle. I hope that it is now clear who could organize such an exhibition and who could try to push through a law on the protection of the “energy-informatic” safety of the population. To the credit of the present Duma, it does not do anything like that. Alternative medicine has dramatically developed. It is attracting numerous unscrupulous swindlers, robbing sick people who cannot find help from traditional medicine. New medical devices claiming to cure patients of any illness are appearing on the market. A device called “New Cardiomag” recently became available at a price of only 500 rubles (about $16). It supposedly helps with hypertonia, ischemia, arterial hypertension, stenocardia, and headaches. One might question the honesty of developers of the device since one of them, doctor of medical science A.P. Naumov, has written in an advertisement for the “Cardiomag” the following: “This is an ecologically pure autonomous source of gravitation field, pulse bipolar current, and direct magnetic field with special energy characteristics” (Isvestiya, March 14, 2001). In Isvestiya of July 24, 2001 a device called “Vita” was described. Do not think that the device is so different from many other useless devices. The one thing that was different about “Vita” is that it had direct lobbying on its behalf by high-ranking officials. The Deputy Minister of Labor and Social Development, V.A. Yanvarev, requested Federal Organs of Executive Power of Federal Subjects “to facilitate head sanitary physicians in introducing the device 'Vita.'” And a deputy head of sanitary physicians, professor E. Belyaev, impudently recommends “the use of the bioenergetic safety device 'Vita' as an individual protection against electromagnetic radiation at plants and establishments, on the ground, and air transport. . . .” Even if this device could really protect against electromagnetic radiation, it is improper for high-ranking government officials to be engaged in lobbying. And as Mr. Belyaev ends the letter with the words, “With questions on purchasing the device 'Vita' please address to . . . ,” (and then the address and phone of a commercial firm follows), there is a suspicion that the official does not do all this with much objectivity. Two conclusions can be made about the device: The product “Vita” is not a means of protection against biological action of electromagnetic fields; and the offered technical information and advertising mislead potential customers

Pseudoscience Bad – Econ/Heg Turn

Pseudoscience hurts economic growth and military power and causes bad decision-making

Sagan 97 (Carl, PhD in astrophysics from U of Chicago, *The Demon-Haunted World: Science as a Candle in the Dark,* p. 27-28, JMB)

The government of China and the Chinese Communist Party were alarmed by certain of these developments. On 5 December 1994, they issued a joint proclamation that read in part: [P]ublic education in science has been withering in recent years. At the same time, activities of superstition and ignorance have been growing, and antiscience and pseudoscience cases have become frequent. Therefore, effective measures must be applied as soon as possible to strengthen public education in science. The level of public education in science and technology is an important sign of the national scientific accomplishment. It is a matter of overall importance in economic development, scientific advance, and the progress of society. We must be attentive and implement such public education as part of the strategy to modernize our socialist country and to make our nation powerful and prosperous. Ignorance is never socialist, nor is poverty. So pseudoscience in America is part of a global trend. Its causes, dangers, diagnosis and treatment are likely to be similar everywhere. Here, psychics ply their wares on extended television commercials, personally endorsed by entertainers. They have their own channel, the `Psychic Friends Network'; a million people a year sign on and use such guidance in their everyday lives. For the chief executives of major corporations, for financial analysts, for lawyers and bankers there is a species of astrologer/ soothsayer/psychic ready to advise on any matter. `If people knew how many people, especially the very rich and powerful ones, went to psychics, their jaws would drop through the floor,' says a psychic from Cleveland, Ohio. Royalty has traditionally been vulnerable to psychic frauds. In ancient China and Rome astrology was the exclusive property of the emperor; any private use of this potent art was considered a capital offence. Emerging from a particularly credulous Southern California culture, Nancy and Ronald Reagan relied on an astrologer in private and public matters - unknown to the voting public. Some portion of the decision-making that influences the future of our civilization is plainly in the hands of charlatans. If anything, the practice is comparatively muted in America; its venue is worldwide.

**Economic collapse causes extinction**

Bearden 2k (Lieutenant Colonel in the U.S. Army, www.cheniere.org/techpapers/Unnecessary%20Energy%20Crisis.doc) ET

Bluntly, we foresee these factors - and others { } not covered - converging to a catastrophic collapse of the world economy in about eight years. As the collapse of the Western economies nears, one may expect catastrophic stress on the 160 developing nations as the developed nations are forced to dramatically curtail orders. International Strategic Threat Aspects History bears out that desperate nations take desperate actions. Prior to the final economic collapse, the stress on nations will have increased the intensity and number of their conflicts, to the point where the arsenals of weapons of mass destruction (WMD) now possessed by some 25 nations, are almost certain to be released. As an example, suppose a starving North Korea launches nuclear weapons upon Japan and South Korea, including U.S. forces there, in a spasmodic suicidal response. Or suppose a desperate China - whose long range nuclear missiles can reach the United States - attacks Taiwan. In addition to immediate responses, the mutual treaties involved in such scenarios will quickly draw other nations into the conflict, escalating it significantly. Strategic nuclear studies have shown for decades that, under such extreme stress conditions, once a few nukes are launched, adversaries and potential adversaries are then compelled to launch on perception of preparations by one's adversary. The real legacy of the MAD concept is his side of the MAD coin that is almost never discussed. Without effective defense, the only chance a nation has to survive at all, is to launch immediate full-bore pre-emptive strikes and try to take out its perceived foes as rapidly and massively as possible. As the studies showed, rapid escalation to full WMD exchange occurs, with a great percent of the WMD arsenals being unleashed . The resulting great Armageddon will destroy civilization as we know it, and perhaps most of the biosphere, at least for many decades.

Leadership prevents global nuclear war

**Khalilzad**, **’95** Former RAND Fellow, Current US Ambassador

[Zalmay, “Losing the Moment?” The Washington Quarterly, Vol. 18, No. 2, pg. 84, Spring, Lexis]

Under the third option, the United States would seek to retain global leadership and to preclude the rise of a global rival or a return to multipolarity for the indefinite future. On balance, this is the best long-term guiding principle and vision. Such a vision is desirable not as an end in itself, but because a world in which the United States exercises leadership would have tremendous advantages. First, the global environment would be more open and more receptive to American values -- democracy, free markets, and the rule of law. Second, such a world would have a better chance of dealing cooperatively with the world's major problems, such as nuclear proliferation, threats of regional hegemony by renegade states, and low-level conflicts. Finally, U.S. leadership would help preclude the rise of another hostile global rival, enabling the United States and the world to avoid another global cold or hot war and all the attendant dangers, including a global nuclear exchange. U.S. leadership would therefore be more conducive to global stability than a bipolar or a multipolar balance of power system.

Pseudoscience Bad – Witch-Hunt Turn

Pseudoscience causes witch-hunts and other fanaticism

Sagan 97 (Carl, PhD in astrophysics from U of Chicago, *The Demon-Haunted World: Science as a Candle in the Dark,* p. 33, JMB)

A Candle in the Dark is the title of a courageous, largely Biblically based, book by Thomas Ady, published in London in 1656, attacking the witch-hunts then in progress as a scam `to delude the people'. Any illness or storm, anything out of the ordinary, was popularly attributed to witchcraft. Witches must exist, Ady quoted the `witchmongers' as arguing, `else how should these things be, or come to pass?' For much of our history, we were so fearful of the outside world, with its unpredictable dangers, that we gladly embraced anything that promised to soften or explain away the terror. Science is an attempt, largely successful, to understand the world, to get a grip on things, to get hold of ourselves, to steer a safe course. Microbiology and meteorology now explain what only a few centuries ago was considered sufficient cause to burn women to death. Ady also warned of the danger that `the Nations [will] perish for lack of knowledge'. Avoidable human misery is more often caused not so much by stupidity as by ignorance, particularly our ignorance about ourselves. I worry that, especially as the millennium edges nearer, pseudoscience and superstition will seem year by year more tempting, the siren song of unreason more sonorous and attractive. Where have we heard it before? Whenever our ethnic or national prejudices are aroused, in times of scarcity, during challenges to national self-esteem or nerve, when we agonize about our diminished cosmic place and purpose, or when fanaticism is bubbling up around us - then, habits of thought familiar from ages past reach for the controls.

Pseudoscience Bad – Creationism Turn

Pseudoscience causes support for creationism in schools

Sagan 97 (Carl, PhD in astrophysics from U of Chicago, *The Demon-Haunted World: Science as a Candle in the Dark,* p. 257, JMB)

Americans tend to shake their heads in astonishment at the Soviet experience. The idea that some state-endorsed ideology or popular prejudice would hogtie scientific progress seems unthinkable. For two hundred years Americans have prided themselves on being a practical, pragmatic, nonideological people. And yet anthropological and psychological pseudoscience has flourished in the United States - on race, for example. Under the guise of `creationism', a serious effort continues to be made to prevent evolutionary theory - the most powerful integrating idea in all of biology, and essential for other sciences ranging from astronomy to anthropology - from being taught in the schools.

Kills democracy and leadership

Salisbury, 8(Lee, Evangelical minister for 14 years, "The Creationist Buffoonery and Its Dangerous Implications", http://dissidentvoice.org/2008/01/the-creationist-buffoonery-and-its-dangerous-implications/)

Make no mistake, creationism intends to redefine science, and replace it with a meaningless shell of supernatural speculation and deceit. And why, you might ask? The answer is not hard to fathom. Religion has ever been a sanctuary of those who seek to secure their eminence at the expense of others. History is unequivocal in teaching this lesson, and yet as blind as we are we seem to have failed to learn it. The creationist attack on the teaching of evolution devalues science, cheapens theology as well as condemning America’s students to an inferior education, ultimately hurting their professional opportunities, not to mention diminishing America’s leadership in science and technology. Creationists aim to not only destroy science in an effort to protect their creationist fairy tales, their mission is to redefine the United States of America, eviscerate the Constitution, and effectively dismantle American democracy by instituting religious indoctrination in the schools and halls of public policy making. They mean to supplant all of these things with a form of oligarchy wrapped in the shrouds of a dumbed down science and legalistic religion. And if one doubts this, one need only consult the web sites and publications of such notable creationist organizations as the the Creation Museum, the Institute for Creation Research and the Discovery Institute. Creationists are quite explicit in their stated goals, and there is little room for doubt their true intentions. The true mission of creationism is theocracy. Thus exposed, the need to fight it on all fronts, scientific, philosophical, theological, administrative and judicial, is made even more clear. There is no higher imperative if we mean to preserve America’s intellectual freedom.

Democracy prevents extinction

Diamond, 95 (Larry, professor, lecturer, adviser, and author on foreign policy, foreign aid, and democracy, “Promoting Democracy in the 1990s: Actors and instruments, issues and imperatives : a report to the Carnegie Commission on Preventing Deadly Conflict”, December 1995, http://wwics.si.edu/subsites/ccpdc/pubs/di/di.htm)

This hardly exhausts the lists of threats to our security and well-being in the coming years and decades. In the former Yugoslavia nationalist aggression tears at the stability of Europe and could easily spread. The flow of illegal drugs intensifies through increasingly powerful international crime syndicates that have made common cause with authoritarian regimes and have utterly corrupted the institutions of tenuous, democratic ones. Nuclear, chemical, and biological weapons continue to proliferate. The very source of life on Earth, the global ecosystem, appears increasingly endangered. Most of these new and unconventional threats to security are associated with or aggravated by the weakness or absence of democracy, with its provisions for legality, accountability, popular sovereignty, and openness.

Pseudoscience Bad – Hitler Turn

Pseudoscience leads to authoritarian movement takeover – Hitler proves

Holtz 8 (Thomas R., dinosaur paleontologist and senior lecturer in Geology at U of Maryland, Sept. 29, http://www.geol.umd.edu/~jmerck/eltsite/lectures/spacenazis.html, accessed 7-11-11, JMB)

Pseudoscientists can often be benign, but their lack of critical thinking has in the past allowed unscrupulous people and movements to take advantage of them. For example, Adolph Hitler's rise to power in Germany is at least in part due to pseudoscientific movements of the early 20th Century: The National Socialist German Workers' (NAZI) Party, founded in 1920 and of which Hitler became President in 1921 was a combination of two previously existing parties: those being the National Socialist Party and the German Workers' Party, populist right-wing parties organized to get the support of the common German people as a counter to the rising Communist Party. These two proto-Nazi parties were created by: the Thule Geselleschaft, with its symbol the swastika derived from Indian iconography. This organization was a rabidly anti-Semetic and anti-Communist Bavarian branch of the: Germanenorden, a fellowship interested in the study of the origin, history, and culture of the Aryan peoples. ("Aryan" in this context is equivalent to today's term "Indo-European": a major group of languages with a shared ancient historical connection). The Germanenorden combined "secret society" aspects of Freemasonry with the turn-of-the-century movement of: Theosophy, a religion combining then-current natural historical sciences (especially historical geology, evolutionary biology, anthropology, and archaeology) with occult mysticism. Within cultures like the Third Reich, the USSR, and other oppressive authoritarian regimes, pseudoscience could flourish for a variety of reasons: Lack of free and open discourse between domestic and with international researchers meant that the debate and dialogue necessary for critical evaluations of ideas could not go on. Ideas lacking in critical merit, but which made the policies or ideologies of the State look favorable, would be officially promoted; those which made the policies or ideologies of the State could be dismissed, made illegal, suppressed, or simply regarded as "unpatriotic". Individuals which the State looked upon favorably for any reason might get their own pet theories promoted regardless of merit; similarly, those ideas developed by "enemies of the State" could be supressed even if they had no bearing on the policies and ideologies of the State.

Acceptance of pseudoscience causes eugenics and genocide

Black 3 (Edwin, award winning New York Times and international best-selling investigative author, 11-25, http://hnn.us/articles/1796.html, accessed 7-11-11, JMB)

Hitler and his henchmen victimized an entire continent and exterminated millions in his quest for a co-called "Master Race." But the concept of a white, blond-haired, blue-eyed master Nordic race didn't originate with Hitler. The idea was created in the United States, and cultivated in California, decades before Hitler came to power. California eugenicists played an important, although little known, role in the American eugenics movement's campaign for ethnic cleansing. Eugenics was the racist pseudoscience determined to wipe away all human beings deemed "unfit," preserving only those who conformed to a Nordic stereotype. Elements of the philosophy were enshrined as national policy by forced sterilization and segregation laws, as well as marriage restrictions, enacted in twenty-seven states. In 1909, California became the third state to adopt such laws. Ultimately, eugenics practitioners coercively sterilized some 60,000 Americans, barred the marriage of thousands, forcibly segregated thousands in "colonies," and persecuted untold numbers in ways we are just learning. Before World War II, nearly half of coercive sterilizations were done in California, and even after the war, the state accounted for a third of all such surgeries. Eugenics would have been so much bizarre parlor talk had it not been for extensive financing by corporate philanthropies, specifically the Carnegie Institution, the Rockefeller Foundation and the Harriman railroad fortune. They were all in league with some of America's most respected scientists hailing from such prestigious universities as Stamford, Yale, Harvard, and Princeton. These academicians espoused race theory and race science, and then faked and twisted data to serve eugenics' racist aims. Stanford president David Starr Jordan originated the notion of "race and blood" in his 1902 racial epistle "Blood of a Nation," in which the university scholar declared that human qualities and conditions such as talent and poverty were passed through the blood. In 1904, the Carnegie Institution established a laboratory complex at Cold Spring Harbor on Long Island that stockpiled millions of index cards on ordinary Americans, as researchers carefully plotted the removal of families, bloodlines and whole peoples. From Cold Spring Harbor, eugenics advocates agitated in the legislatures of America, as well as the nation's social service agencies and associations. The Harriman railroad fortune paid local charities, such as the New York Bureau of Industries and Immigration, to seek out Jewish, Italian and other immigrants in New York and other crowded cities and subject them to deportation, trumped up confinement or forced sterilization. The Rockefeller Foundation helped found the German eugenics program and even funded the program that Josef Mengele worked in before he went to Auschwitz. Much of the spiritual guidance and political agitation for the American eugenics movement came from California's quasi-autonomous eugenic societies, such as the Pasadena-based Human Betterment Foundation and the California branch of the American Eugenics Society, which coordinated much of their activity with the Eugenics Research Society in Long Island. These organizations--which functioned as part of a closely-knit network--published racist eugenic newsletters and pseudoscientific journals, such as Eugenical News and Eugenics, and propagandized for the Nazis

Pseudoscience Bad – Health Turn

Pseudoscience causes death – bad treatments

Gaudiano 3 (Brandon A., pursuing a Ph.D. in clinical psychology at Drexel University, July-August, http://www.csicop.org/si/show/disease\_of\_pseudoscience\_and\_the\_hope\_for\_a\_cure, accessed 7-11-11, JMB)

It is within this context that psychologists Scott Lilienfeld, Steven Jay Lynn, and Jeffrey Lohr present Science and Pseudoscience in Clinical Psychology. Social psychologist Carol Tavris contributes the foreword, and sets a somewhat pessimistic (but necessary) tone as she briefs readers as to why both professionals and laypersons need to pay attention to the public health threats caused by unscientific treatment approaches. She proposes a possible impetus for the growth of pseudoscience within clinical psychology--the long-lamented scientist-practitioner gap. Tavris asserts that fundamental deficiencies exist in the training of clinicians, where the practice of psychology is often divorced from the science of psychology. This science-practice gulf produces therapists easily duped by sham treatments in the quest to earn a respectable living in an age of managed care. In Chapter 1, the editors present a more optimistic analysis of the situation and state that the book aims to assist readers of various backgrounds with the “important task of distinguishing techniques in clinical psychology that are scientifically supported or promising from those that are scientifically unsupported or untested.” Even though they concur that the state of affairs within the field at times can look rather grim, they assert that this is not an intractable problem and suggest education as a possible remedy. The editors point out that nonvalidated therapeutic techniques can actually be dangerous and even lethal. The 2000 death of a girl in Colorado at the hands of her therapists using “rebirthing” therapy is but one example. The editors note that unscientific practices are harmful in other ways as well. For example, individuals may get discouraged after trying several treatments without success, and this can keep them from trying an empirically supported therapy that might actually be beneficial.

\*\*\*Pseudoscience Good\*\*\*

Pseudoscience Good – Bad Policy Turn

Appealing to scientific orthodoxy bad – creates false prophets and bad policy – global warming proves

Lambert 9 (John Pack, Student at Wayne State, Mormon in Michigan, Jan 26, http://mormoninmichigan.blogspot.com/2009/01/global-warming-and-scientific-orthodoxy.html, accessed 7-12-11, JMB)

The question is not "is there global-worming" but "is global warming anthropogenic". That is, is it the actions of human beings instead of some thing that causes global warming. If the answer to this question is no, than all the various attempts to control global warming are just power grabs by certain political factions to try to control the lives of others. It is a false religion that is being put up. This leads me to a final conclusion. Really it is not science v. religion, but it is a case of a false religion that worships the idol known as "science". Thus for believers in the true and living God and the words of his prophets, it is not scientific knowledge or inquiry that is a threat, but the setting up of science as an idol that displaces God just as much as the images of Baal did anciently. The fact that scientific inquiry and accepting the false idolatry of science are not incompatible is shown by the fact that many scientists disagree with the notion of anthropogenic global warming. Despite the claims of the false prophets of this movement, there is not a clear-cut and unimpeachable case for anthropogenic global warming, and the attempts to keep people in poverty and suffering from sickness to save the planet may be the most misguided actions of the last quarter-century

Pseudoscience Good – Advancement Turn

Challenging scientific orthodoxy key to advancement of science – Miller-Urey experiment proves

Luskin and Gapper 1 (Casey, B.S. Earth Sciences, UCSD; M.S. Earth Sciences, UCSD; J.D. University of San Diego School of Law, and Nathan, IDEA member, Oct 27, http://www.ideacenter.org/contentmgr/showdetails.php/id/1134http://www.ideacenter.org/contentmgr/showdetails.php/id/1134, accessed 7-12-11, JMB)

Just like many of the other "icons", the Miller-Urey experiment is flatly false, and persists merely because of scientific orthodoxy. Scott claims that the production of the building blocks of life can occur in the presence of very small amounts of oxygen, but this claim flies in the face of statements from Klaus Dose and Sidney Fox, well recognized origins of life researchers referenced in Icons (pg. 265-266). Scott implies that much other scientific progress has been made regarding the origins of life, but this was not the impression of Dose in 1988: "More than 30 years of experimentation on the origin of life in the fields of chemical and molecular evolution have led to a better perception of the immensity of the problem of the origin of life on Earth rather than to its solution. At present all discussions on principal theories and experiments in the field either end in stalemate or in a confession of ignorance. New lines of thinking and experimentation must be tried." (Dose, Klaus, "The Origin of Life: More Questions Than Answers," Interdisciplinary Science Reviews, Vol. 13, No. 4, 1988, p.348) The natural origins of life may be explainable, but it is as of yet unexplained. After over 50 years of research, most answers aren't forthcoming. The proper scientific response in this situation should be, "we're clueless", but Wells finds the stakes are too high for textbooks to admit ignorance on the "soft underbelly of evolution".

Dismissing “cranks” hurts scientific progress and is unproductive

Campanario and Martin 4 (Juan Miguel, Dept. de Fisica, Universidad de Alcala, Brian, Science, Technology, and Society, U Wollongong, Journal of Scientiﬁc Exploration, Vol. 18, No. 3, pp. 421–438, http://www2.uah.es/jmc/ai51.pdf, accessed 7-13-11, JMB)

It is easy to dismiss challengers as ‘‘cranks,’’ but this risks rejecting fresh ideas from those who are well placed to achieve radical breakthroughs. There are instances where the official expert view is later revealed as unproductively dogmatic, as when the French Academy rejected observations by common people of stones falling from the sky. It may be that ‘‘the kinship of the scientific crank with the scientific creator is more than a superficial one’’ (Watson 1938, 41) but few scientists embrace this connection. A proponent of an unorthodox idea is likely to encounter several types of difficulties. First, it is difficult to obtain funding: very few research grants are awarded for proposals to re-examine long accepted theories. Most funding agencies expect that proposals will build on existing science rather than challenge basic postulates. Second, it is difficult to publish in mainstream journals. Third, proponents of unorthodoxy may come under attack: their colleagues may shun them, they may be blocked from jobs or promotions, lab space may be withdrawn and malicious rumors spread about them. Even if they can overcome these problems, they have a hard time gaining attention. Our focus here is on strategies used by challengers to overcome such obstacles. In the next section we outline ideas from the social studies of science that help to explain the way science responds to challenges. Then, drawing on responses to questions we submitted to dozens of physics dissidents, we look at methods used by challengers to current paradigms to obtain funds for research, publish their work and survive attacks. We conclude with some observations about how challenges to orthodoxy, even though most of them are judged wrong, can be used constructively.

Psuedoscience Good – Progress Turn

Automatic rejection of evidence counter to orthodoxy causes bad science, education, and democracy

Cudworth 10 (Thomas, contributing writer for Uncommon Descent, May 18, http://www.uncommondescent.com/intelligent-design/karl-gibersons-dangerous-defense-of-scientific-orthodoxy/, accessed 7-12-11, JMB)

Dr. Giberson’s article is condescending in the highest degree. It basically says: “The experts believe that mutations and natural selection can explain everything from bacterium to man, and anyone who isn’t a biologist should just accept that and shut up. And anyone who won’t accede to this demand is an obscurantist who threatens the practice of good science.” Not only is this demand based on a false premise, since some of the critics of neo-Darwinian evolution are very good scientists, and more qualified to talk about some aspects of evolution than many TEs are (for example, Sternberg knows more about evolutionary theory than Ken Miller does, or for that matter more than Francis Collins does), it is also dangerous to the idea of the university as a place of the free exchange of ideas, where high-level criticism from any and all quarters should be welcome. It is also dangerous to the fabric of a democratic and open society, because it transfers power to a hieratic caste of experts whose view it is sacrilege to question. It is also the most horrible model of teaching imaginable. Does Dr. Giberson, when teaching his undergraduate classes, deal with student questions and criticisms by saying: “You’re not advanced enough to make that criticism” or “I can’t successfully refute your arguments, but I know they are wrong because expert opinion rejects them”? How can any teacher hope to encourage students to develop critical intellects, if the student are cowed into accepting that the main outlines of the truth have already been fixed in stone by the experts and no dissent or even honest questioning is permitted? This sets learning back to the days of ancient China, where the examination of the mandarins was basically a test of memory-work. It is an unfit model of pedagogy for a society which traces its roots back to the ever-questioning, ever-debating Socrates. I of course cannot speak for UD, or for “intelligent design” but only for myself, but I shall speak for myself. I reject Dr. Giberson’s closed-shop notion of scientific knowledge. I think that it is a recipe for specialist smugness and self-congratulation, which insulates scientific specialties from all healthy external criticism and therefore licenses ideologically driven science, or even just plain wrong science, to outlive its usefulness by years or even decades. I think that prostration before a self-selecting clique of experts is repugnant to good science, to good philosophy, to the ideal of the university, and to the ideal of an open, free and democratic society. And I think it shows, once again, how brittle neo-Darwinism is, that, in order to shut out reasonable criticism from very intelligent people, it has to play the professional privilege card. Perhaps if the neo-Darwinians spent more time developing detailed biochemical/genetic mechanisms for the production of new body plans, and less time beating their breasts about their qualifications, they would have more success in convincing both their intelligent critics and the “ignorant” public which Dr. Giberson so haughtily dismisses.

Democracy prevents extinction

Diamond, 95 (Larry, professor, lecturer, adviser, and author on foreign policy, foreign aid, and democracy, “Promoting Democracy in the 1990s: Actors and instruments, issues and imperatives : a report to the Carnegie Commission on Preventing Deadly Conflict”, December 1995, http://wwics.si.edu/subsites/ccpdc/pubs/di/di.htm)

This hardly exhausts the lists of threats to our security and well-being in the coming years and decades. In the former Yugoslavia nationalist aggression tears at the stability of Europe and could easily spread. The flow of illegal drugs intensifies through increasingly powerful international crime syndicates that have made common cause with authoritarian regimes and have utterly corrupted the institutions of tenuous, democratic ones. Nuclear, chemical, and biological weapons continue to proliferate. The very source of life on Earth, the global ecosystem, appears increasingly endangered. Most of these new and unconventional threats to security are associated with or aggravated by the weakness or absence of democracy, with its provisions for legality, accountability, popular sovereignty, and openness.

Pseudoscience Good – Conservatism Turn

Dismissing arguments out of hand bad – causes conservatism and stops progress

Dolby 75 (R. G. A., Social Studies of Science. Volume 5. Issue 2 (May. 1975). 165-175, http://www.worldagesarchive.com/Reference\_Links/Velikovsky\_Affair.pdf, accessed 7-12-11, JMB)

Michael Polanyi, in defense of the scientists early reaction, argued that their judgement was not and could not be entirely based on rational evaluation.3 Much of scientific knowledge is not explicit but tacit. Velikovsky's conclusions contradicted the tacit knowledge of astronomers and others, and so they were entitled to reject his work as unworthy of consideration. Polanyi drew an analogy with a paper that had once been published showing that the normal gestation periods of a number of large mammals, measured In days, was an integral multiple of ff. The evidence on which this suggestion was based was ample and the agreement was good, but it was accepted and published by Nature only as a joke. As Polanyi argued, the biologist's conception of the nature of things makes such a relationship absurd and evidence could not convince us otherwise. Polanyi's argument was that we should always accept the judgement of the experts - their opinion, though not always correct in hindsight, provides the best available criterion at any time of the worthiness of an idea. There is some plausibility in Polanyi's account of the importance of the scientists' intuitive understanding of the way things must be in their rejection of Velikovsky's ideas. But the question remains whether the scientists' judgement should be the final authority.4 Polanyi's philosophy (at least in this instance) justifies a conservative and authoritarian approach to science. It appears to support the unreasoned and dogmatic rejection by Aristotelian scientists of Galileo's arguments in favour of a heliocentric universe and a non-Aristotelian physics. However, in retrospect, we want to say that Galileo was 'right', and that it was by respecting his ideas that modern science was able to progress beyond Aristotelianism. Since scientists cannot be expected to waste time by treating all those who propose revolutionary alternatives to modern science as potential Galileos (and yet we would like to allow science to proceed in such a way that a Galileo is still possible), Polanyi provides no solution to our problem of distinguishing between pioneers and cranks, between 'serious' and 'crazy' science. I want to present two accounts of how this distinction may best be made. The first account applies to work within a specialist community, and is largely descriptive of present practice. The second suggests the appropriate procedure for dealing with a revolutionary alternative which arises outside a scientific discipline, and which cannot be completely understood by the standards of that discipline -an alternative which is 'incommensurable' with the discipline.

Pseudoscience Good – Science Dogmatic

Scientists are dogmatic – they have vested interests in preserving the squo – don’t reject our challenge based on the authority of experts

Campanario and Martin 4 (Juan Miguel, Dept. de Fisica, Universidad de Alcala, Brian, Science, Technology, and Society, U Wollongong, Journal of Scientiﬁc Exploration, Vol. 18, No. 3, pp. 421–438, http://www2.uah.es/jmc/ai51.pdf, accessed 7-13-11, JMB)

There is another obstacle facing challengers: the psychological commitment of scientists to current ideas, especially their own ideas and the dominant ideas. The usual image of the scientist is of a cool, calm, detached, objective observer, but the reality is quite different (Mahoney 1976; Mitroff 1974), as anyone who knows scientists is aware. The classic study of the psychology of scientists is Ian Mitroff’s book The Subjective Side of Science, in which he revealed that Apollo moon scientists were strikingly committed to their ideas, so much so that contrary evidence seemed to have little influence on their views. As well, scientists express strong views, often quite derogatory, about other scientists. To expect every scientist to react coolly and objectively to a competitor’s idea is wishful thinking, though there are some scientists who approach the ideal. Intriguingly, Mitroff found that it was often the top scientists who were the most strongly committed to their ideas. Tom Van Flandern commented to us: I have taken aside several colleagues whose pet theories are now mainstream doctrine, and asked quizzically what it would mean to them personally if an alternative idea ultimately prevailed. To my initial shock (I was naive enough that I did not see this coming), to a person, the individuals I asked said they would leave the field and do something else for a living. Their egos, the adulation they enjoy, and the satisfaction that they were doing something important with their lives, would be threatened by such a development. As I pondered this, it struck me that their vested interests ran even deeper than if they just had a financial stake in the outcome (which, of course, they do because of grants and promotions). So a challenger with a replacement idea would be naive to see the process as anything less than threatening the careers of some now-very-important people, who cannot be expected to welcome that development regardless of its merit. (1 August 2002)

Rejecting our argument out of hand hurts the strength of science

Campanario and Martin 4 (Juan Miguel, Dept. de Fisica, Universidad de Alcala, Brian, Science, Technology, and Society, U Wollongong, Journal of Scientiﬁc Exploration, Vol. 18, No. 3, pp. 421–438, http://www2.uah.es/jmc/ai51.pdf, accessed 7-13-11, JMB)

But there is another viewpoint: challengers, even those who are wrong, offer a potential source of strength to science. Their incessant questioning can be used to guard against complacency, to improve thinking and to prop open the door to change. One of the greatest perceived strengths of physics is its openness to speculation at the cutting edge of research. The field is not so fragile that greater openness concerning established principles is a real threat to the achievements of the field, though it may be threatening to some whose careers are built on particular findings or theories. Greater openness to challenges would increase respect for the field from potential contributors, whereas dogmatism and arrogance cause alienation. Teachers often say to their students that they should be skeptical, not believe something until it has been tested, and so on. If students later perceive that dissidents are ignored or their theories rejected without testing, that hurts the image of science, even when the dissidents are wrong

Pseudoscience Good – Logic

Deference to people with “degrees” is bad – ignores logical arguments – evolution proves

Cudworth 10 (Thomas, contributing writer for Uncommon Descent, May 18, http://www.uncommondescent.com/intelligent-design/karl-gibersons-dangerous-defense-of-scientific-orthodoxy/, accessed 7-12-11, JMB)

I am referring to his Biologos column, published on May 10, 2010, entitled “Would You Like Fries With That Theory?” The condescension toward the common man implied in the title is matched only by the condescension toward the common man (and others) frankly expressed in this article. In the article, Dr. Giberson sternly rebukes those critics of “scientific orthodoxy”, whether that orthodoxy be neo-Darwinian evolution, anthropogenic global warming theory, or something else. He accuses critics of orthodoxy of attempting to short-circuit the scientific process, by putting the data carefully gathered by scientists into the hands of vulgar laymen who are totally unqualified to interpret it. Dr. Giberson, being a TE writing on Biologos, focuses on evolutionary theory. He apparently finds the reigning neo-Darwinian theory sound, and he apparently thinks it is totally reasonable that the layman, and even the specialist in other scientific disciplines, should simply accept it, on the grounds that only the specialists in evolutionary biology are qualified to judge. It is important to note here that Dr. Giberson, being a physicist and not a biologist, is not pushing neo-Darwinism on his own authority; rather, he is deferring to the authority of his biological colleagues. Of course, he has every right to defer if he wishes; but he thinks everyone else should defer to them, too. And not because their theory seems reasonable and supported by the evidence – on Dr. Giberson’s argument, no one outside of evolutionary biology is qualified to judge that. No, everyone should defer to the majority of evolutionary biologists simply because they are the certified experts. He is of the view that science cannot progress unless this procedure is adopted. Every specialist must respect every other specialist’s “territory”, and no external criticism, even by other Ph.D.s, let alone laymen, is appropriate or even reasonable. That is the gist of Dr. Giberson’s argument. As an example of lay incompetence to evaluate scientific data, Dr. Giberson mentions fossils. How can a layman, even a very intelligent layman, be qualified to examine or interpret fossils?, he asks. I can answer that question, with an example. Defenders of neo-Darwinian evolution have laid out a series of fossils which, in their view, indicate an evolutionary progression between an ancient land mammal, probably an ancestor of the hippopotamus, and modern whales. In this progression, one can notice more finlike appendages versus more leglike appendages, more streamlined bodies versus chunkier bodies, etc. If we apply Dr. Giberson’s way of thinking, neo-Darwinians have the right to say: “We have proved that whales evolved from this ancient land mammal via the processes of random mutation and natural selection.” And if any lay person says: “I’m not convinced”, Dr. Giberson would presumably dismiss this person as biologically untrained and not entitled to an opinion. Not so fast, Dr. Giberson. It may be true that an intelligent lay person will not know as much about comparative anatomy as an evolutionary biologist. But one does not need to be an expert on comparative anatomy to venture this criticism: “You biologists have shown us a fossil sequence. You have given prima facie reasons for an evolutionary narrative, based on what could be interpreted as a gradation of forms. But what this sequence of forms does not show is the mechanism. In other words, even if this sequence represents a true genealogical sequence (which is far from certain, with only five or six fossil forms), it does not demonstrate that neo-Darwinian processes (random mutation and natural selection) were the driving power which turned one form into another. It cannot rule out other, non-Darwinian, naturalistic explanations; further, it cannot rule out even interventionist explanations in which God steered or guided the transitions from one form to another. Thus, it does not establish the hypothesis that a primitive hippopotamus, by means of neo-Darwinian mechanisms, evolved into modern cetaceans.” This objection is entirely sound; it is logical, rational, and from a philosophical point of view, dead-on and irrefutable. And one does not need even a freshman biology course to raise it. One simply has to be aware of the claims of neo-Darwinian theory, and to be intelligent enough to notice the discrepancy between what the theory claims and what it has actually established. Thus, we find that Dr. David Berlinski, a philosopher and historian of science, has raised this very question about whale evolution. What would Dr. Giberson say to Dr. Berlinski? That, despite his formidable intellect and undoubted grasp of modern scientific thought, he is not qualified to speak, because he lacks the union card of a doctorate in biology?