Chapter 12, “The Search for Extraterrestrial Intelligence”

Evaluate the Opinions

15. There is an extent to which we can indeed crown ourselves. I mean who’s to disagree? We exhibit the keenest intelligence of any animal species. Yea, us! That having been said, “creation” denotes everything. That is, the entire universe, not just this planet. Here, we run into a wall. How can we possibly make any comparative statement about human beings in the cosmic perspective, when our cosmic perspective is so lacking!? The cosmic perspective must give us pause, before celebrating our intelligence.

But the more we think about this, the more “walls” we run up against. Why is intelligence the trait I used? Why not compare ourselves on the basis of strength? Speed? Endurance? Toughness? Lifetime of the individual? Lifetime of our entire species? And on and on. In any comparison other than intelligence, we patently do not measure up to many other species here. As to the implication the universe or one or more gods might have made everything just for us–something the universe, God or gods or goddesses, whatever, have waited for... What took so long? Of all the life traits evolved, if intelligence were such a great survival trait, why is it so little exhibited on this planet?

16. Intelligence may well increase in one or more other species. It may do so at any time, really. Our presence can’t have much role to play in this. On the other hand, intelligence might well NOT evolve. In fact, looking at life on earth today and through its history, it is obvious that intelligence most likely will NOT evolve, whether we’re gone or not.

19. This is a reasonable, but unproven thought. As reasonable as it is, we cannot ascribe much confidence to it, because of the total lack of knowledge of ANY other civilizations at this level of attainment. Only AFTER contact with a statistically significant number of such civilizations can we have a background of knowledge and understanding necessary to evaluating a state like this. This is answerable, but not in the near term.

21. I like this suggestion. It’s quite clever. Any visiting aliens would know the moon is inactive. Any evidence they would leave on earth would be destroyed by environmental and geological forces. But the moon...Perfect! Especially if one buries the artifact. This idea has already been conceived and developed by science fiction authors, resulting in a book (“The Sentinal”) and the movie “2001: A space Odyssey.”

23. Maybe, but judging from the history of UFOs, the far more reasonable inference would be that 10,000 people saw the same thing. And that thing could have been most ANYthing. Actually, there is such a case. But it has also been described in religious terms (an apparition of the Virgin Mary). The sighting of -----------? at Fatima, Spain. That sighting is too complex to go into here; what do scientists generally conclude about it? Do a search, but beware. There really are a lot of incompetent websites out there.

Quick Quiz

25. c
26. b
27. a
28. c
Quantitative Problems

43. We find how frequently civilizations communicate across interstellar distances by comparing 1,000,000 with the total number of stars. For the sake of argument, we assume 100 billion stars total, or 100,000,000,000. So one million out of a hundred billion stars reduces to 1 star for every 100,000. This is a more realistic perspective, than just knowing there are a million communicating civilizations out there.

For N to be 1,000 is probably closer to current thinking on this issue. But, of course, the comparison to 100 billion is quite dismayed: only one civilization to be found communicating for every 100 million stars searched! 1: 100,000,000. Sigh.

Chapter 13, “Interstellar Travel and the Fermi Paradox”

Quick Quiz

31. c
32. b
33. a
34. a
35. c
36. b
37. b
38. c