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HUM 3306: History of Ideas--The Age of Enlightenment to the Age of Anxiety  
Summer 2012

LEARNING ENHANCEMENT SITES:

Here, at the top of some of the unit lectures, will be a variety of outside videos (some serious; some satiric). You are not responsible for them, but please click on the links, pictures, or icons for the perspectives the videos offer. This is an experimental feature of the course, to be integrated more thoroughly in future versions.

The 5-part documentary below is serious.  
The 3-part documentary below is satiric.



9:50

[\(1/5\) Origin of Species by Charles Darwin](#)

1993 Documentary on Charles Darwin's "Origin of Species" Part 1 of 5.



10:01

[\(2/5\) Origin of Species by Charles Darwin](#)

1993 Documentary on Charles Darwin's "Origin of Species" Part 2 of 5.



9:35

[\(3/5\) Origin of Species by Charles Darwin](#)

1993 Documentary on Charles Darwin's "Origin of Species" Part 3 of 5.



9:57

[\(4/5\) Origin of Species by Charles Darwin](#)

1993 Documentary on Charles Darwin's "Origin of Species" Part 4 of 5.



9:42

[\(5/5\) Origin of Species by Charles Darwin](#)

1993 Documentary on Charles Darwin's "Origin of Species" Part 5 of 5



10:00

[The Mark Steel lectures - Charles Darwin \(1/3\)](#)

The Mark Steel lectures - Charles Darwin



9:53

[The Mark Steel lectures - Charles Darwin \(2/3\)](#)

The Mark Steel lectures - Charles Darwin



9:30

[The Mark Steel lectures - Charles Darwin \(3/3\)](#)

The Mark Steel lectures - Charles Darwin

## **DARWIN AND EVOLUTIONARY THEORY**

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Because we tend to be so blasé about history and have so much faith in and desire for the latest scientific discovery or gadgetry (especially when our lives seem to be made more efficient or gain in convenience), we do not see science of interest beyond the “truth” it produces right now. But science isn’t just a march from ignorance to truth; science is deeply embedded in larger cultural forces and ideologies, and learning the history of science tells us a lot about the past and our own ways of being in the world....

**So, Consider These Major Scientific/Cultural Paradigm Shifts:**

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- One is the Copernican revolution: we are not at the center of the universe, either physically/literally in the sense of the earth being at the center with the heavenly spheres radiating out “above” us, or in the sense of mankind taking center stage in the drama of Creation, the story of our fall from the Garden of Eden, etc. (I’m speaking of the Eurocentric version of history/Christianity ... not beliefs in Asia or Africa and so on.) Christianity obviously does not suddenly disappear with the advent of Copernicus’s ideas, but theologically it does become trickier to explain why God would create the entire vast, endless cosmos, if we’re not at the center of it. Why have far distant galaxies, spinning out their destinies, when humankind’s drama is totally non-related? Why does God create, using an analogy, the totality of every single book ever printed (the millions upon millions of volumes), if our story takes place just within the quote marks right “.” here?
- Another paradigm shift is the collapse of feudal-hierarchical social and metaphysical-natural relations (the Great Chain of Being), allowing for a more egalitarian social world and a natural world that just “is” rather than being ranked in degree. Remember that the Great Chain of Being ranks species: an Oak tree is “better” than a turnip, kings are better than peasants, gold is better than lead, and so on; for a naturalist, from the Enlightenment on, no one species is “better” or worse than any other, and contemporary ecological theorists and animal-rights moralists and philosophers would claim that the non-human realm, whether intelligent or vegetative, has an intrinsic right to life and prosperity (imagine a rewriting of the Declaration: “... all men, and animals, and plants are created equal...”!).
- Another: Columbus’s “discovery” of the New World, and the rise of imperialism/colonialism as well as the recognition of new species that complicate the Genesis story.
- Another: the rise of a technological attitude towards nature, an objectification that makes us view nature instrumentally, as something to be manipulated: i.e. The Enlightenment’s attitude toward nature. On the

one hand we know our scientific/technological gadgets since we devised them; on the other, nature is increasingly mediated by technology (by nature I do not mean so much lions and lichen, but everything “outside” of us). Do you feel alienated by a lack of, say, sensuous immediacy with the objects about you (e.g., who knows what is under their car hood, whereas in the 50s everybody changed their own oil; who knows the history of technology post soil, water, and sun that produces the corn that is in the snack you might be eating right now?).

- Next one: a sense of deep, vast, geological time. Humankind's drama is miniscule when juxtaposed against the age of the cosmos. Again, if our time equals this enclosed “.” period all preceding time would equal all the grains of sand on all the beaches of the world.

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### **Now, Consider the Pre-Darwin Context:**

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Consider specifically these three disturbing ideas that any thoughtful person would have had to contend with in the early-to-mid 19<sup>th</sup> Century, and likely today as well.

#### **A) SIGNS OF EXTINCTION**

For Charles Peale the so-called “Book of Nature” reveals just as much as the Book of Revelation (the Bible) about God’s cleverness in designing the natural world with all its interlocking designs (bees pollinating flowers; flowers providing nectar for bees, etc.). “Natural theology” was the term used to designate the evidence for a Creator based on his creation.

Before the Enlightenment, the Great Chain of Being (from God to humans to lions to turnips to lead...) was deemed immutable: nothing disappears from the chain (it is, after all, descending from God... a gap would be theologically unseemly!). Even in the Enlightenment, although social hierarchy (rank among species) had largely been de-hardwired from metaphysics/cosmology, there was still a belief in the non-mutability and preservation of species.

That’s why Peale’s pal Thomas Jefferson in part sent Lewis and Clark on their expedition west of the Mississippi to find a living, breathing woolly mammoth. Jefferson did not believe God would be so spendthrift and capricious as to create species that could not endure. It would be irrationally disorderly for the Creator, to use the Deist analogy, to create a metal clock with, say, a broken/outsized wooden gear inside. Here’s what Jefferson said in 1785: “Such is the economy of nature ... that no instance can be produced, of her having permitted any one race of her animals to become extinct; of her having formed any link in her great work so weak as to be broken.” (note, even during the Enlightenment period, that the Great Chain of Being idea of vertical links, still somewhat is used).

Increasingly in the early 19<sup>th</sup> century, geological discovery and coalmining excavation was accompanied by the mystery of strange bones deeply sedimented in hillsides/ mountain tops/within the earth (see illustration). There was a sort of epidemic of bone revelations (bones not belonging to any living species)!

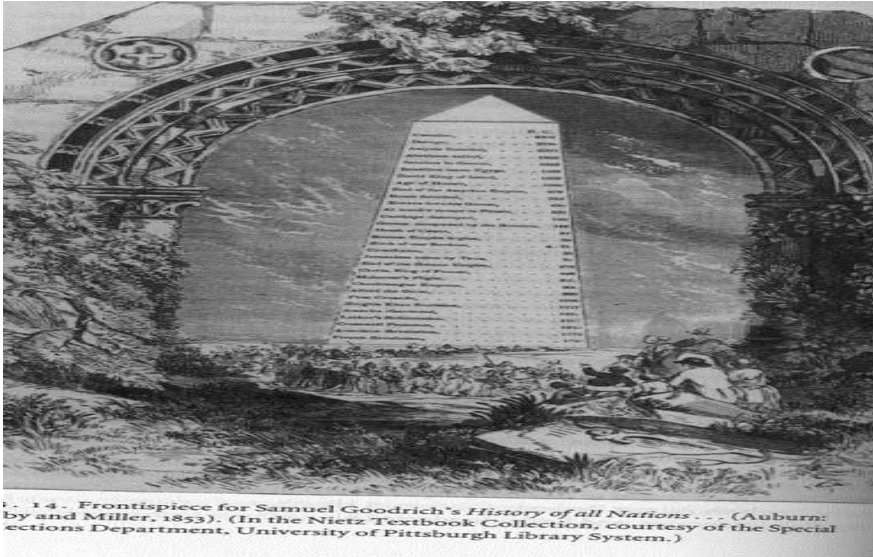


Fig. 14. Frontispiece for Samuel Goodrich's *History of all Nations*. . . (Auburn: Goodrich and Miller, 1853). (In the Nietzsche Textbook Collection, courtesy of the Special Collections Department, University of Pittsburgh Library System.)

## B) DEEP TIME REPLACES BIBLICAL TIME: HUMANS BECOME ALMOST AN AFTERTHOUGHT IN THE VASTNESS OF TIME

Before the 19<sup>th</sup> century (roughly), there was perfect continuity between human recorded history (going back to antiquity, Roman-Greek-Egyptian) and scripture inspired history (story of Moses in Egypt etc). So obvious was the linkage that Bishop Usher in the 17<sup>th</sup>-century confidently proclaimed 4004 B.C. as the date of Creation. Everyone believed this, more or less, in the early 19<sup>th</sup> century.

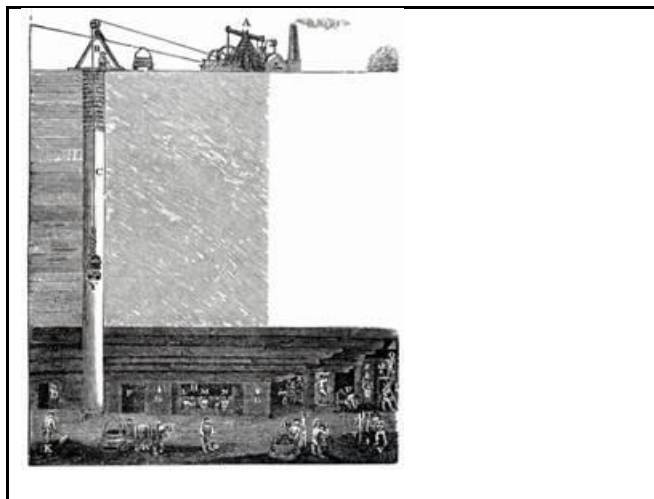
In 1800, theologically, you are at the forefront of the Creator's thoughts; you are the main player in his drama, in the sense that (if you are Christian, Jewish, or Muslim) God has created the cosmos and earth for Adam and Eve's use, and even after the expulsion from the Garden of Eden, the earth is still for humankind's use (for "the industrious and rational" as Mr. Locke would say), until Christ re-appears in the Second Coming, and etc.

Historically, also, you are center stage, because the Bible narrative coincides with all history: there is no prehistory, really. There are no "primitive" "caveman" times. In Equiano's day, Africans or American Indian natives were considered "primitive" not just because they had not "progressed" to European "civilized" norms, but also because in the post Tower-of-Babel or post-Deluge they had somehow *forgotten* Scripture in their migrations away from the prime locale of the Garden of Eden. Many 18<sup>th</sup> social historians thought Native Americans were a lost tribe of Israel.

In sum: before Darwin's era all of time made sense in human/theological terms. All time had a point, there was no pointless time. When you went out into a farmer's field and saw a horse, you could imagine the same type of horse being used by Adam and Eve's immediate descendants to plow the earth; the horse wasn't some evolutionary late development from previous hoofed, and now extinct, species.

An understanding of geological process (in conjunction with a view of the earth's inside from coal-mining) establishes, however, that mountains/ravines/sedimentary layers develop over vast, vast spans of time. Note

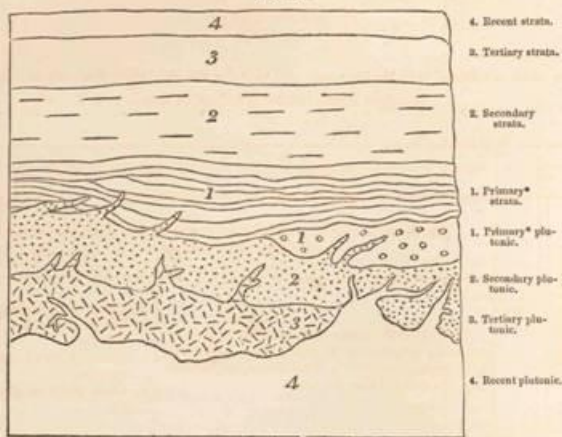
how an understanding of geological process and the depth of time go hand in hand: you cannot conceive how erosion can produce the Grand Canyon, unless you accept that the earth's history is billions of years old; you cannot rethink the Biblical scale of time, expanding its some 6000 years to the cosmos' billions of years, without the visual aid of extrapolating away from local/small geological events (the erosion in your farm field) to vast ones (mountains, the Grand Canyon, etc). (See illustrations above and below)



### DIAGRAM

*Shewing the relative position which the Plutonic and Sedimentary Formations of different ages may occupy ;  
(in illustration of TABLE I.)*

No. 91.



In the above diagram an attempt is made to shew the inverted order in which the sedimentary and plutonic formations may occur in the earth's crust; subterposition in the plutonic, like superposition in the sedimentary rocks, being for the most part characteristic of a newer age. By aid of this illustration, and what we have said in Chap. 25 and 26, the reader will comprehend why so large a portion of the plutonic rocks of later periods are concealed, and why the more ancient of this class have risen nearest to the surface, so as to have been denuded in some regions and exposed to view.

One could, of course, say “don’t read the Bible’s days literally,” each day equals millions of years, with Adam and Eve appearing at the end. But what (this has been emphasized previously) would be God’s point in having millions and millions of years of pre-human time? Why be so tardy with the human drama? If there is a God, God seems to have created a very long movie whose plot can be explained by natural cause-and-effect (geological and evolutionary processes) and whose main players—us—only appear in the very last frame?

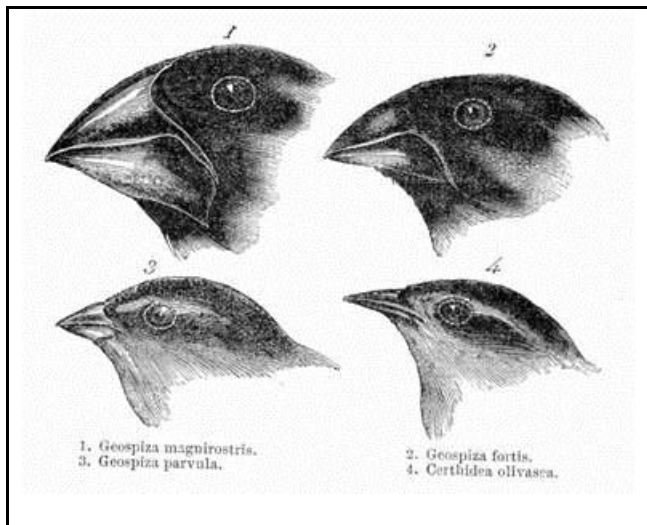
It is the weight of all that unfathomable time that leads us to depict Darwin as an aged man, as if he is bearing the heavy existential burden of his own discoveries. (See illustration on page 26 of our Darwin edition.)

### C) THE BIBLE’S STORY OF CREATURE DIFFUSION DOESN’T MATCH GEOGRAPHICAL EVIDENCE OF LOCALE-SPECIFIC SPECIES

If all species radiated out from the Garden of Eden or out of Noah’s ark: how explain no signs (living or in the fossil record) of, say, armadillos between the Middle East and South America? (Again, remember... modern notions of plate shifts are not yet known!).

Disturbingly, with more and more knowledge of a variety of lands in the 17<sup>th</sup>-19<sup>th</sup> centuries, species seem peculiar to particular locales. Perhaps the locales cause the species, but if the locales caused the species.... Then God did not create the species! Now you can see why Darwin was so fascinated by the facts of finch differences as he went island hopping in his 1837 voyage on The Beagle? (See illustration below.)

This thinking intensified racism in the 19<sup>th</sup> Century: God may have created humankind primordially, but just as there are divergent cat creatures—lions and tigers—there were perceived to be different incompatible “races”; before the 19<sup>th</sup> Century, racial “type” was deemed mainly cultural, afterwards throughout the 19<sup>th</sup> Century race was perceived as biologically fundamental. Today, we know that so-called “racial” features (skin color etc) are biologically insignificant (to be “black” or “white” or “brown” is equivalent to having red hair or blond hair).



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### The Big Point—The Middle of the 19th Century was Ready for Darwin because:

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--Darwin made sense of extinction (those species lacking adequate adaptation do not survive and become part

of the fossil record).

--Eons and eons of non-human (non-Biblical) time were not pointless entirely but, rather, are required for evolutionary accretions to add up to significant changes (all the different mammals variations that evolved from the ur-mammal that clawed out of the seawater).

--The creation of species is non-Biblically connected to locale (the environment), a preoccupation of Darwin's when he voyaged on the ship "The Beagle" and encountered subtly different finches as he traveled island to island. (see illustration above). In short, as an equation:

*locale + "fit" w/ locale (offspring adaptability/survivability) + lots of time = evolution!*

IN A SENSE, "ALL" DARWIN DID WAS PUT THE DISTURBING PIECES OF THE PUZZLE TOGETHER—BUT IN SO DOING PRODUCED PERHAPS THE MOST MAJOR PARADIGM SHIFT IN HUMAN HISTORY!

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### **Other Relevant Ideas in the Air as Darwin was Developing his Theory:**

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Jean Baptiste Lamarck (1744-1829) developed the theory of the inheritance of acquired characteristics. His theory of evolution argued that adaptive efforts led to structural changes that were passed on to the next generation. E.g., a plant living on the edge of the desert adapts itself to an arid climate, grows up to be more cactus-like, and passes on cactus qualities to the next generation. Lamarck was wrong, but influenced Darwin to think about adaptation.

Thomas Malthus (1769-1832) publishes Essay on the Principles of Population. He noted that populations tend to increase much more rapidly than the food supply allows. He concluded that life was a continuous struggle among the eaters of limited food. War (predation), famine, and disease fortunately limit the increase in populations. Competition provides a necessary limitation--Darwin, in turn, figured out how mutations/adaptations in offspring gave them a competitive advantage over offspring without the mutations or adaptations.

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### **THE KEY ASPECTS OF EVOLUTIONARY THEORY (NOTE PAGE REFERENCES TO OUR EDITION, with Some study Questions in Yellow)**

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#### **A. VARIATION**

Breeders produce, say, pigeons with new variations (beak size, wing span, and so on). Same with varieties of wheat, varieties of dogs, etc. Many thousands of years ago, there was a wolf-like dog, which got domesticated and which over time thru selective breeding became our present-day bulldog, Irish setter, etc. (Darwin 35-37)

**Question: Why does Darwin start off with examples of domesticated species? When he says "varieties" are "incipient species" (42 and elsewhere) what does he mean?**

**Question: Can you reconcile the idea of natural selection with providential acts of separate creation—see Darwin's sarcastic remarks on 117-8?**

#### **B. STRUGGLE FOR EXISTENCE**

Darwin observed that, typically, more offspring are produced in each generation than can be supported by the environment (based on the ideas of Thomas Malthus). There is constant competition to survive given the environmental "conditions of life" (Darwin 44).

Question: work out an example or two of this idea for yourself.

### C. NATURAL SELECTION or SURVIVAL OF THE "FITTEST"

Organisms with advantageous variations (advantageous, that is, given their environment) will survive longer and produce their kind (which usually inherit the variation). (Darwin 47-49)

Question: each step in the sequence is accidental (a DNA mutation as we now know in the offspring); do you feel the logic of how such accidents can "add up" (47 and 56) to produce not just a creature's superior adaptability to an environment (e.g., sharper eagle eyes over many generations) but a different creature (e.g., a chicken, say: that is, there was some ancestral generic bird that split, in terms of evolutionary lines, into a chicken, an eagle, etc.)?

Question: if you accept above, are you willing to accept that there was an originary mammal, say, that split into all the mammal types now populating the earth? How far would you carry the ancestral merging back: do you believe everything evolved out of the primordial soup? Note Darwin's statement that there is either evolution or there is not (117-8)!!!

Question: do you feel the intricacy of the eyeball, presumably evolving from some crude photo-sensitive spot on a worm's epidermis, is a) marvelous, b) unlikely that accidents could add up thusly (God must have intended the final result, since, after all, how can an eye function before it is fully an eye!), c) a matter of indifference to you? Note how Darwin on 120-1 says that mechanical laws of nature lead to "higher" animals and "forms most beautiful and most wonderful."

Question: what makes more "sense" to you-- a) All of those eons and eons of evolution, of billions upon billions of cases of animal savagery and death (an amoeba does not feel pain, but advance far enough forward, and you get a worm, which does... or does it?), all as a prelude to God's introduction of humankind (i.e. God has intended evolution in some fashion)? Or b) All of those eons and eons ... being absolutely mechanical/accidental (not a product of a godly intelligent design)/not-teleological ... and yet producing the eyeball, the perfect hand joints of a pianist playing Chopin, indeed your capacity to read these sentences, but also pain? In brief, when Darwin says "beautiful" (or I say "pain") is he (am I) introducing a metaphysical attribute to a mechanical process?

Question: If some behaviors are explained biologically/genetically (think of ongoing discoveries about the inheritability of schizophrenia, etc.), to what extent does the notion of "free will" tend to disappear? If nature seems like a brutal mechanism, and if we are part of that mechanism, how should we evaluate our capacity for moral or ethical behavior? Locke and Marx, broadly speaking, have ethical ideologies; Darwin's and Freud's ideas tend to undercut ethics, perhaps?

Question: If a "struggle for survival" exists in nature (which weeds out "unfit" organisms), isn't capitalism (based on competition, etc.) the best system because it is the most natural? This entirely discredited, bogus notion is called Social Darwinism; see editor's introduction to Origin 14-15.