Homo sapiens – Where do we go from Here?

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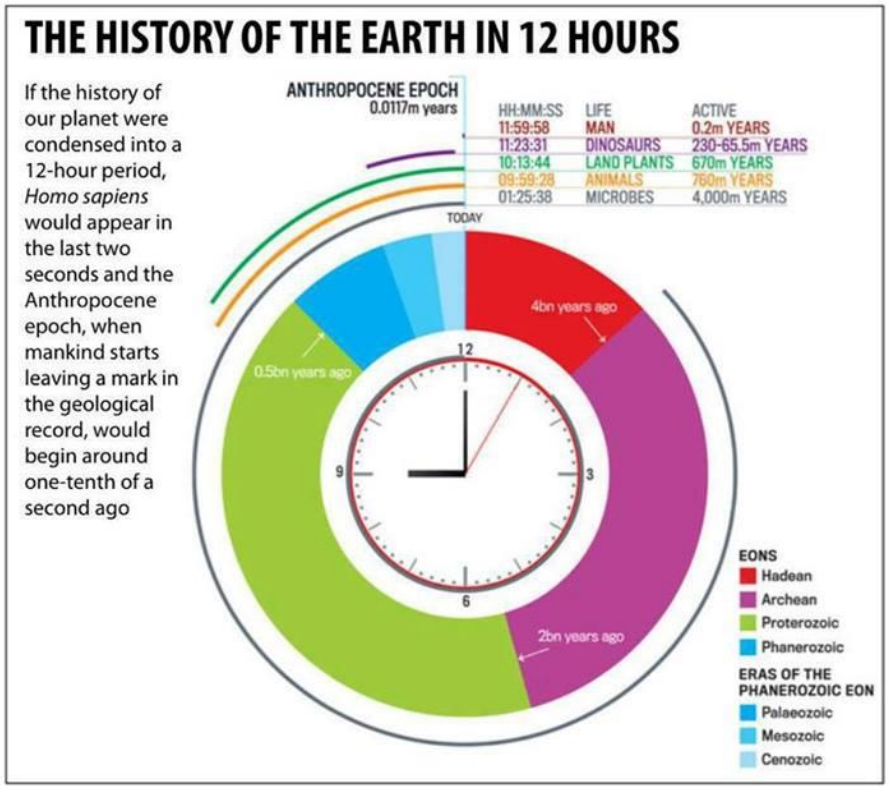
Life began on our planet approximately 3.8 billion years ago as single celled organisms; and for nearly 3 billion years that's all there was. Approximately 800 million years ago multicellular life began to evolve. Everyone's favorite carnivorous dinosaur, the Tyrannosaurus Rex, roamed the earth for about 17 million years until a huge event, (most scientists believe a giant meteorite collision) caused a mass extinction approximately 66 million years ago. 80% of all earth species became extinct. Mammals had begun evolving 135 million years before that, but until that extinction event, the Earth was dominated by large reptiles.

Homo sapiens, our species, appeared a mere 200-250,000 years ago. Humans have been around for only 0.004% of Earth's history… a cosmological blink of an eye.[1]



Homo Sapiens means “Wise man,” in Latin. The name was given to us in 1758 by Carl Linnaeus, the "father of modern taxonomy".[2]
We are divided…. By geography, by nationality, by color, by gender, by belief systems, by physical or monetary wealth, by living conditions, and by any number of other divisions. But we all have opposable thumbs and large brains. We walk upright. We use tools, think about the future, create art, and have even travelled off our planet to visit other worlds.

We’re really all in this together. How will we ever, if ever, get past our divisions and figure that out? Will it take a visit by a supreme being or an alien; or a cataclysmic event like the mass extinctions of the past? Maybe a strain of virus or disease for which we have no defense? Maybe we will figure it out before it’s too late. Or will we choose a path that results in the self-destruction of our species?

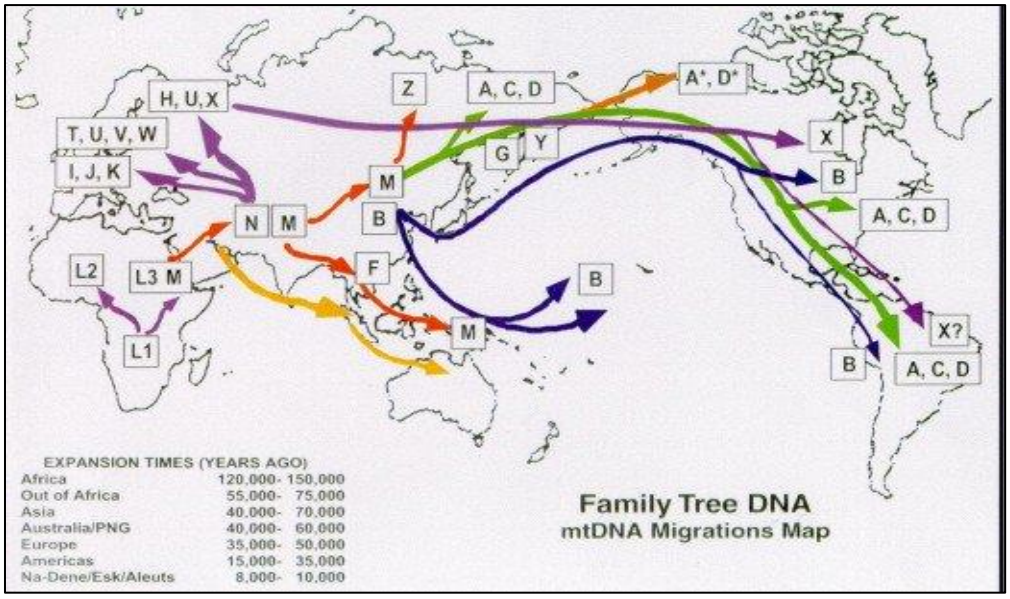
THE WAY WE TREAT EACH OTHER

The Oxford English Dictionary defines a human being as: “A man, woman, or child of the species Homo sapiens, distinguished from other animals by superior mental development, power of articulate speech, and upright stance.”[3]

Race is a concept used in the categorization of humans based on shared physical traits, ancestry, and social or cultural traits.
The National Institute of Health’s Human Genome Project was an international research effort to sequence and map the genes of *Homo sapiens.* In 2000 the researchers announced that they had put together a draft of the entire sequence of the human genome, and the researchers unanimously declared, there is only one race -- the human race.

While it may seem easy to tell at a glance whether a person is Caucasian, African, or Asian, when one scans the genome for DNA hallmarks of race, you find that "race" is a social concept; not a scientific one. The human genome project revealed that a genetic marker for race does not exist.

The human species is so evolutionarily young, and its migratory patterns so wide and restless over the millennia, that our species has not had the chance to divide itself into separate sub-species.
If you trace your DNA backward far enough, you'd find that we all came from ancestors in South Central Africa.



Oddly enough, with all the problems we have, “Altruism” is believed to be an innate human trait. Altruism is “unselfish regard for or devotion to the welfare of others, and behavior by an animal that is not beneficial to or may be harmful to itself but that benefits others of its species.”[4]

Psychologists offer different explanations for why altruism exists[5], including:

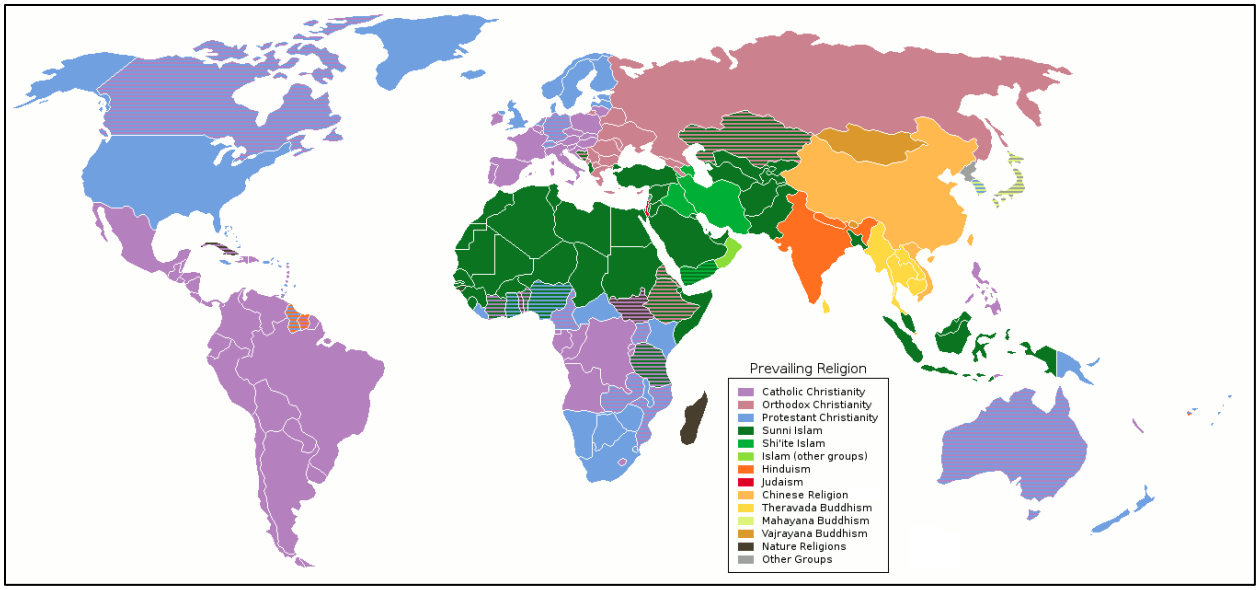
- **Biological reasons**
- **Neurological reasons**
- **Social norms**
- **Cognitive reasons**
- **Empathy**

We are somehow wired to have a devotion to the welfare of other humans.

Altruism is so foundational to us that it is incorporated within one of the fundamental aspects of human culture… religion.
How do the world’s 5 largest religions describe how we should relate to fellow Homo Sapiens?

Christians: Jesus was quite clear in 2 Gospels: He said that the greatest commandments were: 1) love God, and 2) love your neighbor as yourself.

Jews: When Jesus said, "love thy neighbor as thyself," he was quoting Leviticus “ love [the stranger] as thyself. “ and “Do not seek revenge or bear a grudge against anyone among your people, but love your neighbor as yourself.”



Muslims are called to respect the free will of those of other faiths and are told never to compel others to accept Islam against their will (10:99). "We are commanded not to be severe and harsh-hearted against non-Muslims" (3:159).

Buddhists: The four kinds of love taught in classic Buddhist teachings are loving kindness, compassion, appreciative joy, and a particular form of equanimity.

Hindus: The Hindu Law of Unification states, "There is a magnet in your heart that will attract true friends. That magnet is unselfishness, thinking of others first; when you learn to live for others, they will live for you."[6]
5.9 billion of our species supposedly believe in these principles.

Witch burnings, lynchings, riots, genocide
Humans are inherently altruists, and many of us profess a faith that calls for the care of others. Why are we so inclined to misbehave in groups?

This is one particular area in which we lose our grip on what we as individuals understand as right and wrong. Social Psychologists have a special field of study for this called "Crowd Behavior"[7]. There are various theories, but they pretty much all describe people coming together who each have certain individual expectations and social norms, but then in the interactions that follow within the crowd, new and sometimes contradictory expectations and norms can emerge. This can lead to behavior that normally would not take place.

War and violence

In his study of human proclivity toward war and violence, Steven Pinker[10] identifies 5 key trends that have occurred in human history:

1. The Pacification Process: Over thousands of years hunter-gatherer and horticultural societies evolved into nation-states.
2. The Civilizing Process: from the middle ages to the 20th century… a general move toward more urban, cosmopolitan, commercial, and secular living.
3. The Humanitarian Revolution: the decline and the near abolition of slavery, less use of torture, and a general reduction in widespread use of inhumane practices.
4. The Long Peace: Post WWII. Industrial Strength warfare becomes so destructive to all involved that is seen as irrational.
5. The New Peace: Post Cold War. We've seen a general emergence of a new form of global security.

Since WWII the trend for "battle deaths" is significantly downward.[9] This is good news. We lose sight of positive progress perhaps because we are being bombarded with all kinds of negative and sensational news 24/7. Maybe, just maybe, there is hope that there will be new trends in the future that will move this graph of human-on-human violence closer and closer to zero.

A number of research organizations have been reporting a global drop in battle deaths for several years. The decline since the end of World War II has been uneven, but there can be no doubt about the direction of the trend.

So, a human is a human, no matter what it looks like. We're all related with common ancestors in what is actually just a blink of cosmic history.

We're all in this together on a common shared planet. Are we getting better at how we treat each other? Will we do what is necessary to ensure that human anthropologists thousands of years from now will even exist to study our ways? How are we ensuring that our species has a future here on earth?

THE WAY WE TREAT OUR PLANET

I've chosen only 3 examples out of many of how our race seems intent on trashing the only planet we have.

Extinctions

Earlier I mentioned the planetary "extinction event" of 66 million years ago. According to an international team of scientists, we are in the midst of a major extinction event right now. And it's being called the Anthropocene extinction [8] – a mass extinction that is mainly the result of human activity.

Since the year 1500 AD, more than 320 terrestrial vertebrates have become extinct. Populations of the remaining species show a 25 percent average decline in number. Sixteen to Thirtythree percent of all vertebrate species are estimated to be globally threatened or endangered. Large animals -- including elephants, rhinoceroses, polar bears, and countless other species – face the highest rate of decline.

(You may have read in March 2018 that the earth's last male Northern White Rhino died.)

Loss of large species would have trickle-down effects that could shake the stability of other species and human health. Ecosystems that lose their large animals will likely see huge increases in rodents and the abundance of the disease-carrying parasites that they harbor.
There is also a very troubling trend in invertebrate decline. In the past 35 years; the number of invertebrate animals – such as beetles, butterflies, spiders and worms – has decreased by 45 percent. This loss is driven primarily by loss of habitat, use of chemicals, and global climate disruption.

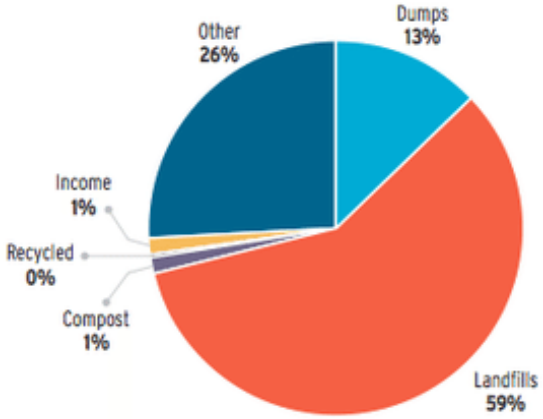
Insects pollinate roughly 75 percent of the world's food crops. They also play a critical role in nutrient cycling and decomposing organic materials, which helps ensure ecosystem productivity.

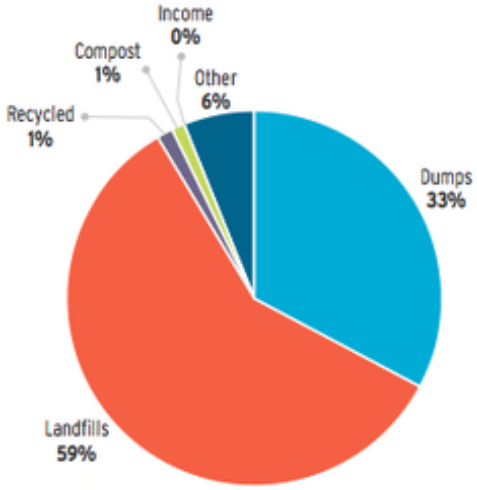
Garbage

Approximately 90% of the visible debris floating in the Pacific Ocean is plastic. Plastic takes hundreds of years to decompose, so currents have gathered a lot of it into floating patches of garbage. The Great North Pacific garbage patch is the largest…. it covers an area twice the size of Texas! Most of the plastic in the patch is very small, making it a threat to fish and birds that mistake it for food.

A typical person in a developed country is responsible for about 2.6 pounds of garbage per day. Sadly, the vast majority of this waste is buried or dumped (or makes its way to the ocean). Very little of it is recycled.

A very small share of waste in the world went to recycled or composted waste.





Fossil Fuels

A significant threat to our planet and most of its species is climate change that is largely a result of human activity. This change is mostly attributable to our industrialization that depends so much on the use of fossil fuels.

Besides the long-term harm to our planet, there are quite visible immediate signs of how we've permitted our dependence on fossil fuels to harm the earth.

Sign near Central, PA

Across the world, thousands of underground coal fires are burning at any given moment. Most are in industrializing, coal-rich nations. Global coal fire emissions are estimated to cause 40 tons of mercury to enter the atmosphere annually, and to represent 3% of the world's annual CO2 emissions. According to U.S. Office of Surface Mining in 2010, more than 100 fires were

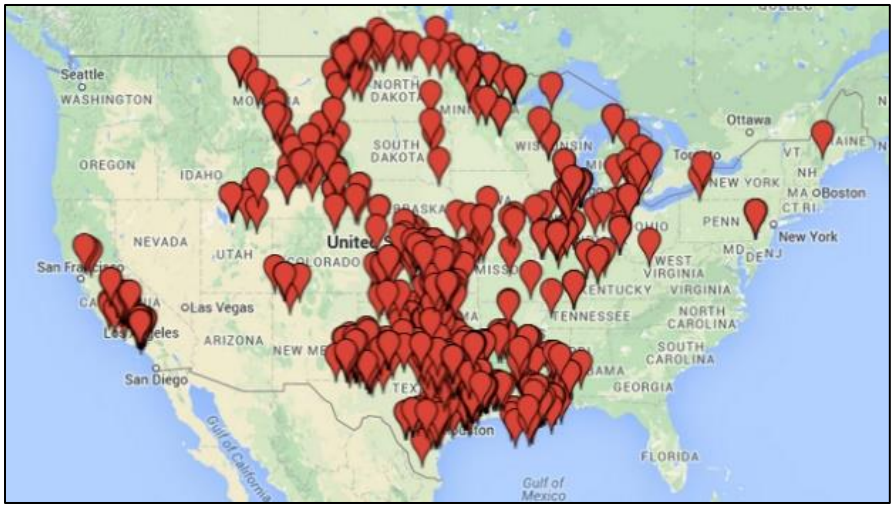
reported burning beneath nine U.S. states, most of these fires are in Pennsylvania, West Virginia, Kentucky, Colorado, and Utah.
Oil spills can also have disastrous consequences for society: economically, environmentally, and socially.

Around the world from 1970 to 2009 approximately 1.7 billion gallons of oil were "lost" (which means leaked into the environment, of course.) as a result of tanker incidents. In U.S. coastal waters alone 1.3 million gallons of petroleum are spilled from vessels and pipelines in a typical year. Between 1971 and 2000, the U.S. Coast Guard identified more than 250,000 different oil spills in U.S. waters.

These so-called incidents are certainly not isolated to the oceans… From 2010 to June 2015, over 3,300 incidents of crude oil and liquefied natural gas leaks or ruptures have occurred on U.S. pipelines. These incidents have killed and injured people, and cost $2.8 billion in damages. They also released toxic, polluting chemicals into local soil, waterways, and air.

Over 1,000 of these incidents occurred on pipelines carrying crude oil. These spills and ruptures released over 7 million gallons of crude.

Over 1,000 U.S. Oil pipeline incidents 2010 to June 2015



If we were truly an altruistic species, shouldn't we want our own grandchildren to inherit a vibrant and livable planet?

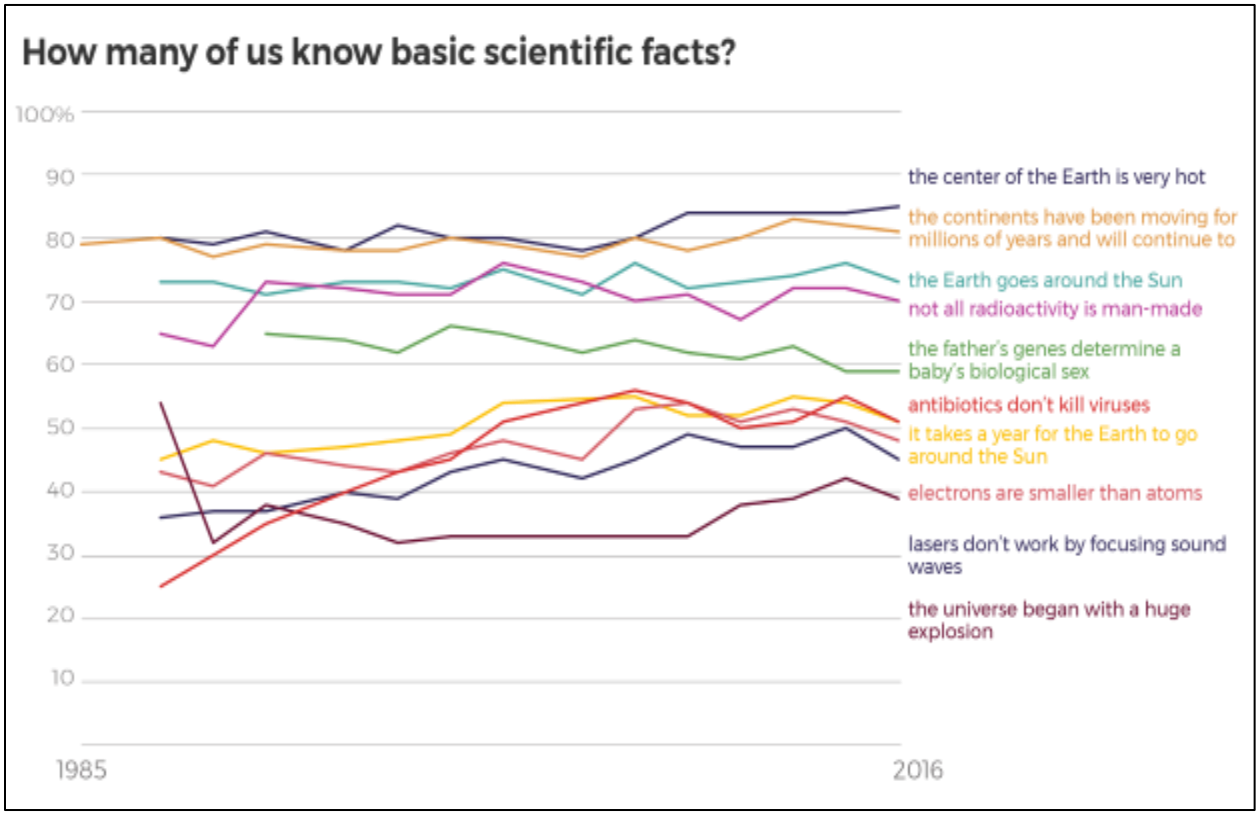
THE THINGS WE VALUE

Granted: Not everyone knows a lot about the issues of extinctions, garbage, and fossil fuels…

Every few years The National Science Foundation surveys a representative sample of 2,000 to 3,000 Americans to see how much they (and, by extension, we) understand about science and technology. These tests are a snapshot of what Americans know about basic science.

There are many questions, some of which we would consider to be simple and silly, but a couple really struck me from the latest survey:

- Only about ½ of the respondents knew that it takes 1 year for the earth to go around the sun.
- Less than 40% know that electrons are smaller than atoms.



Many folks protest that they are not interested in Math or Science, they find them boggling or boring. And yet we fiddle ceaselessly with the modern technological marvels that we hold in our hands, cellphones and ipads.

Scholars during the Islamic Golden Age attempted to collect and document all existing information on a wide variety of topics, including translations from Greek, Persian, Syrian, and Indian into Arabic.
The Chinese had an encyclopedia dating back to the 7th century.
In Europe, the quest to compile a modern encyclopedia started with the Enlightenment in the 18th century.

It seems however, that the trend toward rationality and enlightenment was derailed by the rise of video-based media… television.

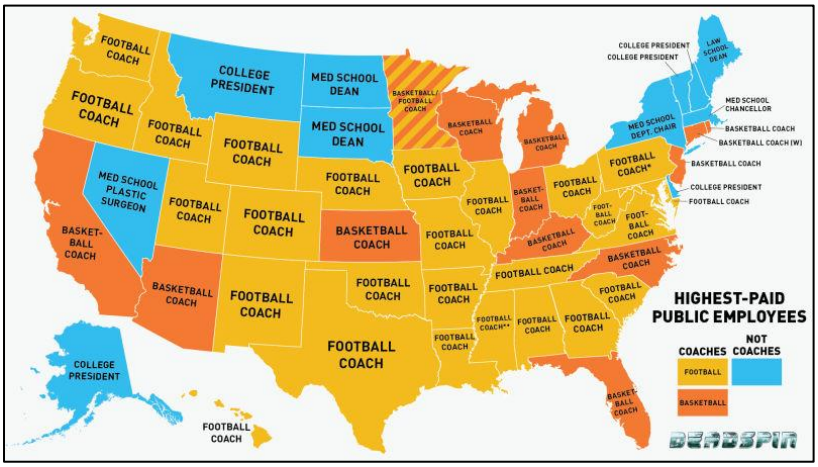
Neil Postman noted in his 1985 book *Amusing Ourselves to Death*, that the rise of television introduced a gradual shift from rationality to life-by-emotions.

Television reduced many aspects of life to entertainment, sensationalism, and commerce. "Americans don't talk to each other, we entertain each other," Postman wrote. "They don't exchange ideas, they exchange images. They do not argue with propositions; they argue with good looks, celebrities, and commercials." …this was written in 1985; doesn't this sound like today?

At first, the Internet seemed to push against this trend. Universities were among the first to connect. The web was an intellectual project, created in a scientific research center, and it was not about commerce

or control. We have Wikipedia, Google search, and blogs that value text, hypertext links, knowledge, and literature.

Now social networks dominate internet content. From Facebook to Instagram, our attention is focused on videos and images, and we are rewarded with emotional appeals such as "like" buttons—over rational ones. Do you know that Google began life as a PhD thesis, whereas Facebook started as a tool to judge classmates' appearances? Enlightenment's motto of 'Dare to know' has become 'Dare not to care to know.'



How much do we value entertainment over more intellectual pursuits? The highest paid State employee in 39 states is a college football or basketball coach. Yet 44 million Americans owe $1.4 trillion in college loans. And by the way, just this year's increase in the pentagon's budget would pay for every American college student's tuition for 2 years.

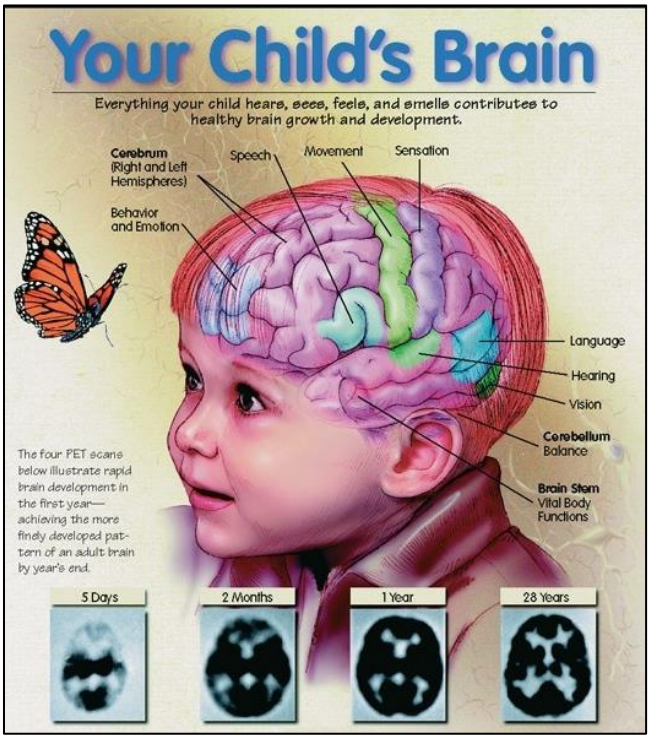
In a nearby State that is nationally ranked in 48th place for teacher pay, the teachers recently had to go on strike to fight for a 5% increase. (And, yes, that state's university football coach is the highest paid state employee.)

We know what the Kardashians are up to, who is winning Dancing with the Stars, and what's the latest challenge to those who are "Naked and Afraid", but most of us have never seen either Cosmos series, we don't know the amazing astronomical secrets being

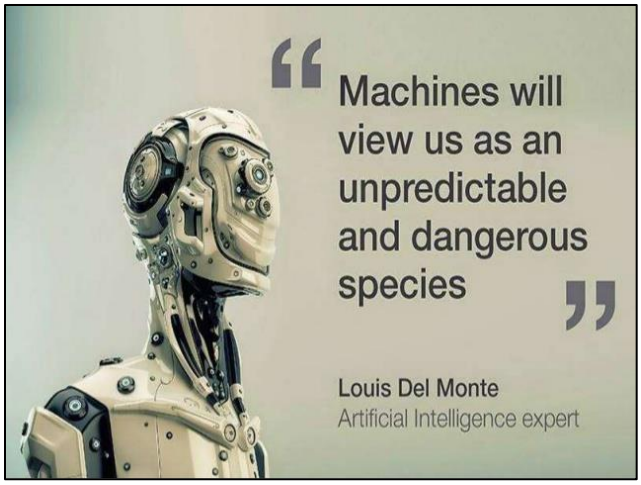
uncovered by the Hubble telescope, and we are blissfully unaware of what's happening to our planet's oceans.

Valuing our children and early learning: The basic architecture of the human brain is constructed through an ongoing process that begins before birth and continues into adulthood.[11] Early experiences establish either a sturdy or a fragile foundation for all of the learning, health, and behavior that will follow. Early years are the most active period for establishing neural connections. And yet, *here in our own County* 2/3 of our children enter kindergarten already behind in their development.

Are we raising our progeny to be laborers for jobs that won't exist? … when what we need are technicians, Engineers, social scientists, "critical thinkers", and researchers?



Someday fusion energy could end human dependence on fossil fuels and provide abundant and inexpensive energy to every corner of the world. Our government spends $14 - 15 billion annually to support already-rich fossil fuel companies with subsidies…not even counting the value of access to federal lands and ocean areas, and yet only the tiniest fraction of that amount is used to support fusion research.



Steven Hawking and others have warned that unless we are able to harness and control the abilities of Artificial Intelligence and robotics, future networks of AI may decide that the human race is obsolete. Such "harnessing and controlling" doesn't come from politics or social media. It comes from science, study, research, and technological know-how.

These and other areas of human endeavor need support, encouragement, and funding.

For our next age of enlightenment to occur we also need Philosophers, ethicists, artists, musicians, and story-tellers. Remember, two of the things that define our species are that we think about the future, and we create art.

We could be one of the species that ends up being just a minor temporary blip on the planetary calendar for the 3rd planet from the sun.

Or we could be a glorious race, stewards of our miraculous home world and explorers of the universe… a sentient species that values long-term thinking, science, research, creativity, and innovation.

Fellow humans, we decide which way this race will go.

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