

H. G. Barnett's book, *Innovation: The Basis of Cultural Change* (McGraw-Hill, 1953)

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ABSTRACT

H. G. Barnett was Professor of Anthropology at Oregon University when he issued *Innovation: the Basis of Cultural Change* (McGraw-Hill publishers, 1953). We review the book in great detail. The title of the book shows a clear problem with innovation: it involves change. Suppose you don't want change. You're happy with *status quo*. You teach physics and know your job. The last thing you want is any massive revolution, but that's not what you're thinking when you reject radical revolutionary ideas. Instead of thinking like an evil conspiracy member, you think quite rationally and reasonably: "most new ideas of a radical nature are wrong, so I'll save myself a few hours of annoying time-wasting by rejecting this paper without checking it out carefully. The probability that it will be a mistake to do so is one in a billion or less. Why not spend a pleasant evening with my wife or friends instead? Even if I do get it wrong, I can defend myself by saying the paper wasn't clearly written or whatever, and as a last resort I can simply put up my hand and admit to making an error and 'only being human'. I've nothing to gain by defending this guy, and everything to gain by ignoring him." This is actually a rational enough, non-conspiracy, explanation for much of the censorship that innovators in physics do experience, especially when they have really radical ideas, aren't well known, and when the mainstream is obsessed with speculative superstring quackery which is popular. The rejected author usually ends up in a row because the subjectiveness of the "peer" reviewer is pretty obvious. The author will respond that the "peer" reviewer has ignored the substance of the paper and hasn't been objective or offered constructive criticism, but has just rejected pro-forma on the basis that the type of content is "unsuitable" (closing down the discussion without leaving any room for a "time wasting" discussion of exactly what the problem is). In a sense this is the age-old conspiracy of *status quo* dominated "mainstream science" against radical ideas, for as Barnett states on pages 69-70:

"Murray's study of nineteenth century scientific theories [Robert H. Murray, *Science and Scientists in the Nineteenth Century*, London, 1925] is relevant at this point. His aim has been to show that important new ideas of so recent a date were almost without exception ignored or rejected by the scientific fraternity itself because they did not conform to one or another of the accepted doctrines of the leaders of opinion. The observations and discoveries of Jenner, Simpson, Lyell, Pasteur, Darwin, Lister, Helmholtz, Metchnikoff, and scores of lesser contributors were greeted with disdain or incredulity. Repeatedly their critics refused to even be shown. Helmholtz, for example, had difficulty getting physiologists to pay any attention to his ophthalmoscope ... Most illuminating of all is the fact that **one dogma fell only to be replaced with another**. [Emphasis added]

"It would be unrealistic to believe that dogmatism in science ended in 1900. Even if we did not have such flagrant examples as the Nazi doctrine of Aryan racial supremacy and the Communist credo of dialectic materialism, it would not be difficult to point to less publicised instances. They are known to every discipline in small or large degree. **Every area of knowledge at the present time has its 'big names' whose opinions in science and out of it carry weight and prevail over the views of lesser lights just because they are recognised authorities**. [Emphasis added] ... It is as easy to be pontifical in the scientific domain as in any other, especially after a lifetime of dedication to the proof of an idea. Religion ... can be thoroughly dogmatic ... Dogmatism is a frequent concomitant of a systematized creed and a well-institutionized priestly hierarchy. The essential condition is unified control with a discipline that is dedicated to its unquestioning support. This condition directly parallels the requirement for an authoritative secular administration. In both instances it is necessary that there be only one source of truth and that the source be accorded enough power to enforce its dictates. In religion this condition has been met by the exclusionist faiths ... The authoritarian bias is strengthened by the development of a priesthood ... Heretical views may not be tolerated, not only because they are contrary to the inveterate truths, but because they threaten the economic and the ideological commitments of the church fathers."

REVIEW OF INNOVATION: THE BASIS OF CULTURAL CHANGE

This is a well-written but virtually unreadable book due to *extremely small type*. Even by using a photocopier to enlarge each page by 150% from A5 to A4 size, the type then is only about 9 or 10 point. This poor publishing/printing probably explains why the book was well reviewed but has had little impact. One good point is that footnotes are appended to the pages, not gathered in a list of book or chapter end-notes, which make pseudo “academic” books unreadable. “End notes” originated in the immense cost of page notes in the days of hot metal typesetting. Linotype or monotype would be used to set galleys of type, and it was much cheaper to keep all the notes together in lists at the end of the book than to have them divided up and appended to the individual pages. Modern academia using computers no longer needs to burden the reader with having to keep checking to the end of the book or chapter to read end-notes; it costs nothing to append notes to pages on a computer. However, the quacks of academia that have nothing to offer except imitation of “orthodoxy” prefer the end-notes to make their books “look professional” regardless of the inconvenience to both writers and readers.

Chapter 1, *The Protagonists*, on pages 17-18 discusses protagonists of innovation who argue the case that:

“man is by nature a mentally lazy and complacent creature who has to be shocked or forced into the conception of a new idea. [Emphasis added] ... vigorous and violent resistance ... typically greets departures from tradition. ... [due to factors like] the inclination that men have for imitating others ... Their opponents [the censors of innovation] ... **admit that new ideas are usually resisted but point out that in spite of this deterrent they continue to occur.** [Emphasis added] ... To those who maintain that new ideas are rare, inventors [of **popular** ideas] are in some measure always geniuses. They are exceptional individuals with uncommon intellectual capacities and strong motivations. ... Their basic innovations usually initiate a series of new developments that have had to await a foundation. These sequels are merely ‘elaborations’ and ‘improvements’ made by lesser men. ...”

This passage is pretty dense with ideas that we’ll comment on in a moment. The first thing to be said is that Barnett basis his book on innovation across six different cultures, five being ethnic groups (three Western American Indian tribes, Europeans, and the Palauans of Micronesia), plus one religious group (the Shakers). Barnett organizes his analysis of innovation by its incentives, its processes and its acceptance or rejection decisions. Not back to that quotation above.

First, innovation is clearly the cause of most of the problems in the world, in the sense of wars and also cultural shifts in society caused by clashes either between civilizations or between immigrants and indigenous peoples who resent innovative customs that don’t fit accepted habits of their society. Such innovative immigrants are then outcasts and other groups will tend to use them as scape-goats for society’s ills, whether rightly so or not. British Protestant immigrants to Ireland over three hundred years ago, for example, resulted in a long history of friction. The same occurs today with the Jewish state of Israel and the more militant Shia Moslem Palestinians who would prefer the Jews to go away.

Second, the “genius” myth needs discussion. As Barnett wrote, those who ignore innovations are rare tend to claim that any good innovations will be due to geniuses, so there is no problem. If someone is clever enough to discover a usefully predictive theory of quantum gravity, for example, surely they’re clever enough to convince someone with influence of what they’ve done, and thus to market the idea. Therefore, there is no problem of censorship. Censorship is needed to protect society from being submerged in noise made by loud-mouthed quacks and cranks who distract attention from good science. To put it another way: why don’t these geniuses simply rise to the situation of being a famous professor or President, and then use their position of power to announce their discovery? The problem here is again that this causes wars and completely misses the whole point about a major *motivation* for *radical* innovation being dissatisfaction with status quo. In other words, many radical innovators have tried to succeed within *status quo*, become dissatisfied with it, and become radicals. It is precisely the schism with orthodoxy that leads to the innovation, so it’s asking too much to expect every innovator to be a card-carrying member of the orthodoxy, especially when the orthodoxy has a suspicious paranoia towards revolutionaries.

It’s like saying that if you don’t like Hitler/Stalin, you should become a Nazi/Communist Party Member in order to have a chance of nicely persuading Hitler/Stalin to reform. There are a couple of reasons why you would *not* expect this to be a successful policy. You would understand Hitler/Stalin

well enough to realize that a criticism of such paranoid people would be taken by such dictators as with hostility and you'd be labelled a dimwit or a traitor, and if you persisted in being a nuisance, you'd be "fired" (maybe with a bullet). The over-hyped "do gooders" who believe dogmatically in the letter of the law and not the spirit of the law, will always insist on peaceful negotiation from a position of weakness, neglecting the inevitable failure of right versus might (Chamberlain vs Hitler at Munich).

Lord Acton put it neatly: "All power corrupts ..." If you don't have a gun, you won't be taken seriously. For this reason, wars occur. Terrorism is *reversal* of Clausewitz's dictum that war is an extension of politics: terrorism is an attempt to *start* politics. Terrorists want a place at a negotiating table or a voice in society. Because they're a minority, democracy does them no favours. They have no power to speak, so they try to get it by using bombs or bullets. The first response of the opponent is naturally outrage, not a statement: "we're behind the terrorism because we suppressed these terrorist when they just wanted a voice, thus forcing them to resort to violence!" We're not condoning violence here, but we point out that if you want to understand it, you might want to consider whether it is actually a response to censorship of freedom of speech, rather than accept official propaganda which insists it's irrational and that everyone has freedom of speech.

Taboos on free speech are enforced by ex-communication and censorship ("this correspondence is now closed", "you mustn't make provocative statements", "Godwin's Law prohibits that complaint of yours from being made") are routinely applied. Orwellian "doublethink" and "groupthink" censor out radical ideas as being provocative, speculative, or boring. As Orwell wrote in *1984*, "crimestop means ... being bored or repelled" by taboo heresy. Taboos hold up progress so are a conservative political tool, often "justified" by speculative fear-mongering about the dangers of innovation for society, while ignoring or downplaying problems with status quo. E.g., ignoring the risks that come from an enforced stagnation of society against progress, justified by mottos like "if it works, don't fix it!"

USSR Marxism and Nazi eugenics were excellent examples of groupthink pseudosciences which subjectively censor out individualism and free thinking as being disloyal to society. Bigoted dictatorships like these carry heavy propaganda apparatus which claims them to be progressive and wonderful, and it is extremely hard for outsiders to combat the resources of the propaganda machine. This also applies to a loner developing a theory of quantum gravity, for example, and being compared to the output of mainstream propaganda from the multimillion funded string theory lobby. It's pretty obvious who gets the most media attention, and who gets the funds to promote their theory with TV series and glossy adverts masquerading as objective "peer"-reviewed scientific journal papers. The Marxist appeals also asserted that innovators who spoke out in favour of changing the system were selfish publicity seekers, arguing in effect "we must all agree to the same Marxist dogma to eliminate differences and to increase our unity of purpose, to decrease division and reduce dissent and misery!"

The string theory community is similarly bigoted against radical criticisms of its foundations yet pretends, just like the USSR, to be progressive and welcoming of genuine debate and innovation! The key point is that the idea "so many people can't all be wrong" doesn't apply when all are adherents to a falsehood. Going back to Barnett, in Chapter 2, "The Cultural Background" he states on page 40:

"The Size and Accumulation of Ideas. The size and complexity of the cultural inventory that is available to an innovator establishes limits within which he must function. The state of knowledge and the degree of its elaboration during his day, the range and kind of artifacts, techniques, and instruments that he can use, make some new developments possible and others impossible. The mere accumulation ... **allows for more new combinations and permits more different avenues of approach in problem solution than does a small one.** [Emphasis added] ... Einstein could scarcely have developed his theory of relativity had he lived in the Neolithic age, nor could the atomic bomb have been invented in the days of Newton. The cultural base must provide the materials for further development. If the necessary ingredients are not contained in the inventory that is available, a new idea involving them is obviously impossible.

"Sometimes the question of availability of innovative resources relates to the intellectual perspective of the innovator. His cultural horizon may be limited to the knowledge that exists only within his own society, or it may extend beyond ... With well-developed channels of communication there goes a greater possibility of building up intellectual resources."

This is the crux of radical innovation: can you learn enough to find good raw tools to innovate with?

In addition to this accumulation of ideas, Barnett on pages 41-42 argues that:

“Important as it is, the accumulation of ideas provides only a minimum condition for innovation. If the elements of the cultural inventory remain disparate and disconnected in time and place, the situation is no more propitious for innovation than it is when the resources of the society are scanty. The cultural materials that provide the basis for a new conception must come to a focus in the mind of some individual. There must be a concentration of ideas in the personal experience of the innovator. ...

“Some societies provide more opportunity for a concentration of ideas than do others [the USSR spent the Cold War spying on American industrial innovations, because the socialist “equal pay” society failed to provide enough sticks and/or carrots to motivate rapid progress of the American sort] and, consequently, a more stimulating climate for change. Where there are any cultural or natural barriers to an exchange of ideas, there will be proportionately less opportunity for their mixing and remodelling. Thus, the physical isolation of people, for whatever cause, hinders their intercommunication and therefore the concentration of ideas.”

I disagree because it's often quicker and more satisfactory to read articles or books in a library, than to spend hours having conversations that ramble off topic, where you have to listen to irrelevant gibberish in an effort to be “polite”. It's more efficient and quicker to read a book or then use the contents page and index, than to speak to people. (The “conferences of physics” are tax-dodging excuses for vacations in exotic locations, in addition to a socialist/comradeship group-think paper-printing aspect.)

Collaboration can even occur indirectly in *competitions*. Take the analogy of a running race with runners in different lanes parallel to one another, all racing beside one another at the same time. They are competing but can be motivated by one another. At first, on a long race, they may mostly stick together running slowly at first in a pack to maximise endurance, use each other as pacers, and to conserve their energy for a sprint near the end. Then at some point one or two will begin to break away and make the final sprint. If they break away too soon, they will lose energy and be overtaken. I always found this kind of race scientifically absurd and unfairly daunting to runners with inferiority complexes. Why not be fair, and eliminate psychological factors by allowing each runner run separately in isolation, timed by a stopwatch? Then compare times, determine the fastest time and announce the winner. The usual answer is the anti-communist statement that competition has a collaborative aspect to it: people enjoy running in a pack and are motivated by beating others. In other words, far from seeking to “fit in” or be individuals, people actually do best in competition.

Barnett discusses “The collaboration of effort” on page 43:

“The likelihood that a new idea will develop is enhanced if several individuals are simultaneously and cooperatively exploring the same possibility. A collaboration of effort not only pools the concentration of ideas of several individuals, but also increases the chances that one of them will solve their common problem. Moreover, their interactions are mutually stimulating. The views of one collaborator are an impetus to new ideas by the others. ... Collaboration ... is not a natural phenomenon ... It is culturally induced and sanctioned. ... In our own society ... where the scientific tradition has been so firmly implanted, there are numerous institutions which encourage the collaboration of effort in scientific discovery and invention. Professional associations, study groups, clubs, and cults are organized for the interchange of ideas. Symposia, conferences, workshops, institutions ... numerous publications to announce the results of researches and to publicise new knowledge and new theories.”

I disagree. All this long list is corrupted (Lord Acton: “All power corrupts ...”) by petty bureaucrats and by big bandits. Most “scientific” journals that censor out new facts also now hide their articles behind expensive pay-by-article fire-walls to effectively ban the spread of knowledge, preventing poor “outsiders” having any access! Collaboration is anti-revolutionary in its nature; it is the antithesis of revolutionary science. In fact, well-meaning efforts to collaborate in my experience lead to the exact opposite: lying agreements where someone nods as you explain something complex very carefully, and then they smile and say the exact opposite (ignoring all you've said, or demonstrating that they haven't understood or listened, but have still misled you by nodding instead of having a debate or details!), paranoid hysteria, personal abuse, destructive conflict, stealing ideas (academic plagiarism), etc.

In 1996, shortly after developing the kernel of my idea for quantum gravity calculations, I had the misfortune to read a long humble-sounding letter bemoaning censorship of physics in *Electronics*

World written by the electronics innovator, wafer-scale integration pioneer Ivor Catt, and wrote a reply. A long correspondence began with Catt initially expressing some sympathy and interest in the physics I was concerned with. However, as time went on it became clear that he would not enter any discussion of the kind of physics I was doing, regardless of how long I spent looking into his work and writing about it, including some I wrote in *Electronics World*. He wanted nothing to do with quantum theories! Nor does anyone else. After six years of censorship by journals, an attempt to start a discussion on the *Physics Forums* internet site in 2002 simply attracted ignorant abuse by people who had no interest and used false sneering arguments to avoid reading my paper, attacking previous theories deemed “similar” which were wrong and which my paper had corrected. An appeal to the moderators to eliminate this kind of Nazi-like abuse from quacks who had nothing to say about my paper on a thread of discussion I had started simply led to abuse from the moderators of *Physics Forums* who also hadn’t read my paper and had no interest in it, followed by a closure of the discussion. It’s worse than merely “a waste of time and effort” trying to get collaboration: the mainstream is bigoted and abusive towards innovation.

Collaboration is groupthink socialism, party politics. If you’re really original, by definition you’re going to be in conflict with others. Barnett on page 44 admits that science does have another form of collaboration of an informal, “impersonal and indirect” kind through reading simply publications:

“The individuals who participate in it often do not know each other; they have never met and there is no direct communication between them. Yet they ... are familiar with what is common knowledge in the field. ... Informal collaboration is the explanation for numerous instances of independent and often simultaneous inventions. Ogburn and Thomas have compiled a list of almost 150 of these parallels [W. F. Ogburn, *Social Change*, Viking Press, N. Y., 1938, pp. 90-102].”

On page 46, Barnett more usefully considers the evidence for innovation to arise not through collaboration or cooperation, but through war and conflict. WWI, WWII and the Cold War directly and indirectly created the technology and science we now enjoy. Quantum mechanics was a reaction to the fall of the Weimar Republic as explained by Paul Forman in 1971. The first computers were built to break the German message codes like “Enigma” and “Fish”, to predict the energy releases from different designs of nuclear weapons, and later were miniaturised with microchips to guide missiles. No matter how much you detest war and conflict, you have to admit that wars of liberation and also civil wars led to many modern democracies including France, Britain, and America. Without conflict and war you get eternal dictatorship, censorship and stagnation. Barnett on page 46:

“*The Conjunction of Differences*. Teggart, the historian [Frederick Teggart, *The Process of History*, Yale U. P., 1918, p. 112], has insisted that the ‘great advances of mankind have been due, not to the mere aggregation, assemblage, or acquisition of disparate ideas, but to the emergence of a certain type of mental activity which is set up by the opposition of different idea systems.’ In his opinion ... new ideas ... arise only when the clash of ideas provokes comparisons and critical discussions of the differences. **The individual is thereby released from the trammels of tradition and is able to express himself in the organization of new customs.**” [Emphasis added]

Wars and conflicts break down taboos and traditions: women got the vote as a result of their work in factories during WWI, similarly, the British colonies in India and Africa were given independence after WWII was fought on the banner of freedom and independence. Two billion dollars wouldn’t have been secretly spent on nuclear fission from 1942-5 in the absence of war. Fears and conflicts don’t just motivate money squandering; they also motivate individuals to work on solving hard problems quickly. Put it this way: if there hadn’t been WWII but for some reason Uncle Sam still allocated two billion dollars to nuclear fission, the results would have been much slower. The scientists would have milked the research budgets, and trying to get job security for life by working “steadily” instead of rushing to a quick conclusion.

We see this effect in the history of the aeroplane, where the Wright brothers built and flew the first aircraft on a shoestring without media interest, while a lavishly funded academic attracted press attention despite failing with an immense budget and better access to aerodynamic theories. The Smithsonian Museum, which had sponsored the quack, actually displayed the charlatan’s aeroplane for decades, mislabelled as the first powered flight craft! It was taboo to admit that the first powered flight was made by a couple of bicycle repair shop owners on a shoestring budget, after a learned professor with war department and Smithsonian funding had failed. Barnett discusses taboos on page 320:

“In 1819 the high chief Liholiho of Hawaii dramatically renounced the taboo system which, among other things, forbade women to eat certain foods and men and women to eat together. Except among the small group of his inciters, his revolutionary action was shocking. He, like Ikhnaton, was divine and his power absolute; but this status did not induce his subjects to embrace his blasphemy. On the contrary, he was denounced by many and had to fight a civil war to maintain his position, a war that he was able to win only because of a superiority granted him by the possession of alien firearms. [Reference cited: James Jackson Jarves, *History of the Hawaiian or Sandwich Islands*, E. Moxon, London, 1843, pp. 197-200.]”

This is of course the “start the revolution by becoming the leader” delusion: leaders can’t innovate in a revolutionary way if the revolution is unpopular. Leaders only lead because they tell their people what they want to hear. The moment the leader tells the people that he’s going to do something unpopular, trouble arises. The leader is then opposed, deposed, forced to conform to popular opinion, or forced to become a dictator and use the power of a police state to carry out his popular wishes. This is why leaders in democracies go to immense propaganda efforts to disguise unpopular policies as wonderful ideas, instead of being truthful and admitting they’re unpopular but necessary because of a shortage of money or the result of a government error or policy failure. Similarly, we can expect concerns to weigh on the minds of “leaders or editors of science journals” who don’t want to take risks with unpopular revolutionary ideas that upset the readers and cause the editor to lose credibility and power.

In other words, there are limits to power that are easily ignored by revolutionaries in the foothills, who cannot understand why the leadership is so conservative. The reason for being conservative is to maximise social harmony and maintain power. Even so-called “Marxist” leaders are really conservative, keeping to old ideas and suppressing radical demands for innovation and improvement.

On page 65, Barnett discusses the effects of authority versus social freedom on innovation potential:

“The Dependence upon Authority. There is a positive correlation between individualism and innovative potential. The greater the freedom of the individual to explore his world of experience and to organize its elements in accordance with his private interpretation ... the greater the likelihood of new ideas coming into being. Contrariwise, the more the reliance upon authoritative dictates, the less the frequency of new conceptualizations. **When individuals are taught to revere and fear authority as the ultimate source of the good, the true, and the proper, they cannot be expected to have variant notions. When they are indoctrinated with the virtue of dependency, the ideals of curiosity, personal inquiry, and evaluation are denigrated** [Emphasis added] ...”

Education is always concerned with authority, even with playing games according to fixed rules, as Plato pointed out in *The Laws*. The danger of innovation that Plato warned of is that children get confused between right and wrong if free-thinking and rule changing is allowed. This is the “danger” of the football game in which the goalposts are constantly being moved around and the rules of the game are being changed without notice. It is the “danger” of the changing textbook which confuses the student who receives references to a particular page from a tutor or a particular “fact” which gets changed between editions as knowledge accumulates, when the exam papers are based on the old edition of the textbook. In a university course in the 1990s, the tutor sent out a warning letter to buy the *old* edition of a textbook on *The Holocene* before the revised one replaced it, simply because the course and exams had been prepared printed using page numbering and text in the old edition. This shows the basic conflict between educational exams and research. Barnett, page 66:

“... indoctrinating the young with group standards in accordance with parental interpretations of them is by nature an authoritarian mechanism. The aim of the elders is to inculcate norms, and this must mean the ignoring or overriding of individual differences in attempts to level them. The aim of standardization is never fully realized, and is perhaps scarcely ever fully intended. Individual differences always remain, but the program is basically and severely delimitative of personal whim and preference. And it is ex cathedra. It does not tolerate rational inquiry. It maintains itself by fiat and coercion ... socialization as such is an authoritarian device ...”

Coercion is often welcomed and demanded by those who become reliant upon divine authority as a source of guidance and security, for example in religious dogmas and popular politics. This conflicts with individualism. Individuals always lose to socialists: “might is right”. The fact that individuals, by definition, lack strength of numbers makes them lose any conflict against collaborations or gangs.

WHY PEOPLE INNOVATE

Barnett on page 101: “In many instances, people strive deliberately for novelty with the recognised purpose of receiving credit for their cleverness.”

People work for money, or praise. There is nothing special about business, which is the same thing. If you acquire skills to prune trees, you seek to be paid or at least praised for implementing that knowledge. If you develop a working theory of quantum gravity, and have to struggle spending time and effort to get it well presented and appreciated, you might expect some kind of book deal or other financial recompense, or at least morale raising support. If you are merely attacked and called “selfish” or “capitalist” for innovating, well, those charges could be levelled at anyone in business, and if you have *not* sought money or praise, then such charges are plain lies. Barnett on page 103 states that for other innovators:

“... monetary considerations are irrelevant. Their fundamental craving is for power, and they exploit the admiration that inventive genius inspires to gain a following. Thus, cult leaders ... who pride themselves upon their popularity are less interested in the merits of their ideas than in the favorable impression that they themselves make.”

These cult leaders who want a following rather than wanting to understand the world and get their ideas right, are dangerous and are behind the mainstream fallacies like the intrinsically non-falsifiable superstring theory. They want power of the political party popularity sort, or the religious dogma sort.

On page 105, Barnett discusses the fact that innovations are made despite the censorship risks and fears:

“In the first place, it is a well-recognised fact that now all new ideas receive a public welcome. On the contrary, many are rejected and their proponents scoffed at or reprobated. This to some extent true of the majority of innovations, but it is a marked public reaction to new ideas in the conservative aspects of a culture, as in the religious field ... Despite this deterrent, new ideas constantly appear, even when the innovator fully anticipates the disfavor that he brings upon himself. Indeed most innovators soon learn, if they do not already know, that rewards, if they come at all, must be won by auxiliary means, irrespective of the intrinsic merits of their ideas.

“Secondly, many innovations are made without any thought of credit [accidental ideas or discoveries for instance, including quantum gravity predictions in 1996]. ... he is more likely to become infamous than famous because of them, and he knows it [**this accounts for why I have not been able to get any objective Q.G. discussions with anyone like “peer” reviewers, let alone find a collaborator!**].

“Thirdly, some innovators disavow or reject credit for valuable ideas. ... under certain circumstances this is merely a culturally dictated pretension: a manifestation of false modesty ... a lip service to the social depreciation of materialistic self-seeking. The person who makes a point of disclaiming credit when he knows that he deserves it may sense that more good is going to accrue to him just because he belittles his own talents. ... he simply recognises that it is more advantageous for him to conform to ideals than to fight them.”

FORCING INNOVATION FOR SURVIVAL OR TO REDUCE PAIN

Your plane crashes in the jungle, the wreckage hidden from aerial view by the tree canopy, and you have to innovate over your diet because there’s no restaurant handy. At first, you go without, but eventually pain of hunger means you have to resort to innovating by sampling the local wild fruits and so on. You might sample small amounts of wild berries at first to see if they are toxic. If they go down with no problems after a few hours, you will feed safe to eat more of the same sort. *This kind of innovation is forced on people by pain*, hunger. Similarly, Hitler pressures on scientists led to V1 cruise missiles and V2 inertially guided IRBM rockets, both with 1 ton warheads, a major innovation for a dictatorship, and the USSR put both the first satellite (Sputnik, Russian for “fellow traveller,” a Cold War communist sympathiser term) and the first man in space. Barnett states on page 164:

“When a penalty is attached to ignorance, the gamble of a guess is preferable to failure; and the result is frequently novel.”

In other words, if you threaten to fire scientists, or end funding contracts, and if they can't bring out a general strike in the country or get irrationally screaming power-crazed *Guardian* newspaper columnist kids to "defend" them on BBC TV propaganda "news politics shows", then they might stop sending back reports stating "more research is always needed before we come to any conclusion on anything, ever." Then they might actually stick their necks out, formulate a hypothesis and test it. In other words, pressure in some cases may force scientists and other people out of their complacent ivory tower and into the real world of business, i.e. *returning significant results in return for their pay check!*

However, Barnett adds on pages 164-5 that such pressures lead to liars telling lies to get squeeze out:

"Forced guessing of this sort also warps the courtroom testimony of witnesses and that of anyone else entrusted with valued information or somehow supposed to be in possession of it. ... Several venerable self-defense mechanisms that aim at avoiding punishment appear ... One such is the argument *ad hominem* which resorts to personal attacks upon an opponent to distract attention from the threatening ideas or principles that he represents. Closely related is the technique of issuing a cross complaint or making a countercharge which seeks to turn attention away from one's own vulnerability by exposing and magnifying the weaknesses of an opponent. The 'red-herring' technique [**today called the "data dump" method of science propaganda, i.e. delivering a vast number of weak or useless bits of research and pretending that if you just have a vast enough collection of trash to throw at an enemy, the huge number of lies adds to the equivalent of one strong argument; this is used in IPCC environmentalism scare-mongering for socialist world government type political agendas, please see our vixra review of Delingpole's *Watermelons***] is also a tactic to confuse issues and disorient attackers.

"The resort to devices for the suppression [**subjectively "closing down the argument" if you know you can't win rationally, i.e. labelling opponents as "imperialists," "warmongers", etc., in place of addressing the substance of the argument in an objective, honest manner**] ... is a common practice where it can be brought into play. Suppression need not require anything more original than the application of force; but the need for security has at times evoked remarkably subtle and diversified methods of gaining and maintaining information controls, ranging from propaganda to blackmail. The nullification of damaging rumors and opinions by supplanting or converting them also calls for talent, as when an individual or a political party accepts an epithet hurled in malice and turns it into an asset [e.g. **Russia news media labelled Thatcher an "Iron Lady" with intentional rude malice for opposing dictatorship in the name of communism; but she openly accepted that label with alacrity as a sign of strength and resolve!**] or deflects it and causes it to boomerang."

On page 166, Barnett explains how coercion from experimental data based on nature itself force Max Planck to reluctantly develop a quantum theory of radiation. Note that Planck's *derivation* of his equation fails to discriminate between spontaneous and stimulated emissions, and Einstein provided a better derivation of Planck's equation later. As with the original derivation of Maxwell's equations from a mechanical model by Maxwell in 1861 to fit the speed of light in 1856 deduced by Webber from combining electric and magnetic force law constants, Planck's fiddled a theory to model the experimental spectrum curve of radiating power versus wavelength! This fiddling was scientific, although Einstein's derivation fifteen years later was mechanically accurate, Planck had made a vital first step. Planck's equation, like Maxwell's vital gear cog "displacement current" equation "needed for mathematical symmetry" (when Maxwell's laws are written in *Heaviside's vector calculus form, originating in 1875, after Maxwell's death*), is right but his reasoning in the derivation was inadequate.

However, it was *still science*, it was progress; like Archimedes' argues in his *Method* many if not all great mathematical laws start off as *guesses* and the valid proofs are constructed later. The little smatterers of mathematics who try to dismiss early first-draughts of new mathematical laws of nature as being based on flimsy or false premises miss this point. You don't dismiss an artist or a writer for producing a first draft that is poorer than the final finished product! The usual tendency for the "professional" to try to cover up, deny and hide evidence of inferior early stages of a book, painting or equation is dangerously harmful to students and to the future of science. It is often caused by bigots who want to ignore the finished product by sneering at weaknesses in the development of the idea. Archimedes' *Method* which exposes the "tricks of the trade" *is like a magician giving away his secrets*. The problem with "professionals" generally is their desire to close ranks against outsiders, to dismiss "amateurs" as "unprofessional". Problem is, "professional" means business, i.e. making cash, getting

money and thus influence and power by what they're doing which can lead to corrupt business practices like **cartel mafia agreements**: *unwritten attempts to corner and divide up the market, exploiting/shafting customers by ramping up costs for profit, ensuring that any outsider entering the business to provide genuine competition gets bricks through their shop window daily and gangs of chanting thugs outside their premises by day, to drive away any customer, until they go bankrupt.*

Anyone professional is *making a living out of what they're doing*. Some may try to do so honestly, others less honestly, and the ratio of honesty to dishonesty is controlled by the *enforcement available*. If IPCC scare mongering and screaming thugs from the *Guardian* newspaper on the BBC news politics propaganda channel of TV shut down research on objectively investigating shortcomings in one research dogma, then honest brokers will be forced out of town. (If there *is* any IPCC *fact* accidentally published in their lies filled reports, it's *well camouflaged by bigoted lunacy, plus biased subjectivity*.)

This is because *honest science simply can't compete with state-sponsored liars who undercut them*, churning out "scientific papers" full of lies at the rate of hundreds a week, "peer"-reviewed by bigots with a warped political agenda which censors as "suspect" anything honest. Professionalism is all well and good when it can be kept honest. But thug gangs running "eugenics science" for a profit constitute professionalism gone wrong. Hitler was a professional fascist. That doesn't do credit to professionals!

Barnett, page 166:

"Planck postulated the existence of quanta of energy because that was the only conception of it that could be described mathematically. No one had been able to set up an equation to describe the emission of light from a luminous body as a continuous stream of energy [so Planck was forced reluctantly into making the radical departure from accepted Maxwell type continuous waves to quanta] ... The contradiction between the requirements of logic and the existing theory of the nature of energy transmission finally compelled Planck to reject the stream theory and to postulate that radiant energy is emitted in pulsations or quanta that vary in amount with the frequency of the light. ... out of this conception developed the theories and researches of Einstein, Bohr, Rutherford, and others to revolutionize the Newtonian concepts regarding matter and its motion."

In other words, Planck had to overcome hostility and group-think to set in place a revolution, later writing in his *Scientific Autobiography* that none of his hardened dogmatic opponents were ever won over, and instead his scientific theory became popular one death at a time, as his opponents died off.

This isn't really the best selling slogan for the objectivity of the scientific enterprise, so it's usually downplayed in adverts for science. The marketing side of science prefers to present an objective scientific revolution as being welcomed and scientists as being prepared to change their views. They don't want to admit that professional scientists are more bigoted and entrenched by the most illiberal bigots of warped religious hate mongering dogmas! It's not surprising. (If you are paid for results and have to attract kids into science, and you can't do anything to reduce bigotry in science, then *tell lies!*)

Notice that Planck was reluctant to innovate because he knew it would be "controversial" on principle, regardless of whether he was technically right or wrong. As Robert Kennedy said, progress requires change, which has its enemies, and 5% of the world is against everything all of the time. That 5% is more vocal than the other 95%, so the 5% of the world composed of screaming bigots, strikers and militaristic Luddite terrorists or marching "environmentalist" left wing communist cranks that oppose progress, get into the TV and media by *being disruptive or blowing people up*. The views of the other 95% aren't expressed emotionally in the media. So the media by its very nature tends to give the oxygen of publicity to minorities *that resort to disruptive attention seeking, downing out rational voices by raising the "noise level"* with Orwellian "four legs good, two legs better" slogan-bleating.

THE PROBLEM OF FAMOUS PEOPLE NOT TURNING INTO REVOLUTIONARIES

Barnett on page 319 addresses the problem of famous people not turning into revolutionaries. If you are unknown and start announcing a scientific discovery from a soap box in Speaker's Corner, you'll be heckled by bored who will suggest you first use your "genius" to become famous, and then come back to the soap box, and people will *then* be prepared to listen without heckling and downing you out. But there some problems with this. First, you might have been driven into your innovation not by being a "genius" in orthodox status quo (which is more likely to lead to being welcomed and appeased

by status quo) but by being an outcast with a hearing or speech problem (or both) or some other disability. Many innovations result because people become fed up with the existing mainstream propaganda machine. In other words, the innovator may be actually motivated by the need to be heretical to a system he or she despises. The mistake is made by “critics” of such innovators that they aren’t “successful” because they are not welcomed with open arms by the mainstream that they hate!

For example, some biographers of Oliver Heaviside have criticised him for his attacks on Sir William Preece, a bigwig who ignored Heaviside’s correct suggestion that adding loading coils to transmission lines would increase the inductance and thereby minimise frequency-dependent distortion. Basically, Preece thought resistance and poor cable design was the problem, and that some kind of improved cable would prevent distortion. Heaviside theoretically proved that transmission lines (pairs of wires to carry electricity) have magnetic inductance and capacitance in addition to having mere resistance. The inductance and capacitance can’t be overcome by simply adding an amplifier: you just get a louder distortion! To clear up the muffled speech over long distance voice carrying analogue signal wired telegraph lines, you need to understand the cause: that different frequencies are being attenuated differently. The telegraph line is acting as a frequency dependent filter, which causes voice distortion. To overcome this, you add loading coils that act as natural frequency resonators for the most severely attenuated frequencies, cancelling out the distortion. Sure, Preece was right that adding loading coils effectively adds to the resistance of the transmission line. You need to use more power or have more amplification when using loading coils, but it’s the only way to solve the problem.

As Head of British Post Office Research on voice telephones, Preece’s decision to dismiss Heaviside’s loading coils idea prevented them being patented in Britain (an American called Pupin eventually patented them, making millions). Heaviside didn’t have the money and resources to get a patent and start manufacture by himself, so it ruined Heaviside’s financial stability and also postponed British long distance distortion free telegraphy for twenty years! Heaviside, who first in 1875 wrote the so-called “Maxwell equations” in vector calculus form to show symmetry, was an “amateur” mathematician whose hearing problems had cost him a career. By ignoring him, Sir William Preece made a powerful enemy. Heaviside mocked Preece with poems printed at the beginning of his articles published in electrical industry trade magazines. Eventually Preece’s entourage forced the editor to stop publishing Heaviside. But Preece was a “joke” inside the industry. The censorship just made him into a dictator.

Now some biographers of Heaviside point out that he was a “loser” who should have appeased Preece and tried more diplomacy. Actually, the same could have been said by biographers of Jesus in describing the quarrel between Jesus and the High Priest. You could say “Jesus was a loser because he failed to be diplomatic enough and thereby got crucified!” The problem here is that Jesus and his followers didn’t judge “success” and “failure” by the criterion of whether or not you manage to appease a big wig dictator with a Knighthood from king, queen or elected politician, sufficiently to get a nod of approval! Instead, the motivation of Heaviside and perhaps of Jesus was to not to win over status quo, but to go around the back of it, to ridicule it as absurd and to reduce its pompous arrogance.

Judged by *that* criterion, you don’t see these people as “losers”. In fact, you see the people applying “loser” labels and stickers as narrow-minded, “authority”-appeasing, dictatorship-appeasing bigots.

Such “biographers” of Heaviside have completely ignored the most elementary basis for his motivation, which was to effectively stick up a finger at pomp and ceremony, not to become part of it. To such “biographers” who judge “success” purely on financial rewards and Knighthoods, Jesus was probably a “loser/failure who was charmless, rude, sulky and non-diplomatic got himself crucified.” Again, we stress that this tells you more about the “biographer”’s arrogant incompetence and narrow-minded bigotry than it tells you about the subject the “biographer” is supposed to be writing about.

Barnett on page 319 explains the limitations and the influences that coerce the “famous” quacks:

“Esteem is based upon past performance, and this fact establishes a liability as well as an asset. An eminent man owes something to his admirers, and one of his obligations is to meet their expectations of him. These expectations may be imposed upon him because of the status accorded him by birth, or they may be extrapolations based upon his achievements. **In either case they impose restraints upon his behavior and forbid radical departures from the norm that has been determined for him or**

that he has evolved for himself. A reputation is an obligation to conform, and it permits little freedom in advocating novel ideas.” [Emphasis added]

If that is true, then radical innovators don't want “fame” or should not want “fame”. The basic problem is, like a pile of money, fame is something that is hard to come by and easy to lose, so it is the source of worry and leads to self-censorship and a lack of flippancy for fear of ridicule, etc.

Barnett in chapter 10, “The Advocates of Change” (page 291) moves on to discuss how changes do occur, by trying to define the people who advocate change. As we have just explained, famous people do not as a rule advocate change once they are famous. They may *become famous* for implementing a change, but then – once famous – they are forced to become relatively conservative by being given a peerage, knighthood, or making easy money out of fame, for fear of becoming unpopular and losing their fame. Alternatively, if they do continue to be revolutionaries once famous, they are soon labelled as controversy and publicity seekers and go out of fashion, are ridiculed and lose fame.

So how can there be any advocates of change, and who are these advocates? Barnett on page 291:

“Innovation and Acceptance. From the standpoint of social consequences the fate of an innovation is as important as its conception. Many new ideas are stillborn, and countless others are ephemeral and perish without a trace. Some are only casual thoughts; others become cornerstones of faith. Some affect only the innovator himself; others, millions of individuals. Some are bitterly resisted, others are welcomed. For some the welcome comes early, for others it is tendered late. These are clearly matters of importance, quite apart from questions concerning origins. ...

“In discussions of this subject a distinction is sometimes made between the acceptance of a new idea by people within the cultural sphere of the innovator and acceptance by those of other ethnic groups. The growth in popularity of a new idea within the society of its origin then comes under the heading of ‘adoption,’ ‘acceptance,’ or some similar term, whereas the passage of an idea across ethnic boundaries is usually referred to as its ‘spreading,’ ‘borrowing,’ or ‘diffusion.’”

As stated in my November 2011 vixra paper on the quantum gravity confirmed prediction of dark energy and particle masses, the mechanism for Galileo's social acceptance wasn't a popular love for freefall acceleration ideas, or a rotating earth. These ideas had been proposed by Aristarchus of Samos, together with the solar system, in 250 BC but they were ignored as boring, and falsely “debunked” in 150 AD by Ptolemy's earth-centred universe advert. Although Galileo introduced some experimental evidence like rolling balls down inclined planes and dropping objects, his evidence could and was easily ignored by bigots in positions of authority! Likewise, Darwin's evolution had previously been suggested, based on fossils found in rocks on high mountains, by Anaximander (or whoever it was). The point is in both cases bigoted authorities refused to look at the evidence and the advocates of the discoveries who were most forceful were those who were against the bigoted authorities and used Galileo and Darwin as battering rams with which to attack, in pretty violent language, status quo!

This is something that is generally ignored entirely or severely downplayed by bigoted “histories” of Galileo and Darwin, which perpetuate the myths that their experimental evidence smashed down barriers and forced opponents to welcome them or throw in the sponge. My argument is that this is all hogwash, for example Galileo's evidence on rolling balls ignored the inertial momentum of rotation and didn't provide a direct measurement for the acceleration due to gravity; Darwin's theory of “continuous variation” contradicts the discrete nature of DNA mutations, etc. The point is, if Galileo and Darwin didn't have their ideas seized for use by anti-Pope, forceful pro-reform advocates who used them for anti-establishment propaganda, they wouldn't have become famous in the way they did, which was probably a critically important way even to the present day.

They were and are both so famous not for being great scientists: plenty of other people did better science but aren't remembered, most being ignored even in their own time until after their death, like Mendel of genetics fame. They were famous instead for being controversial news. Now this fact is the source of a great deal of very obvious bigotry in science.

Famous scientists today will happily attack anyone trying to get attention for a correct alternative theory of quantum gravity that made successful predictions, by labelling them “publicity seekers” or “controversial”. But this ignores the hypocrisy that they don't dismiss Einstein for “being

controversial” in 1905, they don’t dismiss Dawwin’s work for “being controversial”. You see where I’m going, here? There’s definite hypocrisy. When you point this out, it becomes paranoia.

You’re then accused of “comparing yourself to Einstein”. But, that’s sophistry because if I compare myself to some totally unknown, censored out figure that nobody has every heard of, like Aristarchus of Samos, then you won’t understand my point because you won’t know what I’m talking about! Similarly, if I accuse a bigoted dictator of behaving like “Hitler” I’m choosing Hitler as the analogy because he’s a better known pseudoscientific eugenics lies dictator than Stalin who was even worse. If I compare a dictator of science with Ptolemy, then nobody will know what I’m talking about. Obviously, in comparing a science dictator to Hitler, I’m referring to Hitler in the 1920s or 1930s as relevant, prior to the actual holocaust, although the IPCC liars have long begun making a holocaust with their diversion of funds from the Third World industrial revolution, pushing up grain prices etc.

The key fact is that in the case of Galileo and Darwin, new media hyped the stories as being controversial because there was an undercurrent of hatred directed against the autonomy of the Roman Church and its illiberal attitudes on society. Thus, Galileo’s discoveries were used as propaganda for ridiculing the pseudoscience of church science authorities like St Thomas Aquinas, who advocated Aristotle’s pseudophysics, not Aristarchus’s solar system. Darwin’s discoveries were used for ridiculing Biblical Creationism, again to undermine and make absurd the hard line attitudes of divine authority used by the Catholic Church for maintaining hegemony, to collect money to justify invading Africa to convert “heathen” and so on. ***Again, we emphasise: Galileo and Darwin became famous because their loudest advocates seized on their “science” to use it as propaganda ammunition for fighting the bigotry of hard line religious dogma.***

The reason for emphasising this is that it just doesn’t sink in, it is dismissed or diluted by most histories, and the message is crucially important for understanding the mechanism by which innovation really occurs. It’s not and never has been driven by objectivity. Even today, the hard line Darwinists are usually more interested in fighting Biblical Creationists than objectively evaluating errors in Darwin’s theory, Darwin’s ignorance and avoidance of Mendel’s genetic mechanism for evolution, etc.

The implication of this that I wish to really emphasise here is this:

POPULAR SCIENCE = POLITICS.

MAYBE IN AN IDEAL WORLD THAT SHOULD NOT BE SO, BUT OBJECTIVE ANALYSIS OF ALL THE FACTS PROVES OTHERWISE. STATING A FACT IS NOT ADVOCATING THE FACT! TELLING THE TRUTH ABOUT CORRUPTION DOESN’T MEAN YOU ENDORSE IT!

LOVING LYING FAIRY TALES IS NOT A VALID EXCUSE TO IGNORE THE FACTS.

IPCC LIES AND HATRED OF OBJECTIVE CRITICS PROVE THIS TODAY STILL APPLIES TODAY, JUST AS IT DID IN THE TIME OF GALILEO AND OF DARWIN.

POPULAR SCIENCE IS A FASHIONABLE, LUCRATIVE, POLITICAL ENTERPRISE AND THE SOONER THE WORLD STOPS CENSORING MESSENGERS OF THIS FACT AS “AUTISTIC”, THE BETTER.

If you refuse to understand problems objectively, you effectively refuse to solve the problems. If you want to understand how scientific revolutions come about to solve problems, you need to understand conflicts, murder, oppression, hatred and war, and keep away from lying fairy tales written for babies.

ACCEPTORS OF INNOVATIONS

Barnett’s chapter 14, “Acceptors and Rejectors” deals with four classes of people who accept innovation: Dissidents, Indifferent, Disaffected, and Resentful. In product marketing theory used in retail industries, the sales cycle of a new innovation being with sales to “early adopters” who like being the first to adopt new ideas and products, and ends with “laggards” who wait until a revolution is complete before joining it. If you think of the Nazi or the Communist pseudoscience groupthink revolutions, the first to join were the disaffected and the poor, those who felt personal hardship as a

result of overcrowding and poverty. This contradicts the fairy tales that would have you believe that in a revolution, the rich and powerful are in control. It's really the opposite. Barnett on page 318:

"The Dissident. There are substantial reasons for believing that there are individuals in every society who have consistently refused to identify themselves with some of the conventions of their group. They may give lip service to certain customs to avoid punishment, but they mentally or symbolically shun them and would dispense with the necessity of conforming with them if they could. The more courageous and independent these dissenters are, the more they openly rebel and withdraw from participation in the offending customs. ... the dissenter is certainly more likely to be attracted by a new alternative for the custom in question than is the person who is satisfied with it. This is not to say, of course, that a nonconformist will accept any new alternative. He has the freedom of choice with respect to novelties just as does anyone else. The contrast to be made is between the conformer and the dissenter, not between novelties; and when this is done it is evident that acceptance probabilities are weighed on the side of the dissenter."

In other words, as for Galileo and Darwin, the advocates come in the form of rebel "fellow travellers" who are dissidents themselves, and object to *status quo*, and are more likely to consider an alternative idea, than are mainstream leaders. This is important if true, because it would mean that a revolutionary scientist should be writing not to try to reform mainstream leaders (as impossible as squaring the circle), but instead should be writing for fellow dissidents. This would affect the presentation and style of writing needed, and also the outlet. If you are writing for poor dissidents, you might not actually be helped by publishing through a limited print run at Cambridge University Press, with your book overpriced and edited in pompous fashion. "Know your market," goes the old marketing proverb!

On pages 385-6, Barnett considers the indifferent, i.e. pre-indoctrinated kids:

"The Indifferent. Many individuals are prepared to accept new ideas because they have not dedicated themselves irretrievably to a custom or to an ideal of their society. Their receptive attitude is not due to a dislike of existing conventions ... On the other hand ... they are not enthusiasts. They do not achieve complete identification with the ideas ... not being committed unequivocally, they find no contradiction in adopting alternatives or in abandoning what others value. They are more open-minded and objective than their opposites, those who have committed themselves. The greatest number of individuals in this category are children ... until and unless they have become indoctrinated ... Harvey remarked that no man over forty years of age accepted his discovery of blood circulation when it was announced."

On page 401, Barnett considers the really hardened, bitter revolutionaries, the Peter Thatchell's and the Marxist socialist agitators, who **seize any excuse to protest against the injustices of illiberal dogmas:**

"The Resentful. ... the most highly valued goals [fame, wealth, happiness, power, influence, etc.] are such just because comparatively few individuals are able to share them ... Some people ... feel that they have been unfairly treated and never really accept ... the lesser prizes ... They are not resigned to their fate ... they are markedly receptive to the suggestion of a change which will at least equalize opportunities, or perhaps even better, put them on top and their smug superiors on the bottom. ... the resentful individual is more susceptible to a suggestion of change because he has less to lose by accepting it, and in extreme cases he has nothing at all to lose and everything to gain, so even a gamble is attractive."

Thus, Communism and Fascism took hold among the poor in bankrupt states. As Barnett points out on page 127: "... the undervalued person wants personal recognition and has to innovate to get it ..."

FAILURE OF PROTOTYPES, NASCENT INNOVATIONS, AND INITIAL MARKETING

"[Einstein's] final manuscript was prepared and sent to the *Physical Review*. It was returned to him accompanied by a lengthy referee report in which clarifications were requested. Einstein was enraged and wrote to the editor [27 July 1936] that he objected to his paper being shown to colleagues before publication... Einstein... never published in the *Physical Review* again."

- Abraham Pais, *Subtle is the Lord, the Science and the Life of Albert Einstein*, Oxford University Press, Oxford, 1982, p. 495.

There is a saying, “a stumble may prevent a fall.” Sometimes, as in the well-known case of Einstein 1936 paper submitted to the *Physical Review* disproving gravity waves, censorship does a helping hand: Einstein’s paper was wrong in a detail. Without admitting an error, Einstein quickly discovered the fault, reversed his conclusions and published the corrected paper elsewhere, saying that gravity waves are indeed possible. Some advocates of peer-review try to use this as evidence that peer-review was proved right in refusing to publish Einstein’s original 1936 paper with its error as it stood. However, this assumes that it is a disaster for a paper with a mistake to get through peer review, i.e. that errors must be detected and eliminated prior to publication. Suppose *Physical Review* had published Einstein’s incorrect paper in 1936. It would now exist! The paper was lost or destroyed after it was rejected. We would also have a concrete example of a genius making an error in print.

Now to listen to the censorship quacks paid to edit “peer”-reviewed journals, the universe would have ended if that occurred. No good can come of publishing error as far as they’re concerned, and it’s the whole basis of science to censor error. Let’s paraphrase the legal bias of *innocent until proved guilty*:

“Better for a hundred million mass murderers to go free, than to risk inconveniencing one innocent.”

This is applied to science “peer”-reviewed journals as follows:

“Better to publish a hundred million pages of worthless orthodoxy than to risk publishing one error.”

Barnett on pages 359-360 discusses *partial errors in vital nascent scientific papers and experiments*:

“Many [vitaly important and partially correct] innovations, just because they are untried, are [at first] clumsy, inefficient, and untrustworthy. Their uncertain or disappointing performance under test leads to impatience and skepticism among persons who would otherwise welcome them. **Prospective acceptors are not willing to take a chance or serve as experimental subjects or dupes. They do not want to invest in white elephants or to accumulate gimcracks.** [Emphasis added] ...

Vaccination was resisted ... advocates ... did not want to retreat from their earlier claims that it afforded permanent immunity. Antisepsis was rejected by many doctors who ... failed to achieve the results claimed by Lister. In fact, by 1875 repeated failures by medical men in England, Germany, Belgium, and Holland had led to reaction against its use. Lister’s advocacy of carbolic acid spray for the atmosphere around a patient’s wound ... was useless and could be harmful [although other ideas of Lister, mixed up with errors like this, were useful!]. The first automobiles were cumbersome and unreliable. ... The practical realization of a new idea is very often a costly undertaking [even writing a well organized and impressive textbook or paper that makes an impact costs research time and effort, etc.]. ... [In some crucially controversial cases] The idea is acceptable and has important implications, but the returns to be expected are not commensurate with the investment required to produce it.”

Barnett explains on page 294 that because the failure of nascent ideas and newfangled prototypes:

“Embryonic innovations are frequently put aside through a lack of perseverance. Comparatively few people have the persistence repeatedly to rework a basically good idea until it can meet the tests of practicability or logical consistency. Most people lose their enthusiasm for their novel conceptions with a few discouragements. Then, too, many do nothing because they know that innovators are seldom honored and are often ruined, financially and otherwise, through being identified with their ideas.”

A couple of comments on this passage: first, Faraday and Edison both made remarks to the effect that they had a thousand failed prototypes or failed experiments per useful success in the laboratory or in theoretical work. In other words, persevering and accepting a great deal of sifting through garbage or failed junk is needed to weed out useful innovations. Faraday also allegedly made the remark to Queen Victoria (or whatever) that a new nascent idea like electromagnetic induction is about as “useful” as a new-born baby, in other words it’s a burden and useless until it has had years of investment, help, and development. In addition, the fate of the unarmed poor innovator was lamented upon in an infamous, cynical passage of *The Prince*, by Machivelli, who said basically that unarmed prophets and unarmed innovators come to grief; people are only persuaded of progress by using gun-boat diplomacy threats.

EVOLUTION OF NASCENT IDEAS OR PROTOTYPES INTO BEST-SELLING RESULTS

Barnett states on pages 250-1 that it is usual for a great deal of evolution to take place before a successful innovation is ready for acceptance by others:

“Almost every inventor finds that he must modify his initial conception before it becomes workable. He has to ‘eliminate the bugs’ by trial-and-error experimentation. Rossman [Joseph Rossman, *The psychology of the inventor*, Inventor’s Publishing Co., Washington, D.C., 1931, pp. 61-2] lists this step as an essential one for most technological innovations; and, as he says, the final result may be entirely different in form from the first idea, although the two very likely will have something in common.

“The end result of a long innovative series may be so far removed from the initial conception that it gives no clue as to the characteristics of its ancestor. Successive elaborations upon it make devious turns so that it is impossible to see any resemblance between the contemporary product and its early beginnings.”

The difference between Lamarkian evolution and Darwinian evolution is an example. In order, however, for a single person to do all of the development and evolution of an idea, a great deal of perseverance or support is needed. Rossman’s *The psychology of the inventor* (Inventor’s Publishing Co., Washington, D.C., 1931) reports at page 40 that professor inventors rated perseverance the most important attribute for an inventor. People whose egos are damaged by failure and who have committed themselves to their chosen innovation are likely to feel that self-respect demands persistence until they succeed. This doesn’t clearly guarantee success where it is impossible (or where it requires more than the devotion of a single person, which amounts to the same thing in most cases). But it can allow success to be a possibility, whereas it would not be a possibility if someone lacked the ego, self-control, or self-respect to drive perseverance.