

“This argument is based on variation in the DRB1 gene in the human population. This gene, one of one hundred or so that make up the human leukocyte antigen complex, is very old. The fact that thirty-two of the fifty-nine variants found in man are also found (in similar, though not identical form) in chimpanzees shows that these variants arose before the phylogenetic divergence of chimpanzee and man, some 6 mya [million years ago]. Since no individual can carry more than two such variants, the absolute minimum human population in every generation after the evolution of man from a common human-chimpanzee ancestor is sixteen. (The other twenty-seven variants could have arisen from later mutations.)

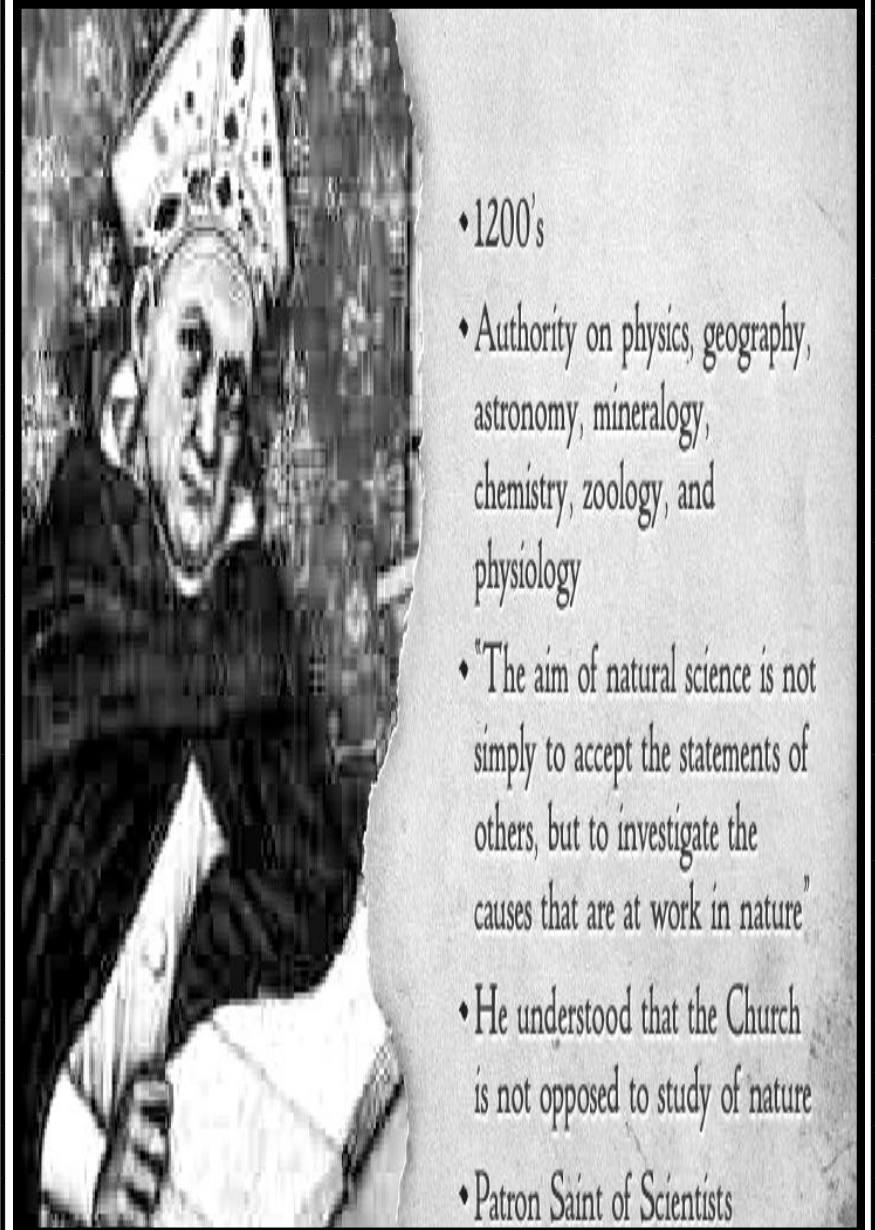
This genetic diversity precludes very narrow population bottlenecks as well as very long-lasting ones, as such bottlenecks are too small to transmit the observed range of variation to succeeding generations. ...Ayala calculates that the minimum bottleneck sufficient to maintain that level of diversity (and then to return to the mean population size) is about 4,000 synchronously reproducing individuals, or perhaps slightly less. That suggests an actual population of some 15,000–20,000 individuals.” Kenneth Kemp, *Science, Theology and Monogenesis*.

From a series of articles written by: Bob Kurland - a Catholic Scientist



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## ***Catholic Physics - Reflections of a Catholic Scientist - Part 5 Did Neanderthals have a soul?***

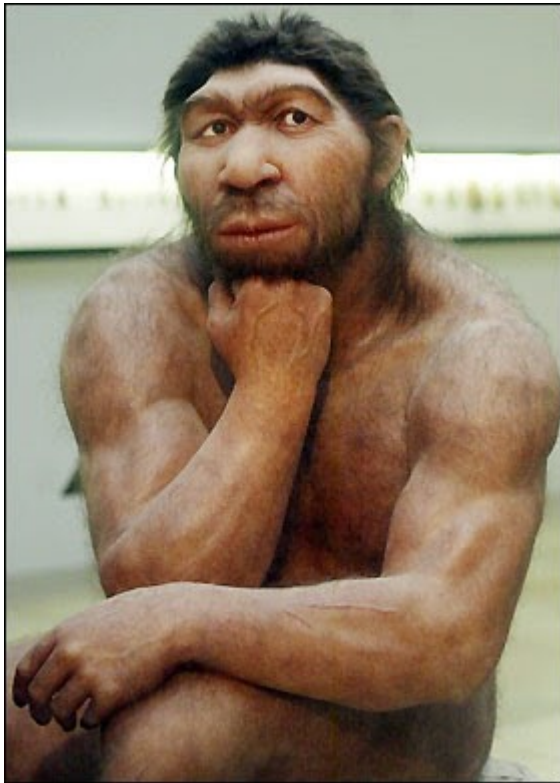


- ♦ 1200's
- ♦ Authority on physics, geography, astronomy, mineralogy, chemistry, zoology, and physiology
- ♦ "The aim of natural science is not simply to accept the statements of others, but to investigate the causes that are at work in nature"
- ♦ He understood that the Church is not opposed to study of nature
- ♦ Patron Saint of Scientists

# Catholic Physics - Reflections of a Catholic Scientist - Part 5

Thoughts on belief, knowledge and faith—rational and irrational; my journey to faith, and on the “Limits of a limitless science” (to paraphrase Fr. Stanley Jaki). A discourse on the consonance of what science tells us about the world, and the dogma/teachings of the Catholic Church; you don’t have to apologize for being Catholic if you’re a scientist.

Did Neanderthals have a soul?



The Thinking Neanderthal  
Image from [Althouse](#)  
Model in Halle/Salle Prehistory Museum

When would Adam and Eve have appeared in human pre-history? That point is not clear. Certainly tool-making is a necessary but not a sufficient condition for rational activity in the sense Kemp would take. Pebble tools go back to Homo Habilis some 2.6 million years ago, and in more advanced forms, possibly requiring rational forethought, to Homo Erectus, some 2 million years ago. Neanderthal man had a sophisticated tool-making capability, used fires, buried his dead with accompaniments.

## SUMMARY

The questions raised at the beginning of this post have been answered only partially. It is unlikely, but not impossible, that biological monogenesis occurred. If we accept (as I do) that mind, self-consciousness and what we please to call “soul” are not solely a physical thing, but are immaterial, then we still are in the dark as to what constitutes paleo-archeological evidence for rational activity, activity that is sufficient to show that individuals in a species are endowed with souls. We are unsure when in pre-history God gave two individuals their souls, and continued to do so thereafter for each of their descendants.

To the question put in the title, I would answer “Yes!”, Neanderthals did have a soul. I would argue that any species that buries its dead has knowledge that life will end, and is therefore endowed rationally.

Finally, to all who would dispute that there is such a thing as a soul, and that mind/consciousness/etc. are purely physical phenomena—you’re welcome to your opinion, but I (and many others) don’t agree with you.

## NOTES:

Note that a similar story is given for an original “Adam”, traced through the Y-chromosome (passed from father to son), who lived 100,000 to 200,000 years ago. Whether Y-chromosome Adam and Mitochondrial Eve were alive at the same time and had children is an interesting question, to which we’ll not know the answer (while alive).

Here’s the quote from Kenneth Kemp’s article that explains this argument in more detail.

Is it the case that biological monogenesis did occur? Some evolutionary geneticists have justified the idea of descent from one ancestor (or a pair of ancestors) by the “Mitochondrial Eve” hypothesis, which proposes that all humans are descended from an African lady who lived some 100,000 to 200,000 years ago. It’s important here to realize that Mitochondrial Eve might have contributed only a small amount to our gene pool, given that there would have had to be many, many other great-great-.....-great grandmothers. (I have two great-grandfathers who were rabbis, but there were two other great-grandfathers who could have been real low-lifes.)

The Mitochondrial Eve hypothesis has been criticized by evolutionary geneticists who argue that “bottlenecks” (small population sizes) lead to minimal genetic variation and thus lower survival of species. Francisco Ayala has examined the variation in the gene DRB1 and concludes the variation is too large to admit of a small population (bottleneck) as ancestors. Ayala’s calculations have been criticized as being biased and based on assumptions that don’t apply. Let’s bypass the question of biological monogenesis and turn to Kemp’s proposal for theological monogenesis.

## THEOLOGICAL MONOGENESIS

Kemp’s thesis, theological monogenesis, rests on the notion of philosophical and the-ological species:

“The biological species is the population of interbreeding individuals.

The philosophical species is the rational animal, i.e., a natural kind characterized by the capacity for conceptual thought, judgment, reasoning, and free choice. St. Thomas Aquinas argues that a certain kind of body is necessary for rational activity, but is not sufficient for it. Rational activity requires, in addition the presence of a rational soul, something that is more than the power of any bodily organ, and that therefore can only come into being, in each individual case, through a creative act of God. [emphasis added] The theological species is, extensionally, the collection of individuals that have an eternal destiny. The Catechism of the Catholic Church says ‘God created man in his image and established him in his friendship.’ [CCC 396] Kenneth Kemp, *Science, Theology and Monogenesis*

I won’t give Kemp’s arguments in detail, but only a summary—please go to the original paper for a complete story. He supposes that a small population, about 5000, existed with the necessary physical characteristics (“body”) for rational activity. God selected two of these, a man and woman to be endowed with a soul, the capacity for abstract thought: e.g. to know that one would die, to have knowledge of one-self as an individual (self-consciousness), etc.

“The magisterium of the Church takes a direct interest in the question of evolution, because it touches on the conception of man, whom Revelation tells us is created in the image and likeness of God....

"Pius XII underlined the essential point: if the origin of the human body comes through living matter which existed previously, the spiritual soul is created directly by God...

"As a result, the theories of evolution which, because of the philosophies which inspire them, regard the spirit either as emerging from the forces of living matter, or as a simple epiphenomenon of that matter, are incompatible with the truth about man...

"The moment of passage into the spiritual realm is not something that can be observed in this way—although we can nevertheless discern, through experimental research, a series of very valuable signs of what is specifically human life.” Pope St. John Paul II, *Message to the Pontifical Academy of Sciences: On Evolution.*

## INTRODUCTION

I’ve recently finished a SF trilogy, “The Neanderthal Parallax”, by Robert Sawyer, describing a parallel universe in which there is a civilization (technical–quantum computers, and all that) in a world in which Neanderthals, rather than Homo Sapiens, are the intelligent species..

We have an image of Neanderthals as brutes, sub-human, but their brain size was generally greater than that of Homo Sapiens. There is archeological evidence to indicate that they cooperated as a hunter-gatherer community, and that they cared for disabled members of the community, thus showing compassion.

There is evidence from genetic research to reinforce the notion that Neanderthals were not subhuman. The Neanderthal genome has been explored in detail, to show that there is a 99.7% similarity between human (homo sapiens) and Neanderthal DNA. However, since there are so many genes, that leaves quite a few that aren’t common. Nevertheless, the similarities are important. For example, Neanderthals had the same two modifications in the FOXP2 gene as do humans; this is the the gene that governs development of language centers in the brain. Moreover, genomic analysis suggests that trace amounts (1 to 4 %) of Neanderthal genomic material affects traits in modern humans, Eurasians, but not in Africans.

So, did the first humans intermarry with Neanderthals in Europe or East Asia? And did these first humans AND Neanderthals have souls? There is

some evidence (controversial) that Neanderthals buried their dead and gave them gifts for an after-life.

The Church has taken a position on evolution put forth by Pope St. John Paul II in an address to the Pontifical Academy of Sciences (see the quotes above), a position which makes a clear distinction between evolution of a material body, and a soul endowed by God. Even if one grants that this position is neither doctrine nor dogma, it still is a teaching that has to be carefully considered by the Catholic faithful (coming from the Vicar of Christ).

Here, then, are several questions that occur to me. Some have been answered, at least partially, in Kenneth Kemp's article, *Science, Theology and Monogenesis*. I ask the reader to assess critically these questions, the partial answers given below and then to consider the following general issue:

Is there a conflict between what paleoanthropology and genomic research tell us and what we are to believe from Catholic doctrine and dogma?

The evolutionary theory I have read suggests that new species arise not from one or two individuals, but from populations. If new species arise from differences in DNA, and these differences occur because of mutations, how is it that for a large number of individuals the same mutations occur that give rise to a new species (within some limited time period)?

Definitions of soul from the Catholic Catechism and from the writings of Thomas Aquinas state that the soul is the "form" (in the Aristotelean sense) of the body, but immaterial. Rational faculties, the capacity to reason and to form abstractions, are attributes of a soul. These are presumably necessary conditions for there to be a soul. Are they sufficient conditions?

What kinds of archeological data would provide evidence for such rational faculties of a hominid—tool making, art, burial of the dead?

Does genetic similarity between two species, and the possibility that interbreeding has occurred, imply that if members of one species possess a soul, so do members of the other?

## MONOGENESIS AND ORIGINAL SIN

Monogenesis supposes that humans descend from one pair of ancestors, male and female, as opposed to polygenesis, that many humans were ancestors. That humans descended from only two is a cornerstone of Catholic dogma on original sin. As set forth by Pope Pius XII,

"For the Christian faithful cannot maintain the thesis which holds that either after Adam there existed on this earth true men who did not take their origin through natural generation from him as from the first parent of all, or that "Adam" signifies a number of first parents. Now it is in no way apparent how such an opinion can be reconciled with that which the sources of revealed truth and the documents of the magisterium of the Church propose with regard to original sin, [emphasis added] which proceeds from a sin actually committed by an individual Adam and which, through generation, is passed on to all and is in everyone as his own." Pope Pius XII, *Humani Generis*

Even if "biological" monogenesis does not obtain, what might be termed "theological" monogenesis could occur, and so Pius XII's objection could be countered. This proposition has been explored in some detail by Kenneth Kemp, in his article *Science, Theology and Monogenesis*, which will be discussed at greater length below. The essential base for this argument is a Thomistic view of body and soul, reflected in Pope St. John Paul II's remark (quoted above) that "[even] if the origin of the human body comes through living matter which existed previously, the spiritual soul is created directly by God."

## DID "MITOCHONDRIAL EVE" EXIST?

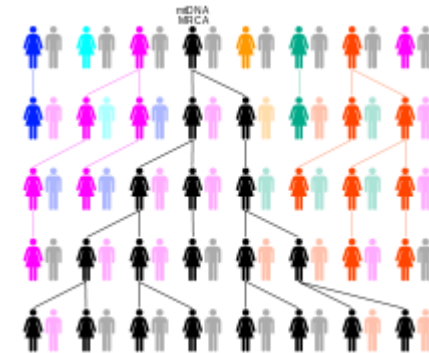


Illustration of descent through female line  
(traced by mitochondrial DNA)  
from [Wikipedia article](#)