

Creationism, science and peer review

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Introduction

Critics have been quick to call into question either the scientific competence of creationist scientists, or the soundness and quality of their scientific work. The critics do this in order to effectively and pre-emptively dismiss or diminish the arguments creationists put forward in order to support the biblical teaching of a recent creation.

One of the ways they do this is to show that a particular creationist scientist either does not participate in the mainstream scientific community, or—if they do—that they do not actually do research in, or are not regarded as sufficiently competent in relation to, the topics that they write about. Critics also claim that creationist scientists do not publish their ‘research’ in the recognised mainstream scientific journals. And this clearly indicates to critics of scientific creationism that creationist theories are ‘junk science’ because such theories have not passed the normal peer review process that all other recognized scientific research has had to undergo.

Typical of demands for peer review opponents of young-earth creationism is the physiologist Dr Richard Meiss of the Indiana University School of Medicine:

‘If the truths of creation science were as plainly manifest and as crashingly obvious as its proponents claim, surely they could convince at least a few outside reviewers of their validity on scientific merit alone.’¹

Likewise, self-professed progressive creationist who is really a theistic evolutionary sympathizer, Greg Neyman, of the Answers In Creation website:

‘Peer-review is critical for scientific research to be taken seriously ... Basically, several other scientists who are experts in the field examine your work to see if it contains errors. Occasionally you will see young earth claims of their work being peer-reviewed. ... However, for young earth work to be taken seriously, it must pass the muster of peer-review from non young-earth scientists ... Normally, a peer-reviewed article which passes muster would be published in a leading journal such as from the Geological Society of America, [not just] on the ICR website. If the RATE [Radio isotopes and the Age of The Earth] project truly publishes some work which is good enough for publication in secular journals, then they would surely pursue that route. It is clear in this case that the “peers” for these articles are other young-earth proponents, which cast serious doubts upon the validity of the works.’²

Apart from the glaring inconsistencies in this line of argument (if young-earth research should only be taken seriously if it passes the peer-review of non young-earth scientists, then shouldn’t old-earth research only be taken seriously if it passes the peer-review of young-earth scientists? Are the ‘peers’ of old-earth scientists not also proponents of an old earth? Would this not cast serious doubt on the validity of their research?), it reveals an astonishing ignorance and naïvety of how science and the peer-review process are actually conducted.

Proponents of young-earth creationism are not the only scientists who have experienced this kind of discrimination. Scientists that reject the commonly asserted ‘consensus’ view of climate change (that the earth is abnormally warming as a result of human-caused carbon emissions) are routinely derided in the popular media as ‘pseudoscientists’, ‘heretics’, ‘on the payroll of the big multinationals’ or as having the moral credit of a holocaust denier. In fact, these modern ideological disagreements and debates mirror many scientific debates that have occurred throughout history.³

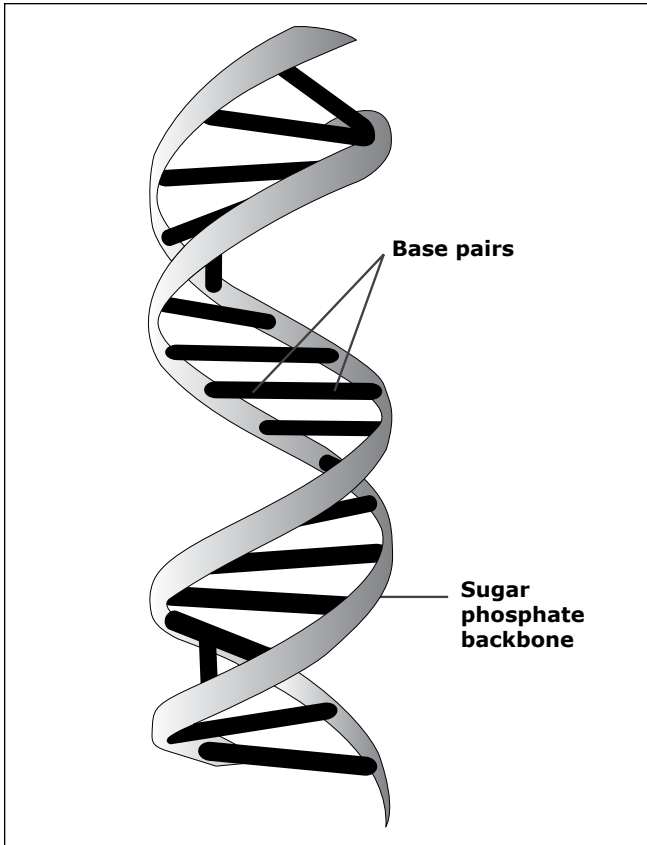
What value, then, is peer review? How does it work? Why do creationist scientists generally not submit their work to peer review by scientists who do not accept scientific creationism?

The importance of peer review

As someone who has peer reviewed others’ work and who has also had my own work peer-reviewed, I want to affirm the value and importance of peer review. On many occasions my own submissions and those of others have been greatly improved by reviewers’ feedback. I have also, at times, recommended against publishing a particular submission—not because I disagreed with the author’s conclusions, but because I discovered false assumptions or serious flaws in the arguments presented. However, it must be remembered that peer review is not a perfect process. It is done by imperfect and sinful human beings in a fallen world.

Nevertheless, in many people’s estimation the description ‘peer-reviewed’ has become shorthand for ‘quality’. To say that an article was published in a peer-reviewed scientific journal is to assert scientific validation and approval. To say that an article has not been peer-reviewed is tantamount to calling it disreputable. As Lawrence Altman put it, ‘passing peer review is the scientific equivalent of the Good Housekeeping seal of approval.’⁴

Moreover, additional kudos and prestige is attached to those articles published in the leading journals such as *Nature* and *Science*. Yet as Thomas Stossel, a Professor at Harvard Medical School, stated:



Watson and Crick's double helix model of DNA. The landmark scientific papers by Watson and Crick were never subjected to peer review. Indeed, the scientific world is rife with the attributes of fallen man such as cheating, professional jealousies, self-promotion, as well as incompetence and irresponsibility.

‘But unbeknownst to the media, the journals at the top got there because of herd behavior by researchers, not because they are better than lower-tier journals at vetting research quality. Here’s why: Researchers submit their best work to the top journals, which can therefore afford to maintain their prestige by rejecting, not publishing, many high quality papers. That’s brand creation—not science. Most of their editorial effort goes into deciding which submitted papers are sufficiently newsworthy. Anonymous peer review by jealous competitors has its merits, but it has a tendency to select for fashionable if relatively unoriginal and inoffensive papers ... although these reports often do not substantively advance scientific knowledge, and many subsequently are invalidated.’⁵

It should also be noted that peer review panels do not necessarily determine whether an article is published. The editors of the journal have the final say, and can often override the recommendations of peer reviewers.

In any case, many landmark scientific papers (like Watson’s and Crick’s on DNA⁶) were never subjected to peer review, and as David Shatz has pointed out, ‘many heavily

cited papers, including some describing work which won a Nobel Prize, were originally rejected by peer review.’⁷ The First Law of Thermodynamics (law of conservation of energy) was first formulated by German physician J.R. Mayer in 1842. However, Mayer’s revolutionary research was rejected by the leading German physics journal *Annalen der Physik*.⁷ The leading journal *Nature* also admitted in a *mea culpa* editorial:

‘... there are unarguable *faux pas* in our history.

These include the rejection of Cerenkov radiation, Hideki Yukawa’s meson, work on photosynthesis by Johann Deisenhofer, Robert Huber and Hartmut Michel, and the initial rejection (but eventual acceptance) of Stephen Hawking’s black-hole radiation.’⁸

Nature also turned down Enrico Fermi’s paper on weak interaction theory of beta decay⁹ because it was allegedly too remote from reality, so Fermi had to submit to *Zeitschrift für Physik* instead, with success.

Suffice to say, the peer review process is not foolproof and has many problems and limitations.

Peer review: problems and limitations

Peer review does not guarantee quality or correctness

Despite the advantages, peer review is simply incapable of ensuring that research is correct in its procedures or its conclusions. The history of every area of science is a record of one mistake after another. Indeed, virtually every major scientific and medical journal has on numerous occasions published findings that are later discredited.⁴ Sometimes such mistakes are eventually weeded out in the course of time. However, some often persist for many years.¹⁰ Even the most ardent defenders of peer review acknowledge that it does not eliminate mediocre and inferior papers.⁴

There appears to be a widespread belief among non-scientists that published research has been independently repeated and verified, when in reality journal editors simply rely on peer reviewers’ criticisms, which are based on the information submitted by the authors.⁴ Apart from when errors are discovered or fraud exposed, there is almost no scrutiny of the quality of what journals actually publish.⁴ Moreover, as Harold C. Sox, editor of *Annals of Internal Medicine* noted: ‘When an author is found to have fabricated data in one paper, scientists rarely examine all of that author’s publications, so the scientific literature may be more polluted than believed.’ Sox and Rennie have documented that invalid work is often not effectively purged from the scientific literature because the authors of new papers continue to cite retracted ones.¹¹

Peer review does not prevent fraud

Fraud is a substantial problem in scientific research and the attitude toward it has changed little over the years.⁴

Richard Smith, a former editor of the *British Medical Journal* and chief executive of the BMJ publishing group, admitted that fraudulent research regularly appears in the 30,000 scientific journals published worldwide. However, ‘Most cases are not publicised. They are simply not recognised, covered up altogether or the guilty researcher is urged to retrain, move to another institution or retire from research.’ He also acknowledged that even when journals discover that published research is fabricated or falsified they rarely retract the findings,¹² usually out of fear of lawsuits.⁴

Well known cases of fraud include the Piltdown man hoax, an obvious fraud that was not exposed for 40 years. More recently, the Korean scientist Hwang Woo-suk, who falsified data relating to his embryonic stem cell/cloning research.¹³ And a series of papers on superconductivity by Jan Hendrik Schön published in *Nature* from 2000 to 2001 period, which had to be retracted in 2003 because they contained falsified data and other scientific fraud.¹⁴

Of particular interest to creationists is the recently exposed fraudulent activities of German anthropologist Professor Reiner Protsch von Zieten. For thirty years, Protsch systematically falsified the dates on numerous ‘stone age’ relics. According to experts, his deceptions may mean an entire tranche of the history of man’s development will have to be rewritten. Thomas Terberger, the archaeologist who discovered the hoax, stated: ‘Anthropology is going to have to completely revise its picture of modern man between 40,000 and 10,000 years ago.’

An inquiry established that Protsch had passed off fake fossils as real ones and had plagiarised other scientists’ work. It was established that one of his more sensational finds, ‘Binshof-Speyer’ woman, lived in 1,300 BC rather than 21,300 years ago, as he had claimed and his ‘Paderborn-Sande man’ discovery (dated at 27,400 BC), and only died a couple of hundred years ago, in 1750. The inquiry was told that an important Hamburg Neandertal skull fragment believed to be from the world’s oldest German, was actually a mere 7,500 years old, according to Oxford University’s radiocarbon dating unit. The unit established that a number other skulls had also been wrongly dated.¹⁵ Frankfurt University’s president, Rudolf Steinberg, apologised for the university’s failure to curb Protsch’s habitual misconduct over many decades, admitting that ‘[a] lot of people looked the other way’.¹⁶

Peer review is rarely ever objective

The common perception of non-scientists is that reviewers of new scientific research are completely impartial, objective and independent. But the reality is that these reviewers are often competitors in the same field, which raises a number of conflict of interest questions. Richard Horton, editor of *The Lancet*, admits this can be a real problem:

‘The mistake, of course, is to have thought that peer review was any more than a crude means of

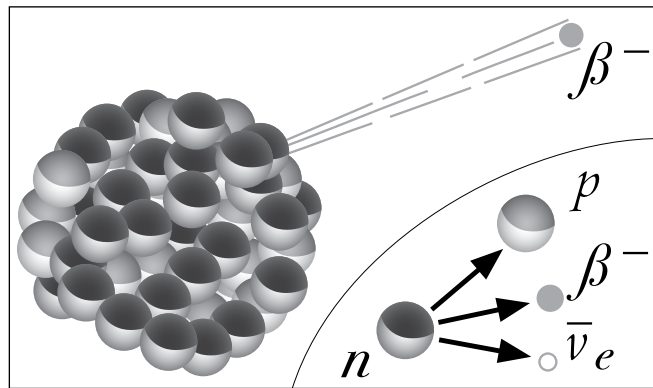


Illustration after www.wikipedia.org

Diagram showing beta-minus decay (protons are grey and neutrons are black). The journal *Nature* turned down Enrico Fermi’s paper on the theory of beta decay because it was too remote from reality. Many highly cited papers, including some describing work which won a Nobel Prize, were originally rejected by peer review.

discovering the acceptability—not the validity—of a new finding. Editors and scientists alike insist on the pivotal importance of peer review. We portray peer review to the public as a quasi-sacred process that helps to make science our most objective truth teller. But we know that the system of peer review is biased, unjust, unaccountable, incomplete, easily fixed, often insulting, usually ignorant, occasionally foolish, and frequently wrong.¹⁷

Or as Robert Higgs put it:

‘Peer review, on which lay people place great weight, varies from important, where the editors and the referees are competent and responsible, to a complete farce, where they are not. As a rule, not surprisingly, the process operates somewhere in the middle, being more than a joke but less than the nearly flawless system of Olympian scrutiny that outsiders imagine it to be. Any journal editor who desires, for whatever reason, to knock down a submission can easily do so by choosing referees he knows full well will knock it down; likewise, he can easily obtain favorable referee reports. As I have always counseled young people whose work was rejected, seemingly on improper or insufficient grounds, the system is a crap shoot. Personal vendettas, ideological conflicts, professional jealousies, methodological disagreements, sheer self-promotion and a great deal of plain incompetence and irresponsibility are no strangers to the scientific world; indeed, that world is rife with these all-too-human attributes.’¹⁰

Cyril Belshaw, editor of *Current Anthropology*, notes the problem of abusive *ad hominem* attacks and oversensitiveness during the review process:

‘And the most difficult question to handle editorially is the matter of *ad hominem* attacks seeking publication, and the even more *ad hominem*

(verging on libelous) replies of those who feel they have been attacked ... If one thing clearly emerges from the editorial experience, it is that our colleagues are emotional, easily hurt, and identify very strongly indeed with what passes for objective, impersonal science ... [This includes] ‘big names,’ some of whom seem extremely sensitive when their authority is questioned ...¹⁸

There are a number of reasons for this lack of objectivity—the main one being the competition for research funds and the fact that one’s peers are often the same people who control the allocation of these research funds. As Professor Evelleen Richards from the University of New South Wales stated on ABC Radio:

‘Science ... is not so much concerned with truth as it is with consensus. What counts as “truth”? is what scientists can agree to count as truth at any particular moment in time ... [Scientists] are not really receptive or not really open-minded to any sorts of criticisms or any sorts of claims that actually are attacking some of the established parts of the research (traditional) paradigm—in this case neo-Darwinism—so it is very difficult for people who are pushing claims that contradict the paradigm to get a hearing. They’ll find it difficult to [get] research grants; they’ll find it hard to get their research published; they’ll, in fact, find it very hard.’¹⁹

Peer review can lead to bias

The lack of objectivity in the peer review process leads, not surprisingly, to bias. This bias is manifested in a number of ways. *Ad hominem* bias occurs when there is personal jealousy between reviewer and author or when the reviewer is competing with the author for research funding, appointments, or honours, and therefore, the reviewer’s attacks are directed at the author rather than the substance of their work. On the other hand, if the reviewer is a friend or colleague of the author, the reviewer may be less than objective in their assessment of the work.

Affiliational bias occurs when articles are accepted or rejected depending on the institutional affiliation of the author. Irrespective of the quality of their research, authors from prestigious universities such as Harvard and Yale are more likely to get their articles published than authors from small colleges or private think-tanks. This problem was starkly demonstrated in a controversial study by Douglas Peters and Stephen Ceci, in which twelve previously published articles by researchers from prestigious universities were resubmitted to the same journals that published them, but with different author and institution names. Only three of the 38 editors and reviewers detected the resubmissions, and eight of the nine undetected articles were rejected even though they had been published by those same journals just 18 to 32 months earlier!²⁰ As Rick Crandall noted:

‘The editorial process has tended to be run as an informal, old-boy network which has excluded minorities, women, younger researchers, and those from lower-prestige institutions ... Authors can feel that they’re dealing with hostile gatekeepers whose goal is to keep out manuscripts on picky grounds rather than let in the best work.’²¹

Ideological bias occurs when reviewers accept or reject articles depending on whether they respectively confirm or deny the reviewer’s own position or convictions in regard to the subject matter. For example, a reviewer committed to big bang cosmology is hardly going to give a positive assessment of a paper that supports the steady-state cosmology irrespective of the paper’s arguments. As Robert Higgs put it:

‘Researchers who employ unorthodox methods or theoretical frameworks have great difficulty under modern conditions in getting their findings published in the “best” journals or, at times, in any scientific journal. Scientific innovators or creative eccentrics always strike the great mass of practitioners as nut cases—until it becomes impossible to deny their findings, a time that often comes only after one generation’s professional ring-masters have died off. Science is an odd undertaking: everybody strives to make the next breakthrough, yet when someone does, he is often greeted as if he were carrying the ebola virus. Too many people have too much invested in the reigning ideas; for those people an acknowledgment of their own idea’s bankruptcy is tantamount to an admission that they have wasted their lives. Often, perhaps to avoid cognitive dissonance, they never admit that their ideas were wrong.’¹⁰

The same applies to articles which advocate positions or make conclusions that stand against the prevailing consensus of the scientific community. This is exemplified by the treatment dished out to those who reject the catastrophic climate change scenarios proposed by the International Panel on Climate Change and promoted by Al Gore and Tim Flannery (the enormous CO₂ emissions of their own jetsetting and luxurious living does not seem to bother them or their adulators). As Richard Lindzen, Alfred P. Sloan Professor of Atmospheric Science at MIT, noted, those who toe the party line are publicly praised and have grants ladled out to them, but scientists

‘... who dissent from the alarmism have seen their grant funds disappear, their work derided, and themselves libeled as industry stooges, scientific hacks or worse. Consequently, lies about climate change gain credence even when they fly in the face of the science that supposedly is their basis.’²²

The very same thing has happened to creationists (and others) who wish to research/publish evidence that calls into question the scientific validity of evolution or big bang cosmology.

Peer review can lead to censorship

Lindzen has also noted the peculiar standards in place in scientific journals for articles submitted by those who raise questions about accepted climate wisdom. The editors of leading journals *Science* and *Nature*, commonly refused such papers (without review) as being without interest. However, Lindzen adds that

‘... even when such papers are published, standards shift. When I [Lindzen], with some colleagues at NASA, attempted to determine how clouds behave under varying temperatures, we discovered what we called an “Iris Effect,” wherein upper-level cirrus clouds contracted with increased temperature, providing a very strong negative climate feedback sufficient to greatly reduce the response to increasing CO₂. Normally, criticism of papers appears in the form of letters to the journal to which the original authors can respond immediately. However, in this case (and others) a flurry of hastily prepared papers appeared, claiming errors in our study, with our responses delayed months and longer. The delay permitted our paper to be commonly referred to as “discredited”.’²²

Again, the exact same tactics are used against creationist scientists. In fact, in most cases, letters from creationists to the journal are often refused outright. Indeed, such prejudice is openly admitted and defended by Karl Giberson, editor of *Research News & Opportunities in Science and Theology*:

‘If an editor chooses to publish a hostile review of a book, common politeness would suggest that the author ought to have some space to respond. But editors have a “higher calling” than common politeness, namely the editorial mission and guidelines that inform every decision as to what will be printed and what will be rejected. I have learned, since becoming the editor of *Research News*, common politeness is often in tension with editorial priorities ... In my editorial judgment, the collection of ideas known as “scientific creationism” (which is not the same as intelligent design) lacks the credibility to justify publishing any submissions that we get from its adherents. I would go even further, in fact. The collection of creationist ideas (6,000 year old earth, no common ancestry, all the fossils laid down by Noah’s flood, Genesis creation account read literally, etc.) has been so thoroughly discredited by both scientific and religious scholarship that I think it is entirely appropriate for *Research News* to print material designed to move our readers away from this viewpoint. For example, we might publish a negative review of a book promoting scientific creationism ... while refusing to allow the author a chance to respond. Is this an unfair bias? Or is it proper stewardship of limited editorial resources?’²³



Photo courtesy www.wikipedia.org

A well known case of fraud includes the Piltdown man hoax, which was not exposed for 40 years.

Coercive consensus

The consensus of the scientific community is often cited as a justification for the discrimination against creationist theories described above. But how genuine is this consensus?

As Thomas Kuhn points out, scientists starting out do not start from scratch by rediscovering all the currently known scientific facts and repeating all the experiments that lead to major new discoveries. They do not personally inspect all the evidence, read through all the data, and check all the logic. Rather, as students, they learnt and accepted the currently held theories on the authority of their teachers and textbooks.²⁴ This is indoctrination, not consensus. Moreover, much of the apparent consensus is artificial and enforced. Scientists have to choose which projects to pursue and how to allocate their time. Younger scientists need to choose which research projects will lead to tenure, gain them grants, or lead to controlling a laboratory. These goals will not be achieved by attacking well established and widely accepted scientific tenets and theories. As a visiting fellow at Australian National University recently pointed out, many researchers feel that any new research which challenges or threatens established ideas is unlikely to be funded, and therefore, they do not even bother to put in an application.²⁵ Older scientists, on the other hand, have reputations to defend. Thus, Bauman concludes:

‘Whether we want to admit it or not, there is a remarkably comprehensive scientific orthodoxy to which scientists must subscribe if they want to get a job, get a promotion, get a research grant, get tenured, or get published. If they resist they get forgotten.’²⁶

In fact, in many cases, even reviewers lack consensus in regard to the validity of specific research. Ewen and Pusztai’s research on the effects of feeding genetically modified potatoes to rats was reviewed by both the Royal Society and leading medical journal *The Lancet*. All six Royal Society reviewers pronounced the research ‘flawed’, yet five out of six of *The Lancet*’s reviewers judged

that the research should be published. As Richard Horton, editor of *The Lancet*, asks, ‘how can two (reasonably) well-regarded organisations peer review the same work ... and yet come to such radically opposite conclusions about its validity ... ?’¹⁷

In any case, the history of science demonstrates that the consensus has often been wrong, and spectacularly so!

‘As recently as the mid-1970s, the scientific consensus among climatologists and scientists in related fields was that the earth was about to enter a new ice age. Drastic proposals were made, such as exploding hydrogen bombs over the polar icecaps (to melt them) or damming the Bering Strait (to prevent cold Arctic water from entering the Pacific Ocean), to avert this impending disaster. Well-reputed scientists, not just uninformed wackos, made such proposals. How quickly we forget.’¹⁰

Conclusions

Given the above, it should be clear that the failure of creationist scientists to get their work published in mainstream peer-reviewed journals has nothing at all to do with the quality or validity of their research. It is for these reasons that creationist scientists generally do not bother submitting papers that directly support a creationist interpretation of the natural world. Any such papers would be dismissed out of hand as being unworthy simply on the basis that they advocate a creationist interpretation. The quality of the research, the soundness of the arguments presented, and the validity of the logical conclusions would not even be considered. Thus, creationist scientists have created their own peer-reviewed journals and forums, such as the *Journal of Creation*, *Creation Research Society Quarterly* and the *International Conference on Creationism*. The review process in these forums is no rubber stamp, and just because a particular article advocates a creationist position does not mean it is guaranteed publication. Submitted articles are tightly scrutinized, and many are rejected due to methodological and other flaws or because they do not reach the required high standard.

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