

## SETI and the Media

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**Abstract.** Of all the research areas of modern discovery science, few attract more attention than the search for extraterrestrial intelligence. This is partially due to the fact that SETI is accessible, since the public can readily understand the goals of the research. The man in the street also finds SETI particularly exciting, a fact reflected by the ubiquitous presence of extraterrestrials in popular culture. The media interact with SETI in three areas: (1) reporting on research efforts, (2) being the principal conduit of information in case of a SETI detection, and (3) linking the subject deliberately or otherwise to the many stories of alien visitation. In this paper we will discuss the way science meets the media, and how and whether this often dicey relationship might serve to raise the general level of science literacy.

### 1. Introduction

SETI's relationship with the media is a test bed and a laboratory for a more general interaction: one that largely shapes how science is conveyed to the public. Unlike in the times of the Roman empire, science is no longer an incidental human activity, the intellectual and societally irrelevant musings of a few geeky Greeks. Science, and its highly sexy offspring, technology, are the defining activities of the modern world. Ten thousand years from now, when historians pen a brief synopsis of the 20th century, it won't be the world wars they write about. It will be our first forays into space and the invention of the computer. A frequent measure of where a country should be ranked these days is energy consumption per capita. I daresay that an equally good metric is the number of scientists per capita. Despite the growing importance of science, few people — even in the self-designated First World — actually get much formal training in the subject. And if they do, it's usually a required course in some aspect of science that they either think they like (not physics, in other words), or which they think will be easy (again, not physics).

Even college graduates are often only vaguely conversant with science. When I read in some newspaper a few years ago about a study that showed that the principal source of science knowledge for American kids was the TV series "Star Trek", I wasn't surprised. In fact, I was somewhat gratified by the fact that at least the "Star Trek" producers had recently enlisted a consultant to make sure that the show's scientific premises weren't completely bonkers. I then felt guilty that I had felt gratified.

Let's get something straight, as they say in the surveying business: the media — and especially the electronic media — can't teach science. They can call it The Learning Channel, but TV shows aren't really about learning. A book, or its electronic equivalent, which is set up for pedagogy, is about learning. When you don't understand something in a book, you read it again. A film or TV show just keeps spooling off the reel, and you never go back. Learning science is something that, by and large, occurs outside the media.

But there are things that the media can do: Because of their emotional content, the media can generate excitement for science. It's undeniable that all those cheesy sci-fi films about rocketing into space have generated interest in astronomy among kids. The media can also bring to the public's attention science endeavors that spur young folk to pick up a book about dinosaurs or DNA or even what they can learn by digging in the sands of the Egyptian desert. That's what the media can do . . . and apparently have done with "Star Trek".

Most adults in America have spent far more hours watching the glowing phosphors on their TV screen than they have sitting in school classrooms. The facts are that while science may define modern culture, the media define modern existence. It's worth paying attention to how the media interact with science.

And, I aver, the interaction is particularly energetic when it comes to SETI.

## 2. What is it about SETI that Immediately Implies a Media Connection?

SETI is a popular subject with the media. That's simultaneously trivial and unusual. If you think about it a moment, it may occur to you that very few modern research activities are popular with the media. Grab Joe Sixpack off the streets and ask him what he thinks about the 1993 cancellation of the Superconducting Super Collider that was under construction in Texas. He won't think much. He might ask you, "what was it going to do?" If you answer something about finding the Higgs boson, it's unlikely that he'll say "well heck, we ought to be finding that"! Joe Sixpack isn't entirely conversant with why it might be extremely interesting to find the Higgs boson.

But SETI is different. While the details of this endeavor are actually fairly sophisticated, the basic idea is dead simple: search for evidence of aliens. A lot of people "get" that. They can understand what the goal of SETI is, and because of this — coupled with the excitement of the idea — SETI enjoys a privileged position; even relative to other space and astronomy work. As W. S. Bainbridge wrote (1983): "Unlike the Space Shuttle, where only experts may go, the messages possibly beamed toward us from other stars can be shared by all the citizens of Earth".

Indeed, SETI is comparable to dinosaurs and sharks in appeal, and to the question "does God exist?" in implication. It is a sexy subject, but it's also a deeply profound subject. What would it mean to our society and our culture to find intelligent beings on a small world 300 light-years away? A world we can't even see?

SETI also sparks controversy, and plenty of it. This is because of its proximity — at least in the public mind — to the matter of alien visitation. Have

extraterrestrial craft come to Earth to either save us from environmental catastrophe or to perform breeding experiments? Half of the population of America (and Australia, for that matter) think this is happening. And they invariably connect SETI with these matters.

But before taking on the controversy, let's first discuss some of the practical aspects of SETI and the media.

### 3. The Practical Side of Media and SETI

The first and most obvious interaction with the media that comes to mind is the announcement of a detection. The *Protocol for Activities Following the Detection of a Signal from Extraterrestrial Intelligence* — a short document with a long and latininate title — stipulates that the SETI community's responsibility in case of success is to notify the astronomical community, notify the government, and notify the public. The latter two of these notifications will be made by the media — I have no doubt the White House will learn of a signal from CNN.

Not surprisingly, this would be a major, major story. Indeed, a written poll I made three years ago of science journalists showed that all the respondents ranked a SETI detection as "of the utmost interest", and three-quarters ranked it at the level of the news about the assassination of John F. Kennedy — or greater. The expected lifetime of the story was variously gauged to be from days to many months, with a mean response of several weeks.

We got a hint of how that story might actually play out in 1997. In late June, Project Phoenix scientists experienced some rising blood pressure as they tracked narrow-band signals that, for nearly a day, convincingly mocked the behavior of an extraterrestrial transmission. In the end, the signals proved to be telemetry from the 10 watt transmitter aboard the European SOHO satellite, a million miles from Earth. The confusion was caused by a temporary failure of Phoenix's secondary antenna in Woodbury, Georgia coupled with a fortuitous positioning of SOHO relative to the sidelobes of the Green Bank 140 foot Telescope. But an interesting point is that a half-day into this incident, Bill Broad, a staff science writer for the *New York Times*, called me to inquire about "that interesting signal you're following". I assured Mr. Broad that I would be back in touch with him soon, and within six hours rang up the *Times* to tell him that we suspected the signal was due to a satellite, a fact that was confirmed shortly thereafter. The *New York Times* ran no story on the false alarm (although it piqued the paper's interest for a later feature piece).

This incident proved to me that the story of a detected signal will surely leak before any elaborate confirmation procedures are completed. And the way it would leak is, once again, instructive.

Imagine that the path of events in June had led in the direction of a legitimate signal, rather than to SOHO's distant door. I could not dissemble with the *New York Times* for the days required to thoroughly confirm our discovery. I would either have to lie or refuse to talk (both of which are untoward, violate my Mom's ethics, and would certainly lead to unpleasant consequences). Instead, I could simply state truthfully that the signal shows signs of being extraterrestrial, and that we're encouraging another observatory to interrupt their research to check it. At that point, even a responsible newspaper such as the *Times* might

run with the story, although they are likely to be far more conservative than the tabloid media. The latter won't care much about such niceties as confirmation at another observatory — they will print the story and take a chance.

So, as I have opined before in similar fora, you will first read about one of the greatest discoveries of all time in the supermarket check-out line. You can bet on that.

Any way you look at it, we will be immediately flooded by calls from the media and the public. So we should be taking some steps to make sure that there is easy and understandable media access to both information and experts. Pinotti (1990), suggested that a detection would provoke an "authority crisis" world-wide. Not a pretty picture. But I don't buy it, and really, there's no choice about making the news public unless SETI researchers adopt a cumbersome and self-destructive policy of secrecy. We can't do that. We won't do that.

So a true SETI detection will connect SETI and the media in a way that will surely affect all of humanity.

But what about a less-than-true SETI detection? Such things happen, and they also involve the media, although often in ways that we find less than agreeable. The most recent example occurred in 1999. In late October, someone hacked their way into an e-mail forum run by the SETI League, an organization headquartered in New Jersey that enlists radio amateurs in a very clever SETI project. The hacker soon posted a message of astounding implications, saying that he had received a signal on October 22 coming from the nearby star system EQ Pegasi at 1453 MHz. The poster refused to sign his name, implying that to do so would be personally dangerous.

This story was soon published by the BBC's on-line news service. They wrote on October 29 that "the scientific world is buzzing with the suggestion that signals from aliens . . . may have been picked up by a part-time astronomer". I point out again, this was the august BBC. August in October.

Within hours, some members of the media were asking for my opinion. I felt that I was responsible for making EQ Peg famous. On the night of September 15, while Jill Tarter and I were observing at the Brobdingnagian, 1000-foot diameter Arecibo Telescope, a signal caught my eye. It had passed the usual tests we do to sort out terrestrial interference from extraterrestrial. It got Jill and me out of our seats.

But we were soon back in them. The signal appeared in one of our "off" fields. It was clearly interference, and actually had the hallmarks of a low Earth orbit satellite. I wrote up this story for our Web site, and also as part of a series of articles I was penning for MSNBC. The EQ Peg incident was instructive, I thought, to show how we sort wheat from chaff in the SETI business.

So now, a month later, when some anonymous "amateur" claimed to find a signal coming from EQ Peg, I was immediately suspicious.

The evidence presented for the detection was poor to begin with, and never improved. I bring it up because some members of the media grabbed onto this story, and gave it "legs". Indeed, so leggy did it become that it actually prompted telescopic observations of EQ Peg here in Australia by Ray Norris and John Whiteoak, at the Compact Array and Mopra, respectively. Misinterpretation of these observations then encouraged Richard Hoagland, in the U.S., to predict that the signal was actually coming from an incoming, alien spacecraft.

He computed that the EQ Peg probe was going to hit our planet on December 7, somewhere north of Phoenix, Arizona.

Well, December 7 came and went without any aliens wandering into Phoenix from the north asking for directions or a cold beer.

These stories could be elaborated to include, for example, the recent crop circle “glyphs” at Chilbolton, England, in August, 2001. In retrospect, such false alarms, whether intentional or otherwise, have been instructive in teaching us that, even if a SETI detection lies in the distant future, stories purporting to report a detection don’t. The better the media get to know us, and the better access they have to our research and our persons, the less the chance that we will waste telescope time and that they will mislead the public.

To this end, Carol Oliver and I proposed at the last Bioastronomy conference that Web pages be set up that could be accessed in read mode by the media, and in write mode by SETI researchers. A recent proposal by Ivan Almar and Jill Tarter (2000) is to adopt a simple, quantitative scheme for evaluating claims of a SETI signal. Called the Rio Scale, this would be analogous to the Turin Scale used to evaluate the import of possible asteroid impacts. The Rio Scale would serve the media well, and thereby the public.

#### 4. Non-Detection Media Stories

I have spent some time describing the matter of the media reporting a discovery, or reacting to claims of a discovery made via SETI methods. But in fact, the media generate stories all the time about SETI in four areas:

- The rationale for SETI: why do we think they’re out there?
- The experimental details. The telescopes, the receivers, and how it all works.
- The expectation for success. We’ve been doing this for 42 years. Should we be discouraged?
- The societal implications.

I’m sure you’ve seen plenty of TV segments and magazine stories dealing with these. But what I haven’t mentioned is that much of the media interest in SETI folk involves stories that are not directly connected to our own research teams. For example, a new crop of planets is detected by the industrial firm of Marcy, Butler and company. Frequently, the media want to get SETI’s “take” on this. Perhaps there’s a hot result from the Mars Odyssey spacecraft indicating permafrost on Mars. What does SETI have to say? Planets are interesting, but critters are *really* interesting. Hollywood director Frank Capra said it a long time ago: “people are most interested in people”. Or aliens, since we usually imagine them as slightly weird people.

#### 5. What Good Is It?

All of this media attention is flattering, but is it worth it?

My answer is a thunderous “yes”. To begin with, we can get a bit of science out there. If “Star Trek” is the principle resource for American science education, then a 10 minute segment on SETI can’t do less than augment the amount of popular science product. SETI is a branch of astrobiology and therefore can help to convey the ideas and knowledge of a discipline that is finding increasing popularity both with the research community and in the schools.

Another point about the media is that television and film are emotional product. They can move people, at least figuratively. This is important, because there’s clearly a demographic bias when it comes to searching for cosmic company. This idea invariably — *invariably* — excites the young. So TV shows and movies that include something about SETI can function as a hook to get kids to read more about biology, astronomy, geology, and even computer science.

Finally, there’s the bottom line, which is, in fact, the bottom line. Media coverage of SETI can help us attract the funding that we need to do our work. Anyone in the non-profit world will tell you that when the media attention dries up, the funding usually does too.

Talking about SETI is talking about real science. But there’s a giant elephant in the room when you do so: it’s the whole UFO phenomenon. Flying saucers, abductions, goat-eating chupacabras, and government cover-up. When you mix SETI and the media, these ingredients are almost invariably thrown in. And that leads to a problem.

### 5.1. The Controversy

Roughly half of all Americans believe that not only are the aliens out there, they’re also here, visiting Earth. Likewise about half of the populace believe that the government is covering up evidence of this. There is a pervasive conflation of SETI and the UFO phenomenon.

There is presently no claim of a SETI success, but if there were, the evidence would be “up in the sky”, available for confirmation by anyone with a large enough antenna. That would be hard to cover up. In other words, SETI’s search for extraterrestrials is completely above-board, impossible to keep secret.

But the UFO folks routinely claim that visiting aliens are here now. Alas, the evidence is less than convincing, being mostly anecdotal or subject to multiple interpretation (including hoax).

But here’s the rub: from the public’s (and media’s) point of view, anyone who looks for alien signals must perforce also be conversant with, and interested in, the claims of aliens on Earth. Mind you, this is highly asymmetric: no one expects that MUFON or other UFO organizations will be building radio telescopes.

The consequence of this mix-up is that much of the tremendous media interest in SETI is related to lights in the sky, unauthorized breeding experiments, and so forth.

So when the media call up and want you as a guest on a radio show - but you know that the callers (and even the host) are going to ask you about crashed aliens in Roswell, New Mexico, what do you do?

In the days when SETI was a NASA program, talking to the media about this stuff was generally off limits. The concern was that SETI would lose credibility with the scientific community, “serious people”, and ultimately Congress.

The “giggle factor” often ascribed to SETI derives in some measure from this confusion, since people who are inclined to dismiss flying saucers often feel that SETI must be in the same camp.

But we’re no longer a NASA project, and the question of what to do when UFO’s are in the script is with us again. To what extent do we accommodate the media’s interest in interviewing us about UFOs, Roswell, and crop circles? Or even just placing our story in a show that includes these subjects?

This is a tough call. Indeed, it’s the toughest day-to-day media call for SETI. And it has an obvious analog for biologists — if creationism is in the program too, do you participate? Do you “take on” the opposition? Do you debate the creationists? Should I debate the saucer fans?

On the positive side, there’s the opportunity to get out some “real science” to the public. It seems a shame not to do this.

There’s also the possibility of “debunking” pseudo-science. On the other hand, debating the baloney sellers can be a “lose-lose” proposition. Their point of view — the aliens are out and about — is more interesting than yours — we are still looking for the evidence. In addition, you will usually be smothered in a sea of arcane minutiae, about which you have little to say, and which will make you seem uninformed, and therefore probably wrong. Again, this is similar to the dilemma faced by biologists who wish to debate the creationists. It’s a double bind: not to do so is to abandon the field. Doing it, on the other hand, may only worsen your situation.

## 6. What’s the Answer?

So what should we do? Lamentably, there’s no back of the book to this talk, no good, iron-clad answer — at least in my view. This is a case-by-case decision.

Blanket policies, such as “no UFOs in any SETI-related interview or TV/radio show” drastically limit our exposure, and serve no demonstrably valuable purpose. There’s no evidence that either the scientific community or the enlightened public think less of us because of being in a show about UFOs. But there is clear and demonstrable *good* to this exposure: at least some folks, most likely those “on the fence” between science and pseudoscience, will be able to contrast a carefully thought-out experiment with the claims of folks who think aliens have an interest in breeding with them.

On the other hand, one should beware of being trapped into situations where either (1) it is a “lose-lose” debate, or (2) the editing makes you seem dumb or irrelevant. I think the only bottom line in a presentation with lots of bottom lines is: don’t abandon the field. The science is too important. But choose your battles with some care.

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