The Teleological Argument

The Watch Argument: Paley considers a case where you find a stone. It would not be odd to think that the stone had just occurred naturally, and had always been there. On the other hand, if you found a pocket watch, you would never think that it had just always been there, occurring naturally.

Paley suggests that the reason for this is that the pocket watch shows evidence of some complexity and design for a specific purpose. He notes:

> that its several parts are framed and put together for a purpose, e.g., that they are so formed and adjusted as to produce motion, and that motion so regulated as to point out the hour of the day; that if the different parts had been differently shaped …, of a different size …, or placed after any other manner or in any other order …, either no motion at all would have been carried on in the machine, or none which would have answered the use that is now served by it.

The watch has some purpose, and the parts are such that, if any slight change were made in their arrangement, the watch would no longer function. We conclude from this that the watch must have had a designer. On the other hand, the stone does is not this way and does not require a designer.

Paley notes that you would conclude that the watch had a designer, EVEN IF:

- you had never seen a watch before.
- you had no idea how such a watch might be constructed.
- the watch was imperfect (e.g., it sometimes lost time, etc.).
- the watch had certain parts that didn't seem to be necessary.
- you knew that the watch was just a certain combination of matter, and if you jumbled a bunch of bits of metal together for a long enough time, they might at some point come together as this watch.
- you were told that matter sometimes organizes itself into complex arrangements all by itself without a designer.
- you discovered that the watch was actually a machine capable of gathering materials and producing another watch like itself (i.e., you discovered that the present watch was likely the product of some prior watch before it, and there were possibly a SERIES of prior watches.).

In all of these cases, you would still conclude that the watch (or the series of watches) had a designer. For, "There cannot be design without a designer; contrivance without a contriver; order without choice; arrangement without anything capable of arranging."

The infinite series: Paley takes some pains to support his last statement, that, even if it were known that there were a SERIES of watches, we would still infer that the original watch had an intelligent designer. For, if the present watch was the product of some previous robot watch-building watch, the fact of the complexity and purpose would still be unexplained without an original designer.

He goes on to say that, even if the chain of watches extended infinitely back into the past, so that there have ALWAYS been watches making watches, this would not rid us of the need for a designer. If one watch requires a designer, and so do two watches, and one hundred, and one million watches, why would an INFINITE number of watches NOT require a designer? He says, "A chain composed of an infinite number of links, can no more support itself, than a chain composed of a finite number of links."

Therefore, even if there is an infinite series of causes that are the result of the present watch, the entire series that gave rise to this complexity still requires an intelligent designer in order to explain its complexity and structure.

Conclusion: God exists: Paley concludes that, just as the watch is evidence of a designer, so the UNIVERSE is evidence of a designer. Living organisms—indeed, all of nature—show the same sort of complexity and purpose that watch does. He writes,

> Every observation which was made in our first chapter concerning the watch may be repeated with strict propriety concerning the eye, concerning animals, concerning plants, concerning, indeed, all the organized parts of the works of nature.

Therefore, he concludes, a Creator of the universe exists—and this is God.

A Contemporary Argument: Contemporary philosophers have offered a new version of this argument. Rather than pointing to the complexity and organization of, for instance, the human eye, they cite the "fine-tuning" of the universe. That is, it seems as if the physical constants (e.g., the gravitational constant, the ration of the proton's mass to the neutron's mass, the strength of the strong and weak nuclear forces, and the rate of expansion of the universe) are set at very specific values. Should any of these values be changed EVER SO SLIGHTLY, the universe would not permit life. Therefore, it seems as if the universe has been fine-tuned to permit living organisms. The argument is as follows:

1. The universe is fine-tuned to permit life.
2. Whenever we have two competing hypotheses that explain some observation, that observation counts in favor of whichever hypothesis would make that observation more probable.
3. Theism makes fine-tuning more probable than atheism.
4. Therefore, the fine-tuning of the universe counts in favor of the theistic hypothesis rather than the atheistic hypothesis.

On the next page is a list of some of the parameters of our universe that are supposedly fine-tuned. These are given to support premise 1.

To illustrate what premise 2 is saying, consider the following case:

- Rock Message: You are hiking up a mountain. When you get to the top, you see a bunch of rocks laid out in a certain way. They spell this message: "Welcome to the top!" You then form two hypotheses to explain this message. The first hypothesis: There has been an avalanche recently, and these rocks just fell into exactly these positions by chance. The second hypothesis: Another hiker has been here before you, and they purposefully set these rocks into these positions to create a message for other hikers.

Now, it seems REALLY probable that there would be a rock message if the second (hiker) hypothesis were true. On the other hand, it seems really Improbable that there would be a rock message if the first (avalanche) hypothesis were true. Well, according to premise 2, this is a reason to think that the existence of the rock message counts IN FAVOR OF, or SUPPORTS the hiker hypothesis more than it supports the avalanche hypothesis.

In short, the hiker hypothesis has greater "explanatory power" than the avalanche hypothesis. That is, it does a better job of EXPLAINING the existence of the rock message. The theist's claim is similar. Quite simply, the God hypothesis does a better job of explaining fine-tuning than the atheist hypotheis does. And this fact counts in favor of theism.

Fine Tuning Parameters for the Universe

1. strong nuclear force constant
   if larger: no hydrogen would form; atomic nuclei for most life-essential elements would be unstable; thus, no life chemistry
   if smaller: no elements heavier than hydrogen would form: again, no life chemistry
2. weak nuclear force constant
   if larger: too much hydrogen would convert to helium in big bang; hence, stars would convert too much matter into heavy elements making life chemistry impossible
   if smaller: too little helium would be produced from big bang; hence, stars would convert too little matter into heavy elements making life chemistry impossible
3. gravitational force constant
   if larger: stars would be too hot and would burn too rapidly and too unevenly for life chemistry
   if smaller: stars would be too cool to ignite nuclear fusion; thus, many of the elements needed for life chemistry would never form
4. electromagnetic force constant
   if greater: chemical bonding would be disrupted; elements more massive than boron would be unstable to fission
   if lesser: chemical bonding would be insufficient for life chemistry
5. ratio of electromagnetic force constant to gravitational force constant
   if larger: all stars would be at least 40% more massive than the sun; hence, stellar burning would be too brief and too uneven for life support
   if smaller: all stars would be at least 20% less massive than the sun, thus incapable of producing heavy elements
6. ratio of electron to proton mass
   if larger: chemical bonding would be insufficient for life chemistry
   if smaller: same as above
7. ratio of number of protons to number of electrons
   if larger: electromagnetism would dominate gravity, preventing galaxy, star, and planet formation
   if smaller: same as above
8. expansion rate of the universe
   if larger: no galaxies would form
   if smaller: universe would collapse, even before stars formed
9. entropy level of the universe
   if larger: stars would not form within proto-galaxies
   if smaller: no proto-galaxies would form
10. mass density of the universe
    if larger: overabundance of deuterium from big bang would cause stars to burn rapidly, too rapidly for life to form
    if smaller: insufficient helium from big bang would result in a shortage of heavy elements

11. velocity of light
if faster: stars would be too luminous for life support *if slower*: stars would be insufficiently luminous for life support

12. age of the universe
if older: no solar-type stars in a stable burning phase would exist in the right (for life) part of the galaxy
if younger: solar-type stars in a stable burning phase would not yet have formed

13. initial uniformity of radiation
if more uniform: stars, star clusters, and galaxies would not have formed
if less uniform: universe by now would be mostly black holes and empty space

14. average distance between galaxies
if larger: star formation late enough in the history of the universe would be hampered by lack of material
if smaller: gravitational tug-of-wars would destabilize the sun's orbit

15. density of galaxy cluster
if denser: galaxy collisions and mergers would disrupt the sun's orbit
if less dense: star formation late enough in the history of the universe would be hampered by lack of material

16. average distance between stars
if larger: heavy element density would be too sparse for rocky planets to form
if smaller: planetary orbits would be too unstable for life

17. fine structure constant (describing the fine-structure splitting of spectral lines) *if larger*: all stars would be at least 30% less massive than the sun
if larger than 0.06: matter would be unstable in large magnetic fields
if smaller: all stars would be at least 80% more massive than the sun

18. decay rate of protons
if greater: life would be exterminated by the release of radiation
if smaller: universe would contain insufficient matter for life

19. 12C to 16O nuclear energy level ratio
if larger: universe would contain insufficient oxygen for life
if smaller: universe would contain insufficient carbon for life

20. ground state energy level for 4He
if larger: universe would contain insufficient carbon and oxygen for life
if smaller: same as above

21. decay rate of 8Be
if slower: heavy element fusion would generate catastrophic explosions in all the stars
if faster: no element heavier than beryllium would form; thus, no life chemistry

22. ratio of neutron mass to proton mass
if higher: neutron decay would yield too few neutrons for the formation of many life-essential elements
if lower: neutron decay would produce so many neutrons as to collapse all stars into neutron stars or black holes

23. initial excess of nucleons over anti-nucleons
if greater: radiation would prohibit planet formation
if lesser: matter would be insufficient for galaxy or star formation

24. polarity of the water molecule
if greater: heat of fusion and vaporization would be too high for life
if smaller: heat of fusion and vaporization would be too low for life; liquid water would not work as a solvent for life chemistry; ice would not float, and a runaway freeze-up would result

25. supernovae eruptions
if too close, too frequent, or too late: radiation would exterminate life on the planet
if too distant, too infrequent, or too soon: heavy elements would be too sparse for rocky planets to form

26. white dwarf binaries
if too few: insufficient fluorine would exist for life chemistry
if too many: planetary orbits would be too unstable for life
if formed too soon: insufficient fluorine production
if formed too late: fluorine would arrive too late for life chemistry

27. ratio of exotic matter mass to ordinary matter mass
if larger: universe would collapse before solar-type stars could form
if smaller: no galaxies would form

28. number of effective dimensions in the early universe
if larger: quantum mechanics, gravity, and relativity could not coexist; thus, life would be impossible
if smaller: same result

29. number of effective dimensions in the present universe
if smaller: electron, planet, and star orbits would become unstable
if larger: same result

30. mass of the neutrino
if smaller: galaxy clusters, galaxies, and stars would not form
if larger: galaxy clusters and galaxies would be too dense

31. big bang ripples
if smaller: galaxies would not form; universe would expand too rapidly
if larger: galaxies/galaxy clusters would be too dense for life; black holes would dominate; universe would collapse before life-site could form

32. size of the relativistic dilation factor
if smaller: certain life-essential chemical reactions will not function properly
if larger: same result

33. uncertainty magnitude in the Heisenberg uncertainty principle
if smaller: oxygen transport to body cells would be too small and certain life-essential elements would be unstable
if larger: oxygen transport to body cells would be too great and certain life-essential elements would be unstable