Intelligent Design?

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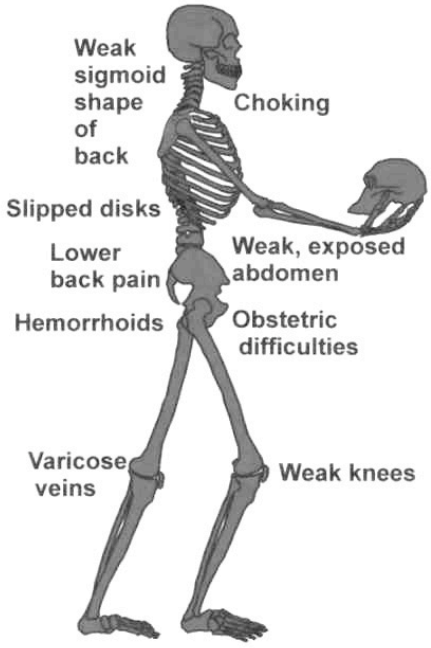
Ever wondered why Earth is such an ideal place for humans to live? Creationists think it's because God designed all this for us, but that's arrogant and silly. Sure, gravitational forces are strong enough but not too strong. Likewise, temperatures are nearly perfect for us. The oxygen content of Earth's atmosphere is also just about correct for humans. We can find food and water almost everywhere except in arid deserts, frozen polar habitats, and high up in the mountains. All this couldn't be mere coincidence, could it? Rather than suspend reason and succumb to an irrational religious system of belief, consider a more sensible scientific alternative. Quite simply, our planet is hospitable to us ***because we evolved here*** and have thus become adapted by natural selection to Earth's conditions. Humans are extremely versatile, and although we seem to think that we can exist outside the laws of nature, we cannot. We are Earthlings first and foremost, and space and other planets will always remain hostile environments for us.

Until recently, spaceship Earth has provided us with a rather nice place to live. But now, Earth's life support systems are failing . . . we have overpopulated the planet and fouled its atmosphere -- the resultant pollution is contributing to global weather change. Earth is warming rapidly -- ice caps are melting and ocean currents are changing. Polar bears and penguins are facing extinction and

though many humans refuse to face the facts, we might not be far behind.



In fact, we have not been "designed" intelligently. Numerous attributes of individuals are poorly designed carryovers from our ancestors who had very different ecologies. Adapting an ancestral aquatic fish into a land-dwelling mammal necessarily involved many changes of function, some of which led to elements of poor design. Melbourne physiologist Professor Derek Denton pointed out that "knowledge of gravity has not been a strong point in the repertoire of the intelligent designer." The drainage holes at the top of our sinuses and the way our intestines and other organs are attached by a membrane to our backbone are good examples. Both designs were fine for four-legged creatures, but now that humans have evolved to walk upright, this "design" leads to clogged sinuses and hernias. Another such blatant example is the crossover between our respiratory and ingestion tubes resulting in a maladaptive lung/esophagus arrangement (one that has led to many thousands of choking deaths). What a sense of humor the designer must have had to place an entertainment center (our genitalia) right on top of a sewage disposal outlet.

Now, let's consider complex networks of interacting species such as those that occur in natural ecological communities. Are these "designed" for orderly and efficient function? Is there a natural "balance of nature?" Although it may be tempting, it is dangerously misleading to view entire ecosystems as having been "designed" for orderly and efficient function. Natural selection does not operate for the "good of the species" but works by differential reproductive success of individual organisms. Antagonistic interactions at the level of individuals and populations are widespread: for example, these include competition, predation, and parasitism. Even the two parties engaged in a mutualism experience conflicts of interest because costs and benefits differ for each participant. Such negative interactions must frequently impair some aspects of ecosystem performance.

Almost all life on Earth depends on photosynthesis, the capture of solar energy by plants. Remnants of ancient photosynthetic prokaryotes (bacteria-like organisms) long ago became incorporated into eukaryotic cells of all higher plants. Known as chloroplasts, these tiny green engines house chlorophyll and other molecular machinery that enables plants to convert solar energy into the chemical energy on which all life on Earth depends.

Only a small fraction of the plant food on land is actually harvested by animals; most products of primary production are consumed by decomposers. Transfer of energy from one trophic level to the next

higher trophic level is defined as ecological efficiency. Such efficiencies of transfer of energy from one trophic level to the next are low, generally only about 5 to 10 percent.

Natural selection operating on individual prey organisms favors escape ability, which in turn reduces the rate of flow of matter and energy through that trophic level, decreasing ecological efficiency but simultaneously increasing community stability. In contrast, predators evolve so as to be better able to capture their prey, which increases the efficiency of flow of energy through trophic levels but reduces a system's stability.

In the co-evolution of a predator and its prey, to avoid extinction, the prey must remain a step ahead of its predator. As a corollary, community-level properties of ecological efficiency and community stability may in fact be inversely related because natural selection operates at the level of individual predators and prey. Moreover, the apparent constancy and observed low levels of ecological efficiency are probably a result of this "compromise" that must be reached between prey and their predators.