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UFO UpDates Mailing List

Re: Deficiency In SETI's Drake's Equation

From: David Rudiak <DRudiak@aol.com>
Date: Wed, 3 Feb 1999 16:43:37 EST
Fwd Date: Wed, 03 Feb 1999 21:15:38 -0500
Subject: Re: Deficiency In SETI's Drake's Equation

>From: Jim Deardorff <deardorj@proaxis.com>
>Date: Sat, 30 Jan 1999 21:54:18 -0800 (PST)
>Fwd Date: Sun, 31 Jan 1999 17:04:47 -0500
>Subject: Re: Deficiency In SETI's Drake's Equation

>>From: David Rudiak <DRudiak@aol.com>
>>Date: Fri, 29 Jan 1999 23:22:01 EST
>>To: updates@globalserve.net
>>Subject: Re: Deficiency In SETI's Drake's Equation

>>Dyson's point here is that all we would likely see of this
>>sphere is the infrared heat signature. Any radio wave
>>communications (if they still were used) would probably be
>>largely confined to the inside of the sphere.

>Hi David,

>Dyson's Dyson-sphere sure is the height of impracticality, isn't
>it? If the advanced civilization he had in mind could convert
>all of the mass of a planet the size of Mars into material out
>of which to make the spherical shell, and if it were placed at a
>distance about equal to the Earth's orbit from the sun, the
>shell would only be 0.024 in. thick! (barring an arithmetical
>mistake).

I've never bothered to work this out before, but you're right.
This would give a new meaning to the phrase skating on thin ice.

>There'd be comets and meteors piercing it frequently,
>and no good way to let the solar wind escape, etc.

No problem. Just open some windows. 8^)

I can think of some other serious problems, such as virtually no
gravity inside or outside the sphere. What's going to hold an
atmosphere in place or anything else for that matter?
Temperature regulation would be another big headache. The inside
of the sphere has 24 hours/day of sunshine (except there are no
longer any "days").

> To make it
>sturdy enough to withstand most of such stuff, say by extending
>it to 10 feet thick, would then require the mass of 5000 more
>Mars-sized planets converted into the shell's structural
>material. To gather all that would in itself require the
>capability of easy interstellar travel, unless they could
>convert Jupiter-type planets' gases into building materials.

As I remember, Dyson conceived of using absolutely everything in the solar system to build the sphere -- small rocky planets, asteroids, comets in the Oort cloud, gas giants -- the whole nine planets and then some.

However, as you point out, there isn't very much out there in the way of heavier elements. The gas giants have average densities close to that of water (Saturn is lighter than water). And all the matter in the solar system may amount to only a couple of Jupiters (Jupiter, e.g., has more mass than all the other planets put together). Each Jupiter is about 10,000 Mars in volume and about 3000 in mass. There isn't all that much building material out there. We tend to forget that the whole solar system condensed out of an extremely tenuous gas and dust cloud.

>Somehow I think the environmentalists of the future would not
>want any of that,

No problem. They would be ignored, just as they are today. Only an advanced civilization would have more highly advanced means of ignoring them.

>and would prefer retaining the capability of sleeping out under
>the stars with the feel of the cold night air in their face.

You want night and stars? Just move a few feet to the outside of the sphere and roll out your sleeping bag. What could be simpler? Sheesh!

>>>(Ntot could be extended further, of course, by considering any
>>>ETI who possess inter-galactic travel capabilities.)

>>Not to mention any ETI who possess INTRA-galactic travel
>>capabilities.

>Thanks for correcting me on that. I had meant intra, of course.

I wasn't correcting you. I thought you meant intergalactic. The important point is that most SETI people totally dismiss the possibility of interstellar travel of any kind, no matter how ancient or advanced the civilization. If you take that off the table a priori, then of course UFOs must be nonsense and there is no need to even consider the possibility that ETs may already have found us.

>>Even barring some breakthrough propulsion FTL propulsion scheme,
>>sub-light travel is definitely theoretically possible.

>As each new breakthrough in (our) science occurs, however, it
>allows them to make tiny extrapolations that go a little farther
>towards the feasibility of interstellar travel than before. The
>"teleportation of a photon" is perhaps the latest example. But
>what they seem incapable of doing is extrapolating our rate of
>scientific discovery hundreds of thousands of years into the
>future to admit that what we could do then would indeed seem
>like magic to us now. Their extrapolations just come to a halt
>after a few decades.

Yes, that's remarkably short-sided, if not arrogant, isn't it? It's an egocentric point of view that we are very near the apex of scientific insight and technology. Since Newton, this seems to have happened near the end of each century, sort of a centennial madness that science had nearly reached the end of the line.

>...
>>But SETI assumes that aliens remain forever confined to their
>>home star system. Thus they generally restrict their searches to
>>the most earthlike star systems, one's that would most likely
>>evolve native life, rather than be colonized from beyond.

>>However, even one ancient, advanced, relentlessly colonizing and
>>expanding alien species (think Borg) could explore and colonize
>>every nook and crook of the galaxy in only a few million years.
>>At that point, throw out the Drake equation, because they could
>>be everywhere.

>Yes, that argument came out in 1979, and was used by the
>we-are-alone advocates as evidence that no other intelligent

>life more advanced than us exists in the galaxy, since we have
>not been colonized or wiped out by such Borgs. Then Sagan and
>other SETI types had to argue (in 1981 & 1983) that the
>colonizing alien race would need to stop at each suitable
>star/planetary system and pause 100,000 years there before
>moving on to explore/colonize the next one further out. (Would
>they be able to remember after all that time that colonization
>was what their overriding aim was?) That gross assumption slowed
>the whole colonization process down so much that the dispersal
>of stellar systems, as they rotated around the galactic center,
>would render such colonization ineffective.

They wouldn't necessarily have to be hostile like Borgs, just have a very well organized and regimented social structure such that prolonged expansion, exploration, and colonization could take place. I think many people also suffer from an anthropomorphized mindset that such an empire would have to have a centralized control system, along the lines of the Roman or British empires. Of course at sub-light speeds, that wouldn't be terribly practical, nor could such an empire be very large. Rather, if FTL communication or travel is indeed impossible, then I would conceive of more or less independent colonies roaming the galaxy like gypsy bands with the home planet nothing but a very distant memory.

>We could then escape detection by falling through the cracks,
>which was SETI's desired conclusion.

Any assumption in SETI, no matter how far-fetched, seems to be rationalized if it can be used to dismiss the idea that they might already have found us. The Fermi paradox is only a paradox if you start off assuming there is no evidence of alien visitation.

>Both schools of thought neglected the effect of continuing
>scientific advancement, and both neglected the likelihood that
>for each alien race intent on wiping out all others, there would
>likely be many others who would value the diversity of life.

There could also be many major biological incompatibilities between native and invading life forms, which might make a planet already flourishing with life undesirable or impractical for colonization. Civilizations already very adept at living in space might prefer to keep it that way. Living planets might be more useful as sources of raw materials rather than as permanent living quarters. So they could exploit whatever the native herds might have to offer without necessarily displacing them. One can also imagine that our development and often irrational activities might be a form of intellectual entertainment to an old jaded species which has largely eliminated the unexpected from their own lives. Getting rid of us would be like getting rid of the Soaps.

>>Jim, you just don't understand. No matter how intelligent or how
>>great the headstart in science & technology, alien civilizations
>>will always be limited to chemical rocket speeds. You have
>>Frank Drake's expert opinion on that. Therefore, they could
>>never show up here.

>OK, if Drake says so. ;) It's interesting to hear, though, that
>you sounded Drake out a few months ago. I'm sure you didn't
>expect his response to be any different than what it was.

You mean that you can't teach an old dog new tricks? Or is it what's sauce for the goose is sauce for the Drake? (OK, bad, real bad)

Ironically after posting my criticism of Drake early last December, I got Drake's "Christmas Card" soliciting funds for the SETI Institute just a few days afterwards. Hath the man no shame? ;-)

David Rudiak

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