

Modernity and its Discontents/Ethan McCarty/November 2005

Growing up in Ohio I read the same books as just about any other place in America covering Darwin and the generalities of evolutionary theory. Then again, my class had a few New Earth Creationistsⁱ -- a handful of kids whose parents didn't let them attend science class on the days we discussed evolution. They believed the world was only 5000 years old and that the bible should be taken at its literal word. We gave them quiet (but smirking) respect and left it at that.

With the religious zealots in mind, I think it's only fair to cover a bit of ground that might not otherwise get fair mention in this curriculum before talking a bit about Darwin and some other thinkers of his era: intelligent design. A recent Kansas School Board decision mandated equal time in science class for teaching the theory of intelligent design. This argument states that the wonders of the world are too complex to have been created at random and thus suggest the presence of a divine intelligence behind the creation of the universe. I'm a strong proponent of teaching this theory in Kansas schools so long as they either a) keep the Kansans in Kansas or b) acknowledge that there are multiple theories of intelligent design. For example, Bobby Henderson's church of the Flying Spaghetti Monster has a lot of appeal and if his website is to be believed, his burgeoning sect of Pastafarianism aka Flying Spaghetti Monsterism (FSM) has thousands of adherents.

Some highlights from Pastafarianism:

Modernity and its Discontents
Darwin: Evolution of morality
11/2005
Ethan McCarty

- The universe was created by a Flying Spaghetti Monster
- Evolutionary evidence is nothing but a coincidence put in place by Him
- Carbon 14 datings of the earth altered by His Noodly Appendage to disabuse of the idea that the earth is really quite old
- True adherents to FSM belief wear pirate costumes
- Natural disasters can be explained as wrath inflicted on humanity for the shrinking number of pirates.ⁱⁱ
- Heaven has a beer volcano and a stripper factory

So while the New Earth Creationists were away, the rest of us started off with Gregor Mendel and his celebrated cultivation of peas. As you may know, Mendel was an Austrian monk now known as the “father of genetics.” He cultivated and tested nearly 30,000 pea plants all the while documenting the traits that they passed on as he interbred them. Apparently he was aware of at least some of Darwin’s theories (there was an underlined copy of *The Origin of the Species* in his monastery’s library).

Another thought leader on the subject of evolution during Darwin’s time was Jean-Baptiste Lamarck. Larmarck stood out an early proponent of the theory that natural laws govern evolution – a pretty radical thought for the time. He believed in the “inheritance of acquired traits” -- that injuries or improvements to a parent’s body would appear in the children’s bodies. For example a giraffe’s long neck is the result of the parents stretching to reach

food. Lamarck also believed that species could change by their own free will and if a limb or body part was not used, the body part could completely fall off or disappear if the animal wished it to. This is also known as the "use it or lose it" theory of evolution. While Darwin references Lamarck's theories, they have been for the most part completely discredited. One counter example to consider is all of the foreskin intact penises running around despite thousands of years of circumcision.

Darwin, by contrast to Lamarck, posited that evolution is a process driven by a combination of the survival success of certain individuals in a species in the face of environmental factors and sexual selection, which is when individuals in a species are more successful mates due to a particular characteristic. In aggregate these two combined factors are typically called "natural selection" also termed "survival of the fittest." I like to call this the "if you've got it, flaunt it" theory of evolution. We all know that his theory was controversial at the time — indeed remains controversial to this day — because it calls into question the divine provenance of humankind. Further, it questions man's central role in the order of things — it's a challenge to humanity's very deeply seated narcissism which manifests across both the religious *and* scientific worlds. Consider, for example, for how long a geo-centric view of the universe reigned supreme.

In *The Descent of Man* Darwin further fanned the flames of controversy by suggesting "that any animal whatever, endowed with well-marked social instincts, would inevitably acquire a moral sense or conscience, as soon as its

intellectual powers had become as well developed, or nearly well developed, as in man." That is to say, the moral sense found in humans is a distinguishing factor...for now. It is an evolved trait – while it is unique to man, it is not necessarily permanently so. Or, as he said, "Nevertheless the difference in mind between man and the higher animals, great as it is, certainly is one of degree and not of kind."

My education about the evolution of humankind has been frozen in a kind of backward glance like a neck sprained in an awkward position, unable to face forward. Sure, I'm interested in where we all came from and I find the history of humanity interesting. The whole world does: thus all the contention about its teaching. But I find the future of our evolution even more fascinating.

A year after Darwin's death Thomas Edison discovered the Edison effect, in which an electric current flows through a vacuum. Nearly fifty years later John Atanasoff, working as a professor of Physics at Iowa State College created a simple vacuum-tube device that catapulted computing well beyond relay switch devices. According to Moore's Law governing the increasing power and decreasing size of integrated circuits, Raymond Kurzweil predicts in *Age of Spiritual Machines* that by around the year 2030 we'll have computers on par with the human brain. A mere thirty years after that we'll likely have individual computers capable of the same computational power as the combined brains of all humans on earth simultaneously (see chart from *Age of Spiritual Machines*ⁱⁱⁱ).

Given Darwin's comment about the difference in our minds from that of
Modernity and its Discontents
Darwin: Evolution of morality
11/2005
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animals being one of degree, not of kind, what does this say about the evolution of humanity into technology? Will we be able to discern the difference between a machine that is thinking from one that is calculating? Can we discern between a human who is thinking as opposed to calculating?

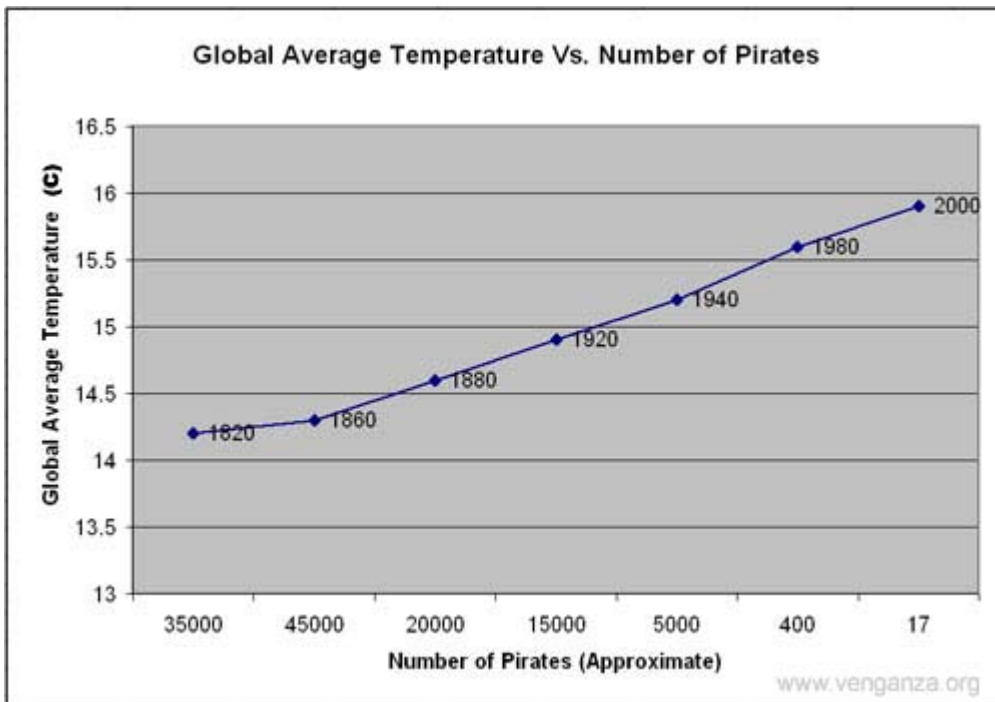
It's probable that the next major phase shift in the evolution of humanity will be rendered in silicon and plastic rather than flesh and bones. If that's the case, then what we do now with our legislation, our programming languages and the inscribing of rules of conduct into robots and other intelligent machines is the next turn in the wheel of moral evolution as well. In the 2002 National Science Foundation study "Converging Technologies for Improving Human Performance NANOTECHNOLOGY, BIOTECHNOLOGY, INFORMATION TECHNOLOGY AND COGNITIVE SCIENCE," the authors urged that:

"It is essential to prepare key organizations and societal activities for the changes made possible by converging technologies. Activities that accelerate convergence to improve human performance must be enhanced, including focused research and development, increased technological synergy from the nanoscale, developing of interfaces among sciences and technologies, and a holistic approach to monitor the resultant societal evolution. The aim is to offer individuals and groups an increased range of attractive choices while preserving such fundamental values as privacy, safety, and moral responsibility.

I put my question to the class: will humanity evolve into an expression of the creativity and beauty of the human spirit or will it be brought to you by Halliburton?

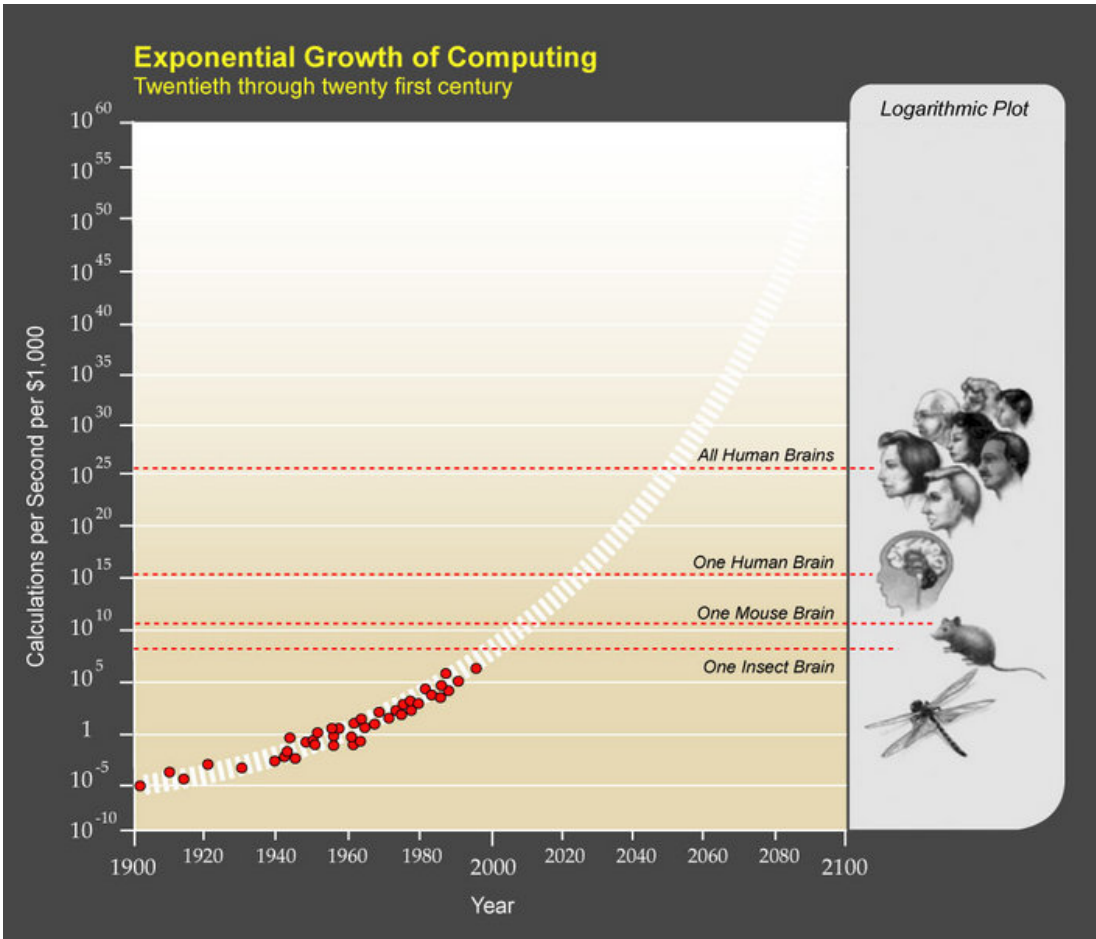
ⁱ “James Ussher (1581-1656), Archbishop of Armagh, Primate of All Ireland, and Vice-Chancellor of Trinity College in Dublin was highly regarded in his day as a churchman and as a scholar. Of his many works, his treatise on chronology has proved the most durable. Based on an intricate correlation of Middle Eastern and Mediterranean histories and Holy writ, it was incorporated into an authorized version of the Bible printed in 1701, and thus came to be regarded with almost as much unquestioning reverence as the Bible itself. Having established the first day of creation as Sunday 23 October 4004 BC, by the arguments set forth in the passage below, Ussher calculated the dates of other biblical events, concluding, for example, that Adam and Eve were driven from Paradise on Monday 10 November 4004 BC, and that the ark touched down on Mt Ararat on 5 May 2348 BC `on a Wednesday’.”

Source: <http://www.lhup.edu/~dsimanek/usshe.htm>



ii

Modernity and its Discontents
Darwin: Evolution of morality
11/2005
Ethan McCarty



iii

Modernity and its Discontents
 Darwin: Evolution of morality
 11/2005
 Ethan McCarty