**Toward a Scientific Understanding of**

**Human Nature, Knowledge, and Belief**

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“Men create the gods in their own image. If horses had gods, they would look like horses.” — Xenophanes (c. 570-475 BCE)

“The learning and knowledge that we have is, at the most, but little compared with that of which we are ignorant.” — Plato (c. 427-347 BCE)

“The life of man is of no greater importance to the universe than that of an oyster.” — David Hume (1711-1776)

"I am convinced that the act of thinking logically cannot possibly be natural to the human mind. If it were, then mathematics would be everybody's easiest course at school and our species would not have taken several millennia to figure out the scientific method." from The Sky is Not the Limit: Adventures of an Urban Astrophysicist by Neil DeGrasse Tyson

It is time, and it is possible, to begin articulating a scientific understanding of human nature, of knowledge, and of emotional processes like belief and the attitude of certainty. This involves bringing in new sciences, like ethology and some neurosciences. We also need a passing acquaintance with the philosopher Ludwig Wittgenstein (APPENDIX B), because he understood -- more clearly than anyone I know of -- the nature of our knowledge, how deeply unfounded it is, how we really seek not knowledge, but certainty, and that, as he put it, “Certainty is only an attitude.”

I have divided this paper into two sections: Knowledge and Belief.

**KNOWLEDGE**

The word “knowledge” is an English translation of the Latin word “scientia,” or science. “Scientia” is in the mottos of some universities, like the University of Chicago’s “Crescat scientia; vita excolatur" -- translated as "Let knowledge grow from more to more; and so be human life enriched.”

Knowledge, reason and logic are processed in our neocortex: the most recent evolutionary addition to our brain. Emotions, beliefs, passions and certainties are processed in the limbic system, amygdala and brain stem: the ancient and far more powerful systems that predate our neocortex by hundreds of millions of years.

To see what pure neocortex thinking without the emotional substrate feels and sounds like, listen to the voice speaking to you in your GPS, telling you when and where to turn: “In 400 feet, turn right onto First Street.” If you miss the turn or ignore the voice, it simply reconfigures, and gives you directions from your new location: “At the next light, do a U-turn,” and so on. It never gets frustrated or angry. It never screams, “You idiot! ***Listen to me! Obey me or I'll make your life a living hell!"*** But humans might, if you ignore them or question their authority, because we have more than just a neocortex. Knowledge and reason may be correct, but they have no emotional power. That’s a very important fact about human nature, knowledge and belief.

At the other end, emotional power without rationality can be experienced in a congregation of believers waving their hands above their heads with their eyes closed, or speaking in tongues, or true believers chanting their ideology's or political party’s slogans or their football team's chants. These are powerful, though they may be neither true nor good. Beliefs are personal tastes and habits, but they rule our world.

The reason we have granted science the authority to define knowledge is because, over the four centuries going back to Francis Bacon in the early 17th century — scientists around the world have found that staying with empirical data and controlled experiments that can be replicated or repudiated by other scientists has shown us how we and our world work, better than any other method.

**Human Nature**

So: what do we know? Let’s start with human nature: who we are. The most important science here is ethology — comparative animal behavior. The most influential working scientist in ethology is Frans De Waal, who heads the national Primate Research Center at Emory University in Atlanta, Georgia. He has made it his mission to reclaim the understanding of who we are from the field of religion, by placing us in an evolutionary perspective. And here, he says religion can’t add much to the discussion because it’s “just too new.” Consider some of his book titles:

*Chimpanzee Politics: Power and Sex Among Apes (1982)*

*Peacemaking Among Primates (1990)*

*Good Natured: The Origins of Right and Wrong in Humans and Other Animals (1997)*

*Tree of Origin: What Primate Behavior Can Tell Us About Human Social Evolution (2002)*

*Our Inner Ape: A Leading Primatologist Explains Why We Are Who We Are (2006)*

*Primates and Philosophers: How Morality Evolved (2009)*

*The Age of Empathy: Nature’s Lessons for a Kinder Society (2010)*

*The Primate Mind: Built to Connect with Other Minds (2011)*

*Evolved Morality: The Biology and Philosophy of Human Consciousness (2014)*

*Are We Smart Enough to Know How Smart Animals Are? (April 25, 2016)*

Humans are a social species. We naturally defer to Alpha figures of many kinds, and care what others think of us. Like all social species, we are basically good-natured. The secret of our success is cooperation, far more than it is competition. We play at politics about like chimpanzees do. In fact, De Waal’s first book, the 1982 *Chimpanzee Politics*, was given to all incoming Republican members of the U.S. Congress by Newt Gingrich in 1994, the implicit message being that if you’re going to play politics at that level, you should learn from the experts.

Experiments show that we have an innate sense of fairness, empathy and compassion1, and Sarah Brosnan, one of De Waal’s post-doctoral students, designed an experiment showing that Capuchin monkeys also have an innate (and dramatic!) sense of fairness. That experiment became an instant classic, and one of the funniest three minutes you can spend watching a scientific experiment (just Google “Monkeys and fairness”).2

We don’t get our noble traits from gods or churches, but from evolution. Then we project them onto our gods and heroes and into our institutions for safekeeping and transmission to the next generation.

Here are three other broad characteristics we know about ourselves:

**1. We are profoundly territorial.** We draw boundaries around land, ideas, and our sense of identity, and are willing to defend them: violently if necessary. This produces both comedy and tragedy. What did U.S. astronauts do when they landed on the moon? They stuck a flag in it. The inescapable and tragic relationship between territoriality and violence was expressed by the American poet Carl Sandburg in this short dialogue:

"Get off this estate!"

"Why?"

"Because it's mine."

"Where did you get it?"

"From my father."

"Where did he get it?"

"From his father."

"And where did he get it?"

"He fought for it."

"Well, I'll fight you for it."

**2. We are comically local.** We are certain kinds of Christians, Jews, Muslims, Buddhists, Hindus, atheists, members of this or that political party or nation, or adherents of a hundred local conceits and mythologies – not because any of these are truly superior, but because we can get so emotionally attached to our local ideas and identities that we can’t see how arbitrary and partial they really are.

**3. We are cripplingly time-bound.** The gods of modern religions were only created a few thousand years ago. But for more than 200,000 years before that, anatomically modern humans found comparable certainty and guidance from stories about other gods or local customs, of which we know little to nothing. In another few thousand years or less, people will find their certainties in stories that have nothing to do with today’s gods. We got our beliefs and philosophies from the accidents of our birth, our family, friends, mentors, education and culture, not from “on high”. Still, we each know that we’re right.

The Cosmic Calendar

It can be easier and more fun to see our knowledge and beliefs in perspective by putting us in the context of a cosmic calendar, where the entire 13.8 billion year history of the universe is reduced to one year, with the Big Bang occurring on January 1 at midnight, and today seen as midnight on December 31st.3

First, understand that, at this scale, there are 438 years in every second, 1.58 million years per hour, and 37.8 million years in a single day. A human life lasts about 1/6th of a second.

So the first galaxies were formed around January 22nd4, but our solar system didn't take shape until about September 2nd. The first dinosaurs didn’t appear until Christmas day; mammals the next day, birds on December 27th, flowers on the 28th, and the grand extinction of 65 million years ago that took out all the dinosaurs happened about 6:24 in the morning of December 30th — in other words, yesterday morning. Anatomically modern humans didn’t show up until about eight minutes ago. The Buddha, Confucius, Classical Greece, the Ashokan Empire, Euclidean geometry and Archimedean physics came just six seconds ago. Jesus lived five seconds ago; Mohammad, four. The Mongol Empire, Crusades, Christopher Columbus’ voyages, and the European Renaissance all happened in the last two seconds. And during the past second — which represents 438 years, remember — came modern science and technology, all art, literature and music since 1578, the American and French Revolutions, the general abolition of slavery in most countries, our two World Wars, and the Apollo moon landing. It was less than a quarter of a second ago that we realized the universe was bigger than our little Milky Way galaxy.

Recently, the University of Aukland, New Zealand has estimated that there are more than 500 billion galaxies in the universe, 100 billion inhabitable planets in our Milky Way galaxy, and an astounding 50 sextillion inhabitable planets in the universe.5 That’s 5 x 10 to the 22nd power inhabitable planets: 50,000,000,000,000,000,000,000. Most of those planets appeared billions of years before our Earth. With so many trillions of planets with life that evolved billions of years before we did, and no clear or convincing contact with any of those beings, perhaps there are no worm-hole shortcuts across billions of light years of distance. This might show us just how alone we are and will always be in the universe. This may not sit well with you. It doesn’t sit well with me either, though I think it is true.

We create our gods to love us and make us feel safe. All the gods, religions, superstitions and mysticisms of human history may have grown from the one simple fact that

***What we feel we need goes far beyond what we know.***

With that -- though each paragraph here could be expanded into an essay -- we move from knowledge to the far deeper subjects of belief and the attitude of certainty: an attitude for which we all yearn.6

**BELIEF AND CERTAINTY**

We construct our sense of home, of identity, and of connection to something larger, through feelings rather than empirical facts. Neuroscientists have begun mapping the areas of our brains that contain and process both our knowledge and our beliefs. Antonio Damasio is the most prolific and influential of these scientists.7 There are also some more accessible good popular books for students and teachers from this field (e.g., *The Political Brain, The Female Brain, The Male Brain* — see Bibliography).

**Certainty**

Our most important beliefs and certainties are passionate. Beliefs are matters of personal taste, and there are thousands of beliefs, ideologies and mysticisms about which we can become certain. But once we are sure, our attitude of certainty can trump mere facts without even breaking a sweat -- as shown by the histories of nations, religions and, to a lesser extent, sciences.

The biggest obstacle to understanding this, is that we're each primarily concerned only with our own beliefs. So a conservative Christian may proclaim "I know that Jesus Christ is my Lord and Savior, and I can produce many texts and testimonials from others who believe the same!" A more generic mystic may say "I know for a fact that my soul is part of the soul of the universe. There is nothing of which I am more certain!" Similar passionate certainties are felt by those who believe in the superiority of their own beliefs, their nation or race, and so on. It's hard to mount an argument against those who say their certainties rest on beliefs different from and superior to empirical data and the knowledge produced by any scientific consensus. Most will even acknowledge that only other true believers can appreciate their revealed truths — while scoffing at the ridiculous certainties of others. That’s why it is important always to think of a list of sincere beliefs that are different from ours. We need to understand the categorical difference between facts and faith, truth and certainties. And that's easier to see if we think of other people's beliefs -- which we have less trouble imagining as wrong.

I have watched videos of a few women who are certain that they have given birth to hybrid alien babies. I especially recommend one, a 30-minute interview with a 26-year-old woman who is absolutely certain that she has given birth to ten hybrid-alien babies. I don't agree with a thing she's saying, but can not imagine anyone persuading her that she is wrong. I have the website in the footnotes of my paper, and can send it to you if you give me your e-mail address. My e-mail address is my name: davidsonloehr@gmail.com.8

All of our certainties assume that if others look at the same data in the same way as we do, they will be as certain as we are. But people with different beliefs don't look at the same data, or if they do, they don't look at them in the same way as we do. And if you look at different data, or in a different way, your certainty will be centered in a different place. The same is true of science, but this is the area of science's great *advantage* over all beliefs: the fact that people of different beliefs and cultures around the world see the same data in the same way and arrive at the same understanding of what is really true about our universe and how it works.

Knowledge — science — demands rising above our beliefs and certainties when the wider field of data and the wider community of scientists show that our certainties are arbitrary and premature because our data are wrong, or too limited. This is very hard to do, because our emotional responses have oriented and guided us for millions of years. When our emotional beliefs and certainties steer us, they are doing their evolutionary job. What has changed -- and this is precisely where science must come in -- is that today, it is not enough to react instinctively and emotionally. We have to understand a world far more complex than that for which evolution has prepared us. We need knowledge more than belief, and facts more than certainties, even though our feelings and beliefs may scream that it is the other way around.

Though most of these paragraphs should also open into essays, I need to end this paper. There's an irony here that some of you may have noticed. While claiming that certainty is an emotional response never necessitated by the facts, I am obviously certain of the things I have said, and passionate about the truths I'm proclaiming, sure that they can apply to many others as well, even that they are *superior* to most other beliefs.

My certainty — the only kind that the scientific method permits — is that we can become a bit less ignorant by staying close to the facts arrived at through solid scientific consensus. Let's be honest with ourselves: we are not special, not children of gods or the universe, not “the universe being conscious of itself” or all the rest of our insecure but narcissistic pleadings. David Hume was right 250 years ago: “The life of man is of no greater importance to the universe than that of an oyster.” 9

The simple recipe for the most satisfying life has two parts. First, developing our unique style of being in a way that is fulfilling to us; second, offering our gifts as positive — or at worst, neutral — gifts to our larger communal identities, because we are a social species, and no one is an island. Without the second part of that, we easily swerve toward selfishness, narcissism or psychopathy, and become a potential enemy of our larger world. Without the first part, we lose ourselves. We're not unique here. Similar life styles are seen in most social species, by those who study and get to know them: primates, wolves, dolphins, elephants, lions and many more. Not coincidentally, these insights into how we should live are found in most of the world’s great religions and mythologies, and probably in many more ancient religions of which we are ignorant.

So we are gathered here in Amsterdam for these four days that make up the last 1/40,000th of a second of the Cosmic Year, to mingle our tentative knowledge in the belief that — though we are not likely to rid ourselves of the hope that we do somehow occupy a special place near the heart of the universe — we can, with practice, rise above it toward a more honest and fulfilling existence here on Earth. (This attitude feels very Buddhist to me.)

Finally, what's the payoff? What does this approach get you? Perhaps T. S. Eliot put it best when he said "We shall not cease from exploration, and the end of all our exploring will be to arrive where we started and know the place for the first time.” For me, and perhaps for many of us here, that is *exciting*, and it is *enough*.

ENDNOTES

1. e.g., see http://www.nytimes.com/1989/03/28/science/researchers-trace-empathy-s-roots-to-infancy.html?pagewanted=1 or https://www.psychologytoday.com/blog/the-athletes-way/201310/the-neuroscience-empathy. There are many other such experiments and articles.

2. See http://www.bing.com/videos/search?q=monkeys+and+fairness&view=detail&mid=3959664DE27A01EC3CAF3959664DE27A01EC3CAF&FORM=VIRE

3. See Appendix A for a much more complete Cosmic Calendar. And see Appendix B for many quotations from earlier thinkers with a similar heretical attitude to my own — especially see the many aphorisms from the philosopher Ludwig Wittgenstein, the most important thinker for understanding this broad approach.

4. Or earlier, according to a March 2016 article saying the Hubble space telescope has analyzed the image of a fuzzy red galaxy to be from 13.4 billion years ago. See http://perfscience.com/content/2143373-hubble-calculates-distance-farthest-galaxy-ever-noticed-astronomers

5. See http://www.extremetech.com/extreme/152573-astronomers-estimate-100-billion-habitable-earth-like-planets-in-the-milky-way-50-sextillion-in-the-universe)

6. My understanding of certainty was given its shape and focus mostly by Wittgenstein’s writings, especially his little book On Certainty.

7. More than any other intellectual, Damasio has explored and explained the emotional circuitry lying hundreds of millions of years beneath our neocortex. Among his book titles in this area: The Feeling of What Happens: Body and Emotion in the Making of Consciousness (2000), Looking for Spinoza: Joy, Sorrow, and the Feeling Brain (2003), Descartes’ Error: Emotion, Reason, and the Human Brain (2005), Self Comes to Mind: Constructing the Conscious Brain (2012). Also, and quoted below, his articles “Neuroscience and ethics: intersections.” in the American Journal of Bioethics, 7: 1, 3-7, 2007 and “Neural basis of emotions,” in Scholarpedia, 6(3): 1804, 2011. Here are some passages to give a flavor of Damasio’s thought and style:

"Throughout evolution emotions have been instruments of life regulation: homeostasis. Emotions contribute to the survival and well-being of individuals and groups by providing organisms with a swift, automated means to circumvent dangers and take advantage of opportunities. This is true of animals and humans. (Damasio, 2003; Damasio, 2007).

"The range of emotions is wide but finite. In humans it includes the programs of fear, disgust, sadness, joy, anger, and surprise, as well as a group of simpler programs such as enthusiasm or discouragement, known as background emotions. It also includes a group of very complex programs, usually known as social emotions, such as embarrassment, shame, guilt, contempt, compassion, and admiration.” (“Neural basis of emotions”)

"The emotion program of disgust is another good example of protection of the organism’s integrity. Disgust is triggered from a small region of the anterior insular cortex when certain stimuli are present, for instance, the sight of decomposing food or body waste, as well as tastes or odors from decomposing organic matter. The sight of body-boundary violations, as in a wound with blood, also causes disgust. The actions that constitute disgust include a typical facial expression and, for example, the rapid expulsion of the potentially offending food. As a result the subject will not ingest a potentially toxic food and other subjects may also be alerted to the potential danger (Harrison NA, Gray MA, Gianaros PJ, Critchley HD. “The Embodiment of Emotional Feelings in the Brain.” The Journal of Neuroscience. 30(38):12878-12884, 2010.)

"In the social emotion of contempt there is a rejection of certain behaviors or ideas rather than an expulsion of toxic substances or their tell-tale signs. Contempt can be seen as a biological metaphor for disgust. Significantly, we refer to actions that cause moral revulsion as “disgusting,” and the repertoire of facial expressions that accompanies a contemptuous judgment is similar to that of disgust. The advantages of contempt are apparent: the rejection of behaviors deemed dangerous to individuals or groups, and the social isolation of those who produce such behaviors.” (Harrison et al, above)

8. See the half-hour interview here: http://www.forbiddenknowledgetv.com/videos/ufosinterdimensionalbreakaway-civilization/26-year-old-mother-of-10-hybridhuman-alien-children.html. Other sites: http://firsttoknow.com/meet-the-women-of-the-hybrid-baby-community-with-alien-offspring/, http://hybridchildrencommunity.com/hybrid-parents/, and so on. My point is not that these stories are true, but that those telling them actually believe them, and that their beliefs and the defense of those beliefs are in the same category — of the same kind — as most or all other, more familiar, beliefs.

9. David Hume, in “On Suicide”

**APPENDIX A: THE COSMIC CALENDAR**

from Therese Puyau Blanchard (1995). "The Universe At Your Fingertips Activity: Cosmic Calendar". Astronomical Society of the Pacific.

The 13.8 billion year history of the universe mapped onto a single year, as popularized by Carl Sagan. At this scale the Big Bang takes place on January 1 at midnight, the current time is December 31 at midnight, and the longest human life is a blink of an eye (about 1/6 of a second).[1] At this scale, there are 438 years per second, 1.58 million years per hour, and 37.8 million years per day. This concept was popularized by Carl Sagan in his book The Dragons of Eden and on his television series Cosmos.[2] In the 2014 sequel series, Cosmos: A Spacetime Odyssey, host Neil deGrasse Tyson presents the same concept of a Cosmic Calendar, but using the revised age of the universe of 13.8 billion years as an improvement on Sagan's 1980 figure of 15 billion years. Sagan goes on to extend the comparison in terms of surface area, explaining that if the Cosmic Calendar is scaled to the size of a football field, then "all of human history would occupy an area the size of [his] hand".[3]

**Big Bang**

Date bya Event

1 Jan 13.8 Big Bang, as seen through cosmic background radiation

14 Jan 13.1 Oldest known Gamma Ray Burst

22 Jan 12.85 First galaxies form[4]

16 Mar 11 Milky Way Galaxy formed

12 May 8.8 Milky Way Galaxy disk formed

2 Sep 4.57 Sun formed (planets and Earth's moon soon thereafter)

6 Sep 4.4 Oldest rocks known on Earth

Date in year calculated from formula T(days) = 365.25 days \* ( 1- T\_bya/13.8 )

**Evolution of life on Earth**

Date bya Event

14 Sep 4.1 "Remains of biotic life" found in 4.1 billion-year-old rocks in Western Australia.[5][6]

21 Sep 3.8 first life (prokaryotes)[7][8][9]

30 Sep 3.4 photosynthesis

29 Oct 2.4 Oxygenation of atmosphere

9 Nov 2 complex cells (eukaryotes)

5 Dec 0.8 first multicellular life[10]

7 Dec 0.67 simple animals

14 Dec 0.55 arthropods (ancestors of insects, arachnids)

17 Dec 0.5 fish and proto-amphibians

20 Dec 0.45 land plants

21 Dec 0.4 insects and seeds

22 Dec 0.36 amphibians

23 Dec 0.3 reptiles

24 Dec 0.25 Permian-Triassic extinction event, 90% of species die out

25 Dec 0.23 dinosaurs

26 Dec 0.2 mammals

27 Dec 0.15 birds

28 Dec 0.13 flowers

30 Dec, 06:24 0.065 Cretaceous–Paleogene extinction event, non-avian dinosaurs die out [11]

**Human evolution**

Date / time mya Event

30 Dec 65 Primates

31 Dec, 06:05 15 Apes

31 Dec, 14:24 12.3 hominids

31 Dec, 22:24 2.5 primitive humans and stone tools

31 Dec, 23:44 0.4 Domestication of fire

31 Dec, 23:52 0.2 Anatomically modern humans

31 Dec, 23:55 0.11 Beginning of most recent glacial period

31 Dec, 23:58 0.035 sculpture and painting

31 Dec, 23:59:32 0.012 Agriculture

**History begins**

Date / time kya Event

31 Dec, 23:59:46 6.0 First cities of Mesopotamia

31 Dec, 23:59:47 5.5 First writing (marks end of prehistory and beginning of history), beginning of the Bronze Age

31 Dec, 23:59:48 5.0 First dynasty of Egypt, Early Dynastic period in Sumer, Astronomy

31 Dec, 23:59:49 4.5 Alphabet, Akkadian Empire, Wheel

31 Dec, 23:59:51 4.0 Code of Hammurabi, Middle Kingdom of Egypt

31 Dec, 23:59:52 3.5 Mycenaean Greece; Olmec civilization; Iron Age in Near East, India, and Europe; founding of Carthage

31 Dec, 23:59:53 3.0 Kingdom of Israel, ancient Olympic games

31 Dec, 23:59:54 2.5 Buddha, Confucius, Qin Dynasty, Classical Greece, Ashokan Empire, Vedas completed, Euclidean geometry, Archimedean physics, Roman Republic

31 Dec, 23:59:55 2.0 Ptolemaic astronomy, Roman Empire, Christ, invention of numeral 0

31 Dec, 23:59:56 1.5 Muhammad, Maya civilization, Song Dynasty, rise of Byzantine Empire

31 Dec, 23:59:58 1.0 Mongol Empire, Maratha Empire , Crusades, Christopher Columbus voyages to the Americas, Renaissance in Europe

**The current second**

Date / time kya Event

31 Dec, 23:59:59 0.5 modern science and technology, all music, art and history since 1578, American Revolution, French revolution, general abolition of slavery in most countries, World War I, World War II, decolonialization, Apollo Moon landing

**Toward a Scientific Understanding of Human Nature, Knowledge and Belief**

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**APPENDIX B — Quotations from earlier heretical thinkers**

**For teachers:** The most common objections to the arguments in this paper are that it is no respecter of received wisdom, especially from our religions. In a word, much here is legitimately classified as heretical. The word “heresy” comes from a Greek verb meaning “to choose”; heretics are those who chose when others (arrogant others) declared the choices closed because they had learned all the truths that mattered in these areas. Much more importantly, little that I’ve said in this paper is really new. Here are some quotes from just a few other heretical thinkers in the past 2500 years of Western history that have strong “family resemblances” to my message. These thinkers — there are many others whose work I don’t know well — challenged and expanded beyond conventional boundaries the thinking about gods and religion, facts vs. emotions, and what Wittgenstein called the bewitchment of our minds by language. This kind of challenge is organic in Big History itself. It’s a good thing. This is obviously not meant to be an exhaustive list, just quotations from a few important thinkers who came to mind for me.

**Xenophanes (c. 570-475/480 BCE)**

Xenophanes of Colophon was a Greek philosopher, theologian, poet, and social and religious critic who lived from about 570-475 BCE. He left Ionia at the age of 25, and traveled through the Greek world for another 67 years,. Some scholars say he lived in exile in Sicily. He criticized and satirized a wide range of ideas, including Homer and Hesoid, the belief in the pantheon of anthropomorphic gods and the Greeks’ veneration of athleticism. The Wikipedia entry claims that he is the earliest Greek poet who claims explicitly to be writing for future generations, creating “fame that will reach all of Greece, and never die while the Greek kind of songs survives.” His quotes were as courageous, edgy, and heretical as those of any thinker in Western history.

*“The Ethiopians say that their gods are flat-nosed and black, While the Thracians say that theirs have blue eyes and red hair. If oxen and horses and lions had hands and were able to draw with their hands and do the same things as men, horses would draw the shapes of gods to look like horses and oxen would draw them to look like oxen, and each would make the gods' bodies have the same shape as they themselves had.”*

*“No human being will ever know the Truth, for even if they happen to say it by chance, they would not even know they had done so.”*

*“Men create the gods in their own image.”*

*“It takes a wise man to recognize a wise man.”*

**David Hume (Scotland) (1711-1776), Edinburgh, Scotland.**

The Stanford Encyclopedia of Philosophy claims that Hume is “Generally regarded as one of the most important philosophers to write in English…. A master stylist in any genre, his major philosophical works — A Treatise of Human Nature (1739-1740), the Enquiries concerning Human Understanding (1748), and concerning the Principles of Morals (1751), as well as his posthumously published Dialogues concerning Natural Religion (1779) — remain widely and deeply influential.” (see <http://plato.stanford.edu/entries/hume/> )

*“A wise man proportions his belief to the evidence.” ― Of the Standard of Taste and Other Essays*

*“The life of man is of no greater importance to the universe than that of an oyster.” — David Hume, “On Suicide” (This essay was completed around 1755, withheld from publication because of the controversy it provoked among influential readers. First published in 1783, seven years after Hume died.)*

*“Reason is, and ought only to be the slave of the passions, and can never pretend to any other office than to serve and obey them.” ― A Treatise of Human Nature [I would add that in the 250 years since Hume wrote this, the rise of empirical science and the great expanding of our understanding of ourselves, our world and the universe, we must now say that emotions are not enough to guide us, and — like Freud’s little rider astride the large horse — science must help us steer our passions into wiser routes. — DL]*

*“Epicurus's old questions are still unanswered: Is he (God) willing to prevent evil, but not able? then he is impotent. Is he able, but not willing? then he is malevolent. Is he both able and willing? then whence evil?”*

*“Generally speaking, the errors in religion are dangerous; those in philosophy only ridiculous.” ― A Treatise of Human Nature*

*“When men are most sure and arrogant they are commonly most mistaken, giving views to passion without that proper deliberation which alone can secure them from the grossest absurdities.”*

*“If we take in our hand any volume; of divinity or school metaphysics, for instance; let us ask, Does it contain any abstract reasoning concerning quantity or number? No. Does it contain any experimental reasoning concerning matter of fact and existence? No. Commit it then to the flames: for it can contain nothing but sophistry and illusion.”*

*“All sentiment is right; because sentiment has a reference to nothing beyond itself, and is always real, wherever a man is conscious of it. But all determinations of the understanding are not right; because they have a reference to something beyond themselves, to wit, real matter of fact; and are not always conformable to that standard.” ― Of the Standard of Taste and Other Essays*

*“To be a philosophical Sceptic is the first and most essential step towards being a sound, believing Christian.” ― Dialogues Concerning Natural Religion/The Natural History of Religion*

**Ludwig Feuerbach (1804-1872, Germany)**

From the Encyclopedia Britannica entry on Feuerbach: (on his 1839 book) On Philosophy and Christianity), in which he claimed “that Christianity has in fact long vanished not only from the reason but from the life of mankind, that it is nothing more than a fixed idea.”

“Continuing this view in his most important work, Das Wesen des Christentums (1841; The Essence of Christianity), Feuerbach posited the notion that man is to himself his own object of thought and that religion is nothing more than a consciousness of the infinite. The result of this view is the notion that God is merely the outward projection of man’s inward nature. In the first part of his book, which strongly influenced Marx, Feuerbach analyzed the “true or anthropological essence of religion.” Discussing God’s aspects “as a being of the understanding,” “as a moral being or law,” “as love,” and others, he argued that they correspond to different needs in human nature. In the second section he analyzed the “false or theological essence of religion,” contending that the view that God has an existence independent of human existence leads to a belief in revelation and sacraments, which are items of an undesirable religious materialism.”

*“I would rather be a devil in alliance with truth, than an angel in alliance with falsehood.” ― The Essence of Christianity*

*“Christianity set itself the goal of fulfilling man’s unattainable desires, but for that very reason ignored his attainable desires. By promising man eternal life, it deprived him of temporal life, by teaching him to trust in God’s help it took away his trust in his own powers; by giving him faith in a better life in heaven, it destroyed his faith in a better life on earth and his striving to attain such a life. Christianity gave man what his imagination desires, but for that very reason failed to give him what he really and truly desires.” ― Lectures on the Essence of Religion, Lecture XXX: “Atheism alone a Positive View”*

*“Wherever morality is based on theology, wherever right is made dependent on divine authority, the most immoral, unjust, infamous things can be justified and established.” ― The Essence of Christianity*

*“God did not, as the Bible says, make man in His image; on the contrary man, as I have shown in The Essence of Christianity, made God in his image.” ― Lectures on the Essence of Religion, Lecture XX*

*“The idea of God is the ignorance which solves all doubt by repressing it.” ― The Essence of Christianity*

*“The task of the modern era was the realization and humanization of God – the transformation and dissolution of theology into anthropology.” ― Principles of the Philosophy of the Future*

*“To theology, ... only what it holds sacred is true, whereas to philosophy, only what holds true is sacred.” ― Lectures on the Essence of Religion, Lecture II*

*“My only wish is to transform friends of God into friends of man, believers into thinkers, devotees of prayer into devotees of work, candidates for the hereafter into students of the world, Christians who, by their own procession and admission, are half animal, half angel into persons, into whole persons.” — Lectures on the Essence of Religion*

*“If therefore my work is negative, irreligious, atheistic, let it be remembered that atheism — at least in the sense of this work — is the secret of religion itself; that religion itself, not indeed on the surface, but fundamentally, not in intention or according to its own supposition, but in its heart, in its essence, believes in nothing else than the truth and divinity of human nature.” — from the Preface to The Essence of Christianity*

**Ludwig Wittgenstein quotes (1889-1951, Austrian)**

Wittgenstein may be the only philosopher to be considered the founding thinker of two schools of philosophical thought, which are quite opposed to each other: Logical Positivism (from his first book, the Tractatus Logico-Philosophicus, mostly written while serving as an artillery officer in WWI. It was the only book published during his lifetime, serving as his Ph.D. dissertation at Cambridge under Bertrand Russell), and Language Philosophy (from Philosophical Investigations and many of his other books, all published posthumously). My own dissertation centered on him (The Legitimate Heir to Theology: A Study of Ludwig Wittgenstein, the University of Chicago 1988), so I may be expected to be soaked in, and intellectually and emotionally biased toward the man and his worldview — which I am. He saw the world from a different place than most people. Especially influenced by Kierkegaard, Tolstoy and Karl Kraus, (he learned Danish and Russian to read the first two), his thoughts have a depth, seriousness and honesty seldom found in philosophy or religion. The following quotes may give a flavor of this. A caution: like Nietzsche and Karl Kraus, Wittgenstein wrote primarily in aphorisms. This makes him hard to read until you have read enough aphorisms to get a feel for “where he’s coming from”. I have included a lot of his aphorisms because I think he is the most important philosopher for understanding the subjects I’ve addressed in my short paper. I also believe that Wittgenstein is the most useful philosopher for Big History. (I also love his style of humor, especially evident in the first six quotes here.)

*“I am sitting with a philosopher in the garden; he says again and again 'I know that that’s a tree', pointing to a tree that is near us. Someone else arrives and hears this, and I tell him: 'This fellow isn’t insane. We are only doing philosophy.”  ― On Certainty, § 467. [NOTE: Wittgenstein generally wrote in one-paragraph aphorisms, as he did in On Certainty. So they are usually identified by the paragraph number rather than page number, as here.]*

*“Imagine this game — I call it ‘tennis without a ball’: The players move around on a tennis court just as in tennis, and they even have rackets, but no ball. Each one reacts to his partner’s stroke as if, or more or less as if, a ball had caused his reaction. (Maneuvers.) The umpire, who must have an “eye” for the game, decides in questionable cases whether a ball has gone into the net, etc., etc. This game is obviously quite similar to tennis and yet, on the other hand, it is fundamentally different.” (Last Writings on the Philosophy of Psychology, Volume 1, p. 110) — [These first two are railing against thought abstracted from the real world. — DL]*

*“Philosophers who believe you can, in a manner of speaking, extend experience by thinking, ought to remember that you can transmit speech over the telephone, but not measles.” Philosophical Remarks, p. 95*

*"Tell me," Wittgenstein asked a friend, "why do people always say, it was natural for man to assume that the sun went round the earth rather than that the earth was rotating?" His friend replied, "Well, obviously because it just looks as though the Sun is going round the Earth.” Wittgenstein replied, "Well, what would it have looked like if it had looked as though the Earth was rotating?”  ― Tom Stoppard, Jumpers, Act II. [I think Stoppard wrote this, though Wittgenstein would have liked it.—DL]*

*“Animals come when their names are called. Just like human beings.” On Certainty, p. 67e*

*“In the end when one is doing philosophy one gets to the point where one would like just to emit an inarticulate sound. Philosophical Investigations, § 261*

*“I believe that my originality (if that is the right word) is an originality belonging to the soil rather than to the seed. (Perhaps I have no seed of my own.) Sow a seed in my soil and it will grow differently than it would in any other soil.” — Culture and Value, p. 36e, from 1939-40*

*“I know” seems to describe a state of affairs which guarantees what is known, guarantees it as a fact. One always forgets the expression “I thought I knew”. (On Certainty, §6)*

*“I do not explicitly learn the propositions that stand fast for me. I can discover them subsequently like the axis around which a body rotates. This axis is not fixed in the sense that anything holds it fast, but the movement around it determines its immobility.” (On Certainty, §152)*

*“One keeps forgetting to go right down to the foundations. One doesn’t put the question marks deep enough down.” — Culture and Value, p. 62e, 1947*

*“Remember that we stand on the Earth, but the Earth doesn’t stand on anything else; (children think it will have to fall if it’s not supported.)” — Philosophical Grammar, p. 110*

*“Once the new way of thinking has been established, the old problems vanish; indeed they become hard to recapture. For they go with our way of expressing ourselves and, if we clothe ourselves in a new form of expression, the old problems are discarded along with the old garment.” — Culture and Value, p. 48e*

*“Nothing is so difficult as not deceiving oneself.” — Culture and Value, 1938*

*“We must do away with all explanation, and description alone must take its place.” — Philosophical Investigations, p. 47.*

*“When we first begin to believe anything, what we believe is not a single proposition, it is a whole system of propositions. (Light dawns gradually over the whole.)” (On Certainty, §141) “It is not single axioms that strike me as obvious, it is a system in which consequences and premises give one another mutual support.” (On Certainty, §142)*

*“I have a world-picture. Is it true or false? Above all it is the substratum of all my inquiring and asserting. The propositions describing it are not all equally subject to testing.” (§162) “The difficulty is to realize the groundlessness of our believing.” (On Certainty, §166) “... of course learning is based on believing.” (On Certainty, §170)*

*“What stands fast does so, not because it is intrinsically obvious or convincing; it is rather held fast by what lies around it.” (On Certainty, §144)*

*“I have arrived at the rock bottom of my convictions. And one might almost say that these foundation-walls are carried by the whole house.” (On Certainty, §248)*

*“I act with complete certainty. But this certainty is my own.” (On Certainty, §174)*

*“[I believe it might interest a philosopher, one who can think himself, to read my notes. For even if I have hit the mark only rarely, he would recognize what targets I had been ceaselessly aiming at.]” (On Certainty, between §387 and §388)*

*“Philosophy is a battle against the bewitchment of our intelligence by means of language.”  ― The Blue Book, §109, and Philosophical Investigations*

*“We feel that even if all possible scientific questions be answered, the problems of life have still not been touched at all.”  ― Tractatus Logico-Philosophicus*

*“At the foundation of well-founded belief lies belief that is not founded.” (§253) “Any ‘reasonable’ person behaves like this.” (On Certainty, §254,)*

*“The questions that we raise and our doubts depend on the fact that some propositions are exempt from doubt, are as it were like hinges on which those turn.” (§341) “If I want the door to turn, the hinges must stay put.” (On Certainty, §343)*

*“Knowledge is in the end based on acknowledgement.” (On Certainty, §378)*

*“Doubt itself rests only on what is beyond doubt.” (On Certainty, §519)*

*“I want to say: it’s not that on some points men know the truth with perfect certainty. No: perfect certainty is only a matter of their attitude.” (On Certainty, §404).*

*“For may it not happen that I imagine myself to know something?” (On Certainty, §442).*

*“A picture held us captive. And we could not get outside it, for it lay in our language and language seemed to repeat it to us inexorably.”  ― Philosophical Investigations, p. 48.*

*“Where two principles really do meet which cannot be reconciled with one another, then each man declares the other a fool and a heretic.” (On Certainty, §611)*

*“I said I would “combat” the other man, -- but wouldn’t I give him reasons? Certainly; but how far do they go? At the end of reasons comes persuasion. (Think what happens when missionaries convert natives.)” (On Certainty, §612)*

*“... would it be unthinkable that I should stay in the saddle however much the facts bucked?” (On Certainty, §616)*

*“I can’t be making a mistake about it” simply characterizes one kind of assertion. (On Certainty, §631)*

*“It’s almost unbelievable, the way in which a problem gets completely barricaded in by the wrong expressions which generation upon generation throw up for miles around it, so that it’s virtually impossible to get at it.” — Philosophical Remarks, p. 173.*

*“How small a thought it takes to fill a whole life.” — Culture and Value p. 57, written on 2-9-1946*

*“If someone does not believe in fairies, he does not need to teach his children 'There are no fairies'; he can omit to teach them the word 'fairy'.”  ― Zettel, §413*

*“Don't get involved in partial problems, but always take flight to where there is a free view over the whole single great problem, even if this view is still not a clear one” ― Journal entry (1 November 1914) — Notebooks 1914-1916*

*“The world of the happy is quite different from that of the unhappy.” ― Tractatus, 6.43*

*“What people are really after is something quite different. A certain paradigm hovers before their mind’s eye, and they want to bring the calculus into line with this paradigm. — Philosophical Reflections, p. 346*

*“Tell me how you are searching, and I will tell you what you are searching for.” — Philosophical Reflections, p. 67*

*“He’s coming. I personally don’t believe it, but don’t let that mislead you.” — “He’s coming, rely upon it. I don’t believe it, but don’t let that mislead you.” This sounds as if two people were speaking out of me. — Remarks on the Philosophy of Psychology, vol. 1, p. 94*

*“Kierkegaard was by far the most profound thinker of the last century. Kierkegaard was a saint.” — Ludwig Wittgenstein (Quoted by M. O’C. Drury, in Rhees, Recollections of Wittgenstein, 87)*

*“Every explanation is after all an hypothesis.” — Philosophical Occasions 1912-1951, Ch. 7, Remarks on Frazer’s Golden Bough, p. 123)*

*“Any explanation has its foundation in training. (Educators ought to remember this.)” — Zettel, §419*

*“Concepts with fixed limits would demand a uniformity of behavior. But where I am certain, someone else is uncertain. And that is a fact of nature.” — Zettel, §374.*

*“Burning in effigy. Kissing the picture of one’s beloved… it aims at nothing at all; we just behave this way and then we feel satisfied.” — Philosophical Occasions 1912-1951, Ch.7: Remarks on Frazer’s Golden Bough, p. 123*

*“When I am furious about something, I sometimes beat the ground or a tree with my walking stick. But I certainly do not believe that the ground is to blame or that my beating can help anything... And all rites are of this kind.” — Philosophical Occasions 1912-1951, Ch. 7 : Remarks on Frazer's Golden Bough, p. 131*

*“Philosophical problems can be compared to locks on safes, which can be opened by dialing a certain word or number, so that no force can open the door until just this word has been hit upon, and once it is hit upon any child can open it.” — Philosophical Occasions 1912-1951, Ch. 9 : Philosophy, p. 175*

*“What we are destroying is nothing but houses of cards and we are clearing up the ground of language on which they stood.” — Philosophical Investigations, § 118*

*“I did not get my picture of the world by satisfying myself of its correctness; nor do I have it because I am satisfied of its correctness. No: it is the inherited background against which I distinguish between true and false.” — On Certainty, § 94*

*“The child learns to believe a host of things. I.e. it learns to act according to these beliefs. Bit by bit there forms a system of what is believed, and in that system some things stand unshakeably fast and some are more or less liable to shift. What stands fast does so, not because it is intrinsically obvious or convincing; it is rather held fast by what lies around it.” — On Certainty, § 144*

*“At the core of all well-founded belief lies belief that is unfounded.” On Certainty, § 253*

*“I sit astride life like a bad rider on a horse. I only owe it to the horse's good nature that I am not thrown off at this very moment.” — Culture and Value, p. 36e*

*“A man will be imprisoned in a room with a door that’s unlocked and opens inwards, as long as it does not occur to him to pull rather than push it.” Culture and Value, p. 42e*

*“Courage, not cleverness; not even inspiration, is the grain of mustard that grows up to be a great tree.” — On Certainty, p. 44e*

*“Wisdom is passionless. But faith by contrast is what Kierkegaard calls a passion.” On Certainty, p. 53e*

*“Ambition is the death of thought.” — On Certainty, p. 77e*

*“The totality of facts determines what is the case, and also what is not the case.” — Tractatus, 1.12*

*“(The philosopher is not a citizen of any community of ideas. That is what makes him into a philosopher.)” — Zettel, §455.*

*“Our motto might be: ‘Let us not be bewitched’.” — Zettel, §690.*

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