

Reflections on the scientific community's relationship with the popular press

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I have been a participant observer of an interesting and somewhat disturbing interaction between those who submit to and read peer-reviewed scholarly publications and the popular press. Often the public takes for granted that anything published in the scholarly press is “real” or “true.” Others infer conclusions based on these scholarly publications and then enlarge and popularize some published results for their own needs. Often scientific issues that are looked at as “interesting” or “entertaining” or both are then expanded and discussed in the popular press, often using the “peer-review” moniker as substantiation for their own unscientific and sometimes outlandish claims.

By the popular press, I am referring to general news publications and television networks (which seem more about entertainment these days than news), as well as a variety of digital platforms including podcasts and video social platforms such as TikTok, Instagram and Facebook. These outlets have a profit motive, sometimes disguised as news format, which can take scientific information and produce dramatic and often entertaining stories of their own. Some “news stories” of this sort that I have recently seen are scary and partially scientific analyses of what is coming with the “Super El Niño” ocean water warming in the Pacific and controversies over artificial intelligence (AI) and data centers. Are catastrophic weather events and AI datacenters with associated AI going to kill off humanity? Bring destruction to us all? Can readers possibly know the scientific basis of some of these claims? Likely not.

I don't wish to weigh in on those stories, but instead on another one, which has once again “reared its head” (from the English author John Milton in the 17th century, meaning a snake rising on its hind legs or lifting its head to look around or strike). It is the controversy over a geophysical archaeology story that began in the peer-reviewed publication world and was quickly taken up by the popular press in some wild and outlandish ways. This involves the claims to be able to look into and below a pyramid on the Giza Plateau in Egypt. As I was one of the peer-reviewers of the original publication that sparked these stories, I am claiming (rightfully or wrongly) to have an obligation to speak out on this issue, which I have done in the popular press a variety of times. Especially as this story originated in the peer-reviewed publication world, it provides a good example of the fraught relationship between

scientific journals and many other popular press outlets that partially rely on scholarly literature results. I have discussed a portion of these issues in a short paper you can find on this site titled “[There Is A Coming Crisis In Peer Reviewed Publications In Our Field](https://gpr-archaeology.com/there-is-a-coming-crisis-in-peer-reviewed-publications-in-our-field/)”:

<https://gpr-archaeology.com/there-is-a-coming-crisis-in-peer-reviewed-publications-in-our-field/>

This interesting story began in 2022 with an article titled ***Synthetic Aperture Radar Doppler Tomography Reveals Details of Undiscovered High-Resolution Internal Structure of the Great Pyramid of Giza***, written by Filippo Biondi and Corrado Malanga. I was given a draft of the paper to review in early 2022, which I did, and responded to the editor of the journal *Remote Sensing* with a short review. In that review, I told the editor that I didn’t have the ability to understand the plethora of equations that the authors included in the draft paper, and that while I found it potentially interesting, the journal editor should find someone else to rely on who had the ability to dissect and understand their extremely complex mathematical and geophysical methods. I am unsure what happened after I submitted my review within the *Remote Sensing* editorial process, and in 2022 I quickly forgot about it.

However, a few years later I was given a copy of the published article and was moderately chagrined to find that it had been published by *Remote Sensing* in full, exactly as I had reviewed it, with apparently little or other reviews taken into consideration that might have commented on the scientific logic that was included in it. I again forgot about this article and chalked it up as just another example of peer-reviewed publications not taking their review process seriously. At the time I considered this just more of the crazy world we live in. Thinking back to 2022, we had just come out of COVID craziness, and there were more many pressing issues to confront that I mentally put this into the “this is crazy” category along with much else.

By the spring of 2024, this little-read and almost unknown article on the Egyptian pyramid, in a journal that, as far as I can tell, no one subscribes to and few people read, had morphed into a huge story in the popular press. It began with the authors holding a press conference, at which they held up their peer-reviewed publication as the basis for some truly amazing claims about the interior of one of the Giza Pyramids. The claims by them and others then came fast and furious and got the attention of the popular press, which embraced some of the points in the article and expounded on them (perhaps with the help or collaboration of the authors?) to make other claims about being able to see spiral staircases below the pyramid and some

features within the pyramid proper. In some of these more outlandish stories there was a discussion of shafts with spiral stairs leading down 1,000 meters or more into the ground (where the temperature would have been outrageously hot). I could not keep up with all the new claims but was asked to comment on them as news outlets around the world contacted me to comment (having found out I was a reviewer of the original publication in *Remote Sensing*). It was a crazy time for me, which seemed to go on for weeks. I suspect that much of the interest arose because the claims involved the pyramids of Egypt, which always stimulate curiosity. I tried my best to talk about all these stories' claims with people from all over, but it quickly became time-consuming. There was a science editor from the New York Times (or was it the Post?) who called me sometimes three or four times a day as new claims were generated on various social media platforms. I tried to maintain a scientific approach in all these contacts and to not "call out" anyone using any of the scornful appellations that were going through my head at the time.



Thankfully, all this died down in a few weeks as the popular press moved on to other entertaining stories with a quasi-scientific background, such as plastic waste that is

turned into edible cookies, “zombie spiders” of Northern Ireland and one story about everyday anxiety being caused by chewing gum that actively releases microplastics into the saliva. Some of these may have a good scientific basis for all I know, and I can’t comment on any of them. I am only glad that they superseded the Egyptian pyramid claims that had dominated my life for a time.

But no! Again, in the last few weeks, the popular press has returned to the pyramid issue due to the retraction of the paper discussed above, originally published in *Remote Sensing*. <https://www.mdpi.com/2072-4292/18/16/2679>

Once again, the pyramid story entered the popular press. I was not aware this effort to have the paper retracted was happening but found out later that scientists with much more electromagnetic theory knowledge than made a case to the editor of *Remote Sensing* that the article should be retracted due to serious methodological problems. The basis of their critiques was that Maxwell’s equations, which explain electromagnetic propagation, would have to be greatly modified to make the case that was central to the conclusions of the 2022 paper. As this had not been done since 1865 when James Maxwell published his paper *A Dynamical Theory of the Electromagnetic Field* it seems the critiques of their methodology were on firm ground.

But again I was the “go-to” guy for the popular press (along with all my other sins), and a new crop of reporters soon appeared. I discussed my original connection to this debate here:

<https://www.youtube.com/watch?v=pVRPe6f2Eis>

I also gave another interview after the retraction of the paper, which you can see here:

https://www.youtube.com/watch?v=AczE_0A_Xxg&t=111s

I understand there are many other articles and stories about the pyramid claims, but I have no time for this anymore, as it has occupied too many weeks of my life and destroyed too many brain cells in the process.

What I am writing about today is instead a short analysis of where the scientific community sits within the framework of the popular press when stories of this sort are used either as entertainment or as pseudo-scientific analysis. Some of my colleagues are outraged that the original article was published (I am notoriously linked to it as one of the original reviewers, though I claim innocence in its emergence in its final published state). While I commend some of my colleagues

for having the article retracted, I know many others who preferred to ignore all this, perhaps as it is “situation normal” in the crazy world we live in. I go back and forth about where I sit on this issue. Would it have been easier to just “move along” and after the initial entrance of the claims on the popular press state and just to have forgotten about it? It is too late for me to do that, as my name is now part of the controversy. So, instead, I have decided to be the one to “take the flak” by discussing the original claims by pointing out how science is done, while trying not to get involved in this issue in any other way. Time will tell whether this will be possible, but I think that someone needs to address the logical and scientific fallacies about the pyramid claims in an evidence-based way.

Now that I look back, my mistake was perhaps not to give the editor of the journal a more forceful “reject” in 2022. I remember thinking at the time after reading the draft paper that it was “kind of crazy,” but wondering if perhaps there was something hidden in all those equations that someone smarter than I might be able to sort out. That was my only reasoning for not rejecting it outright. I always try to give people the benefit of the doubt, but make sure that others can weigh in also.

I have always believed that there is a threat to science when researchers suppress an unknown methodology or reject claims that may not reflect the scientific consensus at the time. The **Scientific Method**, as properly applied, does not confer privileged access to “the truth” but only gives those of us who follow it a way to understand the world. It is a method for proposing and then testing working hypotheses, often those that challenge our own or others’ assumptions. This is how new ideas can be tested, but conclusions can be reached only if they are backed up by data and evidence. This way of doing things also allows for correcting errors or assumptions that we may make, especially when we publish within the scientific literature, if we use a scientific framework and proceed in a collegial way. We must remember that even well-supported conclusions are not necessarily “true” or “fact.” All conclusions must be based on rigorous analysis and be worthy of defense in a collegial debate, while making sure to remember that published works are not “the final word” in any scientific debate.

Unfortunately, the peer-review process for academic publication has sometimes fallen down in this type of analysis when determining what is to be published and what is to be rejected. As the co-editor of *Archaeological Prospection* with Chris Gaffney for almost 18 years, I know that both of us were committed to providing a platform for authors to publish even somewhat “out there” or novel results, as long as they were backed up by data and rigorous analysis.

In the case of the Egyptian pyramid claims, I think there were many competing factors at play:

1. The desire of authors to publish quickly.
2. The publisher's motivation to accept articles for publication, especially as they charge subvention fees.
3. Third parties' claims made after publication that conclusions were not supported by the data, analyses and observations.
4. An interest by the popular press in anything that involves the Egyptian pyramids.
5. An expansion of the original claims by the authors of the pyramid article, going far beyond their conclusions and including (but not limited to) extraterrestrial interactions of some sort and paranormal phenomena.
6. A misunderstanding by the public in general about the meaning of the phrase "peer-reviewed publication," with the belief that by being published in peer-reviewed publications the results have become "fact."

I always remember from decades past that, regarding claims of UFOs and alien visits to Earth from outer space, astronomer Carl Sagan popularized the phrase "extraordinary claims require extraordinary evidence" in his 1979 book *Broca's Brain*. This is now known as the **Sagan Standard**. Perhaps we all need to remember this when drawing conclusions using science in our own fields and projects.