

A Scientific Survey of the *imago Dei* in Genesis 1-2 and Surprising Support for Trichotomy: Body, Soul and Spiritual being.

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Introduction

In this paper I want to show that science not only is compatible with scripture, but can contribute unique exegetical insights, not just to the creation account, but to the way we view man's inner nature. An insoluble problem for science is explaining man's moral and theological nature from materialist metaphysics. Attempts like Freud or Jung have dissolved into meaningless jabber, while neuroscience and brain studies have encountered a brick wall with the concept of self. Theology alone holds a unique vantage point that can resolve this impasse because it alone has an explanation of the origin of both: the creation of material man in the immaterial *imago Dei*, image of God. The value of this bridge between brain and self, between man and morality, cannot be oversold. This paper will attempt to show how crucial it is to rebuild it again.

Despite theology's superior vantage point, it too has encountered a wall, an obstruction of vision, an obstruction of language. Two words of scripture just cannot support the vast superstructure of theology that has been built upon them, for the *imago Dei* has been used to explain everything from math¹ to global warming.² Not that all these great theological discoveries aren't true, but they are being built on a foundation of two vague words, valued more for their malleability than meaning.³ This is not to absolve the Holy Spirit for having chosen such uncertain words in the first place, but rather to point out that there is a reason, a genius behind all this confusion. For the confusion contains its own explication, hidden carefully in plain sight.

Primeval Exegesis

If in fact Genesis truly is the beginning, not just of form and matter, light and space, but of mind and language itself, then how does it find the right words when words have just been invented, used for

¹Vern S Poythress "Creation and Mathematics" *The Journal of Christian Reconstruction* 1/1 (1974) 128 - 140. at http://www.frame-poythress.org/poythress_articles/1974Creation.html (accessed 10/7/08).

²Sallie McFague, "A New Climate for Theology: God, the World, and Global Warming" 2008.

³"The primitive state of man became a favourite battle-ground of theologians, because it was like unexplored territory in maps, which the geographer can fill up at his pleasure. Theologians in their systems could draw up and deploy, in this comparatively empty space, the principles which they were afterwards to bring into action in more crowded departments. The doctrine of the image became a great topic, so soon as sin and grace were the key positions in theological controversy, because the idea formed of man's original nature and endowments had a direct bearing on the measure of the loss caused by the Fall, and upon the consequent necessity and nature of redemption." (John Laidlaw, "The Bible Doctrine of Man" 151, Edinburg: T&T Clark, 1895.)

the first time? Aristotle would say that the word is a general abstraction formed from the observation of many particular uses. But if the universe is indeed universal and singular, then we have exactly one particular, and every new word is *hapax legomena*, a special case. Plato would say that the words reflect the ideal, the mind of God, which may be true but not of much help for us who are finite and unable to read His mind. Yes, He has revealed His mind to us in the Scriptures, but in those same ambiguous words, and we no longer walk the picture-book Garden with Him in the cool of the day speaking the language of Eden.

C. S. Lewis imagined that in that paradise period, the language of God imparted such generational power that even broken pieces of iron would grow into lampposts.⁴ But it would seem to me that were we to discover the language of Eden, it would not be for the benefit of streetlights, but for the benefit of science. There would be no untranslatable concepts, no perverse mathematical definitions, but every word would explain its meaning one-to-one, because they would be the words God used when He called them into being. All our efforts at exegesis then, are but childish attempts to open the picture book, lame attempts to limp in the Garden again, with God.

Word Witnesses

And if our words be clumsy and the ideas faint, yet the sun, the moon and the stars that lit those Garden walks still wheel through the heavens, mutely declaring their Creator's glory; if our ears have grown dull, yet our eyes can still see the firmament unchanged through countless years of Man's fall.⁵ And thus we have witnesses, we have testimony that words alone cannot bring, or rather, that complement the words with examples so that we know what messages are wrapped up in the words. As a child's picture book demonstrates, words need referents, so that just as language requires sight, exegesis needs science. With science assisting language, the crumbling foundations can be rebuilt, and "Biblical Science" can be reborn.

⁴C. S. Lewis, "The Magicians Nephew" New York: HarperCollins 1994.

⁵As discussed later, I put the fall approximately 10,000 years ago, and the celestial objects appear to be much older than that.

It is a circular task, with our scientific definitions of Biblical words depending on metaphysics, and metaphysics depending on the words of scripture. For just as it is lamentable that materialist science has been incompatible with Biblical metaphysics for the past 200 years, so it is also lamentable that Bible exegesis has been defined to be incompatible with all science for at least as long. Accordingly this study will attempt to ascertain by scientific example the material content of the words in Genesis 1 and 2, accepting that this is a circular task, and guaranteed neither success nor permanence.

The Science Trap

In the 19th century, theologians felt competent to discuss science. Charles Hodge's three volume *Systematic Theology* contained several chapters interacting with anthropology and Darwin's new theory, correctly concluding that it didn't hold water.⁶ But in the recent century it has been commonplace to disparage any attempt to use science to explicate scripture.⁷ On the left, Karl Barth developed an entire theology based on the idea that Christianity had absolutely nothing in common with science.⁸ Likewise on the right, young earth creationists claim that whenever the Bible and science disagree, revelation trumps experiment, and one must reject science or risk damnation.⁹ In neither case is science allowed to comment on Scripture. How did we arrive at this unfortunate estrangement?

In the 20th century, theology was undermined by science. Even at the end of the 19th century, it was liberal clergymen who promoted Charles Darwin.¹⁰ In the reaction against these theological liberals

⁶Charles Hodge *Systematic Theology*, II/1, Edinburgh: T. Nelson & Sons, 1873.

⁷ "...we have been too often bogged down in attempting to squeeze Scripture in to the mold of the latest scientific hypothesis or distorting scientific facts to fit a particular interpretation. When allowed to speak for itself, Gen 1 looks beyond such minutiae." (Gordon Wenham *The Word Bible Commentary, Genesis* 40, Waco: Word Pub, 1987).

⁸ "And theology can and must move freely where science which is really science, and not secretly a pagan *Gnosis* or religion, has its appointed limit." (Karl Barth, *Church Dogmatics* III/1 x, Edinburgh: T&T Clark, 1958).

⁹ Public lecture and book (John C. Whitcomb and Henry M. Morris, *The Genesis Flood*, Philipsburg: P&R, 1960).

¹⁰ Henry Bristow Wilson, *Essays and Reviews* London: J W Parker and Son, 1860 at http://lachlan.bluehaze.com.au/1860-essays-reviews/essays_reviews_1860_text.html (accessed 11/3/08). Laidlaw's comment is also relevant ("Man" 40-41), "In face of these recent confessions of the merely tentative character of the hypothesis, the lesson for the interpreter of Scripture is plain. For him to hasten to propound schemes of conciliation between the Mosaic account of Creation and the Darwinian pedigree of the lower animals and man would be to repeat an old and now unpardonable blunder." See also recent reviews of pre-Darwinist theologians who provided Darwin's metaphysics: "Who's Afraid of Christian Wolff?" by Thomas Saine in *Anticipations of the Enlightenment*, edited by Alan Charles Kors and Paul J. Korshin. Philadelphia: U of Penn Press, 1987.

as represented in Fundamentalism and later Evangelicalism, there developed a distrust for any source of truth that was not based on revealed texts, including the sciences.¹¹

Queen of the Sciences

But it was not always thus. In the medieval church, science and faith worked together like hand and glove. Aquinas' understanding of Aristotle's metaphysics and biology informed the entire discussion of the transubstantiation of the eucharist, or the imputation of Adam's sin. One was described in terms of the other. For example, conception was thought to be like a seed planted in a garden, with the woman providing nothing but nutrients, and the man providing a *homunculus*, a tiny human that grew in her womb. Accordingly, sin passed from father to child, since the mother had no role in creating the life making Jesus sinless, not because Mary was sinless, but because his father was God. However, as science progressed, and Aristotle's essences fell out of favor, transubstantiation became "hocus pocus", and the imputation of Adam's sin became an inexplicable, spiritual matter (which now required the sinlessness of Mary's birth.) For without science, theology became fideism, the enemy of science.

Then the goal of this paper is to reintroduce science to the queen, to reacquaint theology with the riches of biology. In no way is the science intended to supplant or replace orthodox doctrine, but like the *homunculus*, make clear a theological principle already taught. Is there a danger that tying a theological principle to science will pervert theology? No greater than the danger that theology will pervert science, as James Maxwell suggested.¹² The key to harmony is recognizing that both science and theology are human endeavors, and as such will always be subject to change and error. Conversely the universe and the text of the Bible are divine endeavors, and neither are subject to error, though in the *parousia*, in the end, the word will outlast the world.

¹¹Victor Hamilton "The Book of Genesis 1-17" in the *New International Commentary on the Old Testament*, 53, Grand Rapids: Eerdmans, 1990.

¹²James Maxell responded to the Bishop of Bristol's desire to find the ether in Genesis 1 with the statement, "I should be very sorry if an interpretation founded on a most conjectural scientific hypothesis were to get fastened to the text in Genesis, even if by doing it got rid of the old statement of the commentators which has long ceased to be intelligible. The rate of change of scientific hypothesis is naturally much more rapid than that of biblical interpretations, so that if an interpretation is founded on such an hypothesis, it may help to keep the hypothesis above ground long after it ought to be buried and forgotten." (Lewis Campbell and William Garnett, *The Life of James Clerk Maxwell* 394, London: Macmillan, 1882), at <http://www.sonnetusa.com/bio/maxbio.pdf> (accessed 11/3/08).

Mutual Pitfalls

The danger greater than perversion is the tendency to adopt the reductionism of science into the realm of theology; to believe that just as a scientific theory is exclusive, so also are theological concepts, aided as they may be by science. In “The Imputation of Adam’s Sin”, John Murray describes a number of deficient concepts, criticizing them for practicing “nothing-battery”, declaring their explication to be exhaustive of the theological content.¹³ In contrast, Murray insists that Adam’s sin has as many explanations as there are facets to the human condition. Likewise our study does not supplant or exhaust the meaning of the *imago Dei*, rather it should enlarge and supplement our understanding of Adam to include his biological condition.

If all that the 19th century clergymen had done in advocating “The Origin of the Species”¹⁴ was to supplement our understanding of creation, perhaps there would never have been the wars of the Modernist century and the ascendancy of Materialism. But they also advanced the metaphysics of Darwin, the metaphysics of materialism, and so began the long decline of theology, the indentured servitude of the Queen of the Sciences. In our study, we will self-consciously attempt to avoid the pervasive materialism that afflicts all areas of science, as well as the parasitic Gnosticism that has been the principle defense, turning to the Eastern Orthodox church for a fresh Trinitarian perspective on these centennial conflicts.

The Textual Trap

Historical Realism

If it be necessary to say how carefully our science will treat the text, it should also be necessary to say how carefully our exegesis will treat the observations. If Abraham and Moses are historical characters who truly lived in historical time and interacted with cultures whose artifacts we catalog in our museums, then so also Adam and Eve are historical characters who interacted with cultures whose artifacts are cataloged. Either Genesis is myth or Genesis is history, and any attempt to claim both by cutting and

¹³ John Murray, *The Imputation of Adam’s Sin*, 89-95, Philipsburg: Presbyterian and Reformed, 1959. Also see footnote 100+ on John Murray.

¹⁴ Charles Darwin, *The Origin of the Species*, London: 1859 at <http://www.literature.org/authors/darwin-charles/the-origin-of-species-6th-edition/> (accessed 11/3/08).

pasting the text is as convincing as Piltdown Man.¹⁵ If it be myth, then there is no point for this paper, or even for this seminary, so I will take it on faith that it is history. And if it be history, then it will connect to artifacts, to observations, and to science. Any claim that it is unobservable history is an attempt to rewrite it as myth without admitting it. For once Eden is fixed in observable time, many textual options are excluded.

Later on I will defend the thesis that Eden is represented in archaeology as the Neolithic Revolution about 10,000+-4000 (14,000—6,000) years ago.¹⁶ That is, no amount of quibbling about radioactive dating methods will change the essential historicity or even the temporal ordering of the artifacts. For that placement of Eden into history then permits us to look for effects of the Fall. Were predators first hunting animals at this time; was *homo sapiens* changing its diet at this time? No. Then all speculation about the effects of the Fall on the foraging patterns of the animal kingdom should be rejected *prima facie*. Whatever the effects of the Fall on the global creation, it did not involve vegetarianism.

Saving the Appearances

But can we trust the historicity of the artifacts? What if God, who can do all things, created the world 6000 years ago with all the fossils and artifacts in place? He didn't because He couldn't. That is, appeals to nominalism reject God's self-limitations: He cannot lie, He cannot change, He cannot do evil. For if He could create the world 6000 years ago with fossils intact, He could have created it 600 years ago

¹⁵ Wikipedia, http://en.wikipedia.org/wiki/Piltdown_Man (accessed 11/08/2008).

¹⁶ Regarding day-age theory, Hamilton ("Genesis" 54) says "These skills [Genesis man] developed relatively late and are normally connected with the hominids of the Neolithic Revolution (i.e., 10,000 – 8000 B.C.). Reading the sixth day as the sixth epoch of creation opens the door to the possibility of some kind of pre-Adamic *homo sapiens*. It is highly debatable whether the interpretation of Genesis' days as metaphorical for geological ages can be sustained. For one thing, it allows the concerns of establishing concord with science (ever changing in its conclusions) to override an understanding of a Hebrew word based on its contextual usage." Apparently, permitting an interpretation of Genesis that can connect to paleontology is so dangerous, Hamilton believes it to be a powerful argument against day-age. In contrast, (Derek Kidner *Genesis: An Introduction and Commentary*, 26, Northwells: IV Press, 1967) thinks it is a powerful argument for Genesis. "The second picture, that of palaeontology, a mosaic of many fragments, depicts a species fashioned over perhaps a million years or more into the present human form,On the other hand, the first known signs of pastoral and agricultural life and, later, of metal working...are much more recent, appearing in the Near East, on present evidence, somewhere between the eighth and fifth millennia BC at earliest. How the two pictures, biblical and scientific, are related to each other is not immediately clear, and one should allow for the provisional nature both of scientific estimates (without making this a refuge from all unwelcome ideas) and of traditional interpretations of Scripture.."

with churches intact, and only give the appearance of the Incarnation.¹⁷ That is, He could have avoided the cross, the passion, and the suffering through which Hebrews said He was perfected. But if the Father could not answer the *crie du coeur* of His only Son “If it be possible, let this cup pass from me!” then how can He respond to the creationist who suffers merely the slings and arrows of radiometric science? Just as there was no other way for the Son but the way of the realized cross, so there is no other exegesis but the way of the realized truth.

We are neither free to speculate wildly about the text without artifactual support, nor free to dismiss the artifactual evidence. Our exegesis must be true to the text and true to the creation. Like Christ himself, our exegesis must acknowledge the 100% accuracy of nature’s witness and the 100% accuracy of the textual witness. It is a difficult task, requiring expertise in diverse fields, perhaps even an impossible task. But be of good cheer, the way has been blazed for us with drops of blood.

The Scientific (Concrete, Visual) Milieu

In this section I hope to give an explication of commonly held scientific views on the origins of the universe, Earth, and man, both in his material (body) and immaterial (brains) capabilities, with some comments on dating. Most of this argumentation concerning dates is “sloppy”, both because the dating is ambiguous and because our primary goal is a sequence, not a timeline. Accordingly a range of dates is given with a few comments concerning its reliability.

His Material Nature

Earth Creation

The Universe is thought to be about 13.7 ± 0.1 billion years old based on careful measurement of the cosmic microwave background radiation, left over from the “Big Bang” creation event of the universe.¹⁸ As the cosmos expanded, hydrogen gas condensed out of the hot bang and eventually formed

¹⁷ The view that appearance = reality is called “realism”, and the view appearance \neq reality is called “anti-realism”. (Peter Van Inwagen, *Metaphysics*, Boulder:Westview Press, 1993.) Anti-realism is excluded if Christ really had to suffer, really had to die, and really had to rise again.

¹⁸E. Komatsu et al. “Five-Year Wilkinson Microwave Anisotropy Probe (WMAP) Observations: Cosmological Interpretation”, *ApJ suppl.* 2008, at http://lambda.gsfc.nasa.gov/product/map/current/map_bibliography.cfm (accessed 10/27/08).

the first galaxies and stars some 12 billion years ago. The first stars included some rather big ones, ten or fifty times larger than our sun who themselves burnt out quickly and exploded as supernovae, seeding the galaxy with heavier elements including the all important carbon, nitrogen and oxygen, as well as minute amounts of metals like iron and uranium. Our Sun condensed out of a second (or third) generation gas cloud some 5 billion years ago, and hence has traces of all these heavier elements. But as the Sun coalesced from this cloud, it left behind “droplets” of material that were orbiting too fast (high angular momentum) to fall into the central proto-sun, and these droplets formed the planets some 4.8 billion years ago as well as the asteroids and comets that make up our Solar System.

Now the process of making planets is a violent one. For when two smaller planetesimals join up to form a planet, the encounter can be at such high relative velocities that when the kinetic energy is converted into heat, the resulting temperature is 1000's of degrees, far above the melting point of all known rocks and minerals. So not only was the Earth molten in this time period called the Hadean, but all the “volatiles”, the water and nitrogen and noble gases, had left the Earth and migrated away from the Sun where Jupiter vacuumed them up. It would be very appropriate to call the Earth “formless and void” at this point (Gen 1:2) for the Earth had no water, and without water there can be no life.

Ocean Creation

It is thought that far beyond the orbit of Pluto, leftover hydrogen and oxygen never felt the gravitational pull of the other planets, and trillions of city-sized ice-boulders are still leisurely orbiting the Sun with periods of a million years. When these are disturbed, say by a passing star, then a few of them may eventually drop into the inner Solar System where we call them comets. After the Hadean, there appears to have been such a disturbance, and it is thought that an above average comet influx pelted the Earth and filled the oceans (as determined by observing craters on the Moon formed around 3.85 billion years ago.) Since comets are about 50% water ice, it is appropriate that the “Spirit hovering over the face of the waters” (Gen 1:2) indicated God’s provision for life-water even at the earliest stage of creation.

In another paper,¹⁹ I have argued that life pre-existed on comets, perhaps soon after the Milky Way galaxy formed 12 billion years ago, so that even as the oceans began to fill, they also began to bloom and convert water with sunlight to form the oxygen atmosphere, and “the face of the waters” is the surface of melted comets throughout the galaxy. In any case, the earliest biological fossils are dated a mere 100 million years after the oceans formed, some 3.8 billion years ago, which hardly gives evolution a chance.²⁰ Then another billion years went by before the atmosphere became fully oxygenated, and another 2 billion passed uneventfully when suddenly animals exploded in diversity and number about 560 million years ago. Since then the changes have come faster and faster with flowers arriving 130 million years ago, birds 60 million, humanoids about 3 million, Neanderthals 200 thousand, Cro-Magnon 40 thousand, and humans about 10 thousand years ago.

Evolutionary Change

“Progress” has been the oxymoronic explanation for this non-random acceleration ever since Darwin published his book, because progress implies a goal, a purpose, which evolution manifestly denies. In another paper,²¹ I argue that the progress of biology can be explained as a “bootstrap” process of intelligent development mediated by viruses. In any case, many have noted the nearly complete sequential agreement between Gen 1:3ff and this independently derived geologic history of Earth,²² in contradistinction to all other religious creation myths.²³ These and many other points of consilience reinforce our faith in Genesis as an accurate and non-mythical account in correct chronological and genetic order, but our goal in this paper is to focus on Man, his origins, appearance and character as

¹⁹ Robert Sheldon, “The Cometary Biosphere”, *Instr. and Methods for Astrobiology*, SPIE Proc. 2007. at <http://rbsp.info/rbs/RbS/PDF/spie07.pdf> (accessed 10/27/08).

²⁰ James Morgan in BBC Science, at <http://news.bbc.co.uk/2/hi/science/nature/7639024.stm> (accessed 10/14/08).

²¹ Robert Sheldon, “Cosmological Evolution: Spatial Relativity and the Speed of Life” SPIE Proc. 2008 at <http://rbsp.info/rbs/RbS/PDF/spie08.pdf> accessed on 10/27/08.

²² Hugh N. Ross *Creation as Science: A Testable Model Approach to End the Creation/evolution Wars*, NavPress, 2006.

²³ In 1895, note John Laidlaw’s attitude toward science, coming in the first generation after Darwin and German liberalism (John Laidlaw *Bible Doctrine of Man* 12-13) “For everywhere in Scripture we find evidence of this marvelous quality, that its presuppositions on natural subjects, and especially on the *Origines* of the world and of man, though never given in the scientific form, and not intended to teach science, justify themselves in the face of scientific discoveries as these are successively made. The writers of Holy Scripture, by whatever method of poetic or prophetic elevation, move in the domain of natural facts and principles with a supernatural tact, which at once distinguishes them from all other ancient writers on such subjects, and places the Scriptures themselves above the reach of scientific objections.”

revealed in paleo-archaeology. For that purpose we focus on Neanderthal, Cro-Magnon, and the important Neolithic transition.

Paleo-Anthropology

Neanderthal bones were uncovered in the Neander valley of Germany, but were soon found all over Europe, with dating of remains suggesting 250,000 – 32,000 years ago. They are of human height, but with larger brains and musculature, and despite artistic depictions of hairy faces (complete speculation), some have tested that if dressed in a jogging suit they would pass unnoticed in a crowd. They made stone tools, skinned animals, used spears, cooked over fires--though we have no evidence of art or music--and went extinct some 30,000 years ago. But were they human?

Until recently, it was widely believed that they were in the human lineage, particularly because of the similarity in bone structures when contrasted to apes, but in 2006, DNA was extracted from a bone, amplified and compared to human DNA.²⁴ It was quite different, with a “divergence point” placed some 500,000 years ago, or even before there were any Neanderthals! Now these DNA clocks are notoriously hard to calibrate, seeing as they depend on a disproven constant neo-Darwinian mutation rate to convert differences in sequence to differences in time.²⁵ Nevertheless, they are an indication that the deviations mitigate against inter-breeding of populations. So the real progress in the past five years for anthropology is the ability to sequence and compare genomes for some of these predecessors of man, revealing Neanderthal to be a non-human but humanoid, non-ancestor but predecessor of modern man.

Cro-Magnon bones were discovered in a cave in France, and later found also throughout Europe associated with stone tools, huts, fire hearths, carvings and cave paintings. Anatomically they are indistinguishable from modern humans, with the same high foreheads and perhaps slightly larger crania. Their bones and culture appears in Europe some 35,000-10,000 years ago, though a bit older specimens were found in the Middle East, supporting the current theory that modern humans first arrived in Africa,

²⁴James P. Noonan et al, “Sequencing and Analysis of Neanderthal Genomic DNA”, *Science* 314 (5802), 1113 – 1117 November 2006, at http://en.wikipedia.org/wiki/Neanderthal_Genome_Project (accessed 10/7/2008).

²⁵Charles Kershner “An Overview and Discussion of Various DNA Mutation Rates” at <http://www.kershner.com/dnamutationrates.htm> (accessed 10/27/08).

migrated through the Middle East before radiating toward Europe, Australia and China some 40,000 years ago.²⁶ But are they human?

Once again, modern techniques have amplified DNA from a Cro-Magnon dated 28,000 years old, and find the sequence identical with one in the Cambridge Reference Sequence for living human populations.²⁷ Since several embarrassed scientists have published findings that were contaminated by modern DNA, the researchers carefully checked all seven people who had touched the bones, and found no matches, concluding that indeed, Cro-Magnon man was an ancestor of modern Europeans. Despite this DNA confirmation that Cro-Magnon was in the human lineage, a result due to the last 5 years of genetic research, this Aurignacian culture died out 10,000 years ago in the Neolithic revolution.

The Neolithic Revolution was the introduction of an entirely new lifestyle spreading out of the Middle East that involved agriculture and animal breeding. It was a transition from the Cro-Magnon's hunter-gatherer to static farming, with a correspondingly much higher caloric intake. As a consequence, farmers had more children and expanded their civilization at the speed of 1 km/year, until 3000 years later they had finally spread to the British Isles. Not only can we trace this progress across Europe with blood types²⁸ (in the 1980's) and now even more accurately with DNA (in the 2000's), but we can trace it in language as well. That is, as the Neolithic expansion spread the Indo-European language, it collected more foreign genes, and there is a direct correspondence between the DNA signatures and the language groups. The Basque language is not only completely unrelated to Indo-European, but the genes are the most divergent.

The significance of this correlation is that it tells us a great deal about the way in which farming spread. There are at least two possibilities: the technique spread but not the people, or the people spread taking the technique with them. The concurrence of language and DNA showed that it was the latter and

²⁶Wikipedia, http://en.wikipedia.org/wiki/Recent_African_origin_of_modern_humans (accessed 10/22/08).

²⁷David Caramelli et al., "A 28,000 Years Old Cro-Magnon mtDNA Sequence Differs from All Potentially Contaminating Modern Sequences" *PLoS ONE*. 2008; 3(7): e2700. Published online 2008 July 16. doi: 10.1371/journal.pone.0002700.

²⁸Luigi Luca Cavalli-Sforza, Paolo Menozzi, Alberto Piazza, *The History and Geography of Human Genes* Princeton: Princeton University Press, 1993.

not the former, since the language, the techniques and the DNA all moved at a 1 km/year speed through Europe. Because this took over 3000 years, it would suggest that there is a high degree of interdependence between these three things: science, language and genetics. And this is the key we use to unlock the Genesis account of the nature of man.

His Immaterial Nature

Although there is little we can determine about the abilities and music and language of an extinct race, it is remarkable how much can be inferred from artifacts: paintings, musical instruments, prose, and poetry. For example, we can reconstruct the pronunciation of words by choice of rhyming schemes in poetry. So there are several things we can say about the mental abilities of Neanderthals, Cro-Magnons and Neolithic man based on their artifacts.

The Neanderthals despite their stone-tipped spears, did not have the shoulders for throwing, and never developed projectile weapons. In addition, their bones tend to show a lot of fractures, indicating that their principle way of hunting (living?) was using their body: chasing, grabbing, wrestling.²⁹ Now they had 200,000 years to improve on this approach, and never did. Once again, we infer a tight correlation between the mental ability and the science expressed.³⁰ The mental ability to make a trap, or set up an ambush, requires the concept of self, of mentally stepping out of the body and viewing yourself in the third person. There may also be evidence for cannibalism, since Neanderthal bones also show nicks from stone tool “butchering.” Since according to the philosophers, the concept of self is one of the defining characteristics of what it means to be human, I take these observations to mean that Neanderthals lacked this concept and were sub-human.

Now many anthropologists have used other definitions such as “tool-making” as the defining characteristic of being human, which would include Neanderthals. It would now appear that chimps and

²⁹Valerius Geist “The Neanderthal Paradigm” 2000, at <http://cogweb.ucla.edu/ep/NeanderthalParadigm.html> (accessed 10/14/08).

³⁰Adler argues not superior technology, but superior social skills led to the Neanderthal demise, Daniel S. Adler, Guy Bar-Oz, Ana Belfer-Cohen, Ofer Bar-Yosef, “Ahead of the Game: Middle and Upper Palaeolithic Hunting Behaviors in the Southern Caucasus *Current Anthropology* 47(1), February 2006. at <http://www.journals.uchicago.edu/doi/pdf/10.1086/432455> (accessed 11/03/08).

apes are excellent tool makers, however, so that either we consider them also human (as a very vocal minority of PETA supporters desire) or we use a more restrictive definition, for which we have ample philosophical support.

Cro-Magnon overlapped with Neanderthal for some 20,000 years, which is in itself a most intriguing observation. It suggests that either they did not compete for the same resources, or they competed but were equals, or there was some ethical barrier that prohibited the stronger from annihilating the weaker. Since Cro-Magnon did develop projectile weapons, it would appear that they could outcompete Neanderthals, which is suggestive of an ethical sense. Some have suggested that primitive people, like animals, do not kill their kin, and that this observation needs no explanation. However the last few decades of studies of chimps and apes in the wild show that there is no such pacifistic law in nature, but that fratricide, infanticide, and even patricide are rare, but sufficient to change the makeup of a tribe within a single generation, not to mention 20,000 years.

But it is the cave art that really sets Cro-Magnon apart from Neanderthal. Who cannot look at the pictures of bison and lions with the silhouettes of men and their spears without immediately feeling the excitement of the hunt, the rush of blood, the suddenness of death? Clearly in his depiction, Cro-Magnon has a sense of self. We even have skeletons of women and children with serious injuries that were partially healed, indicating that Cro-Magnon man took care of his sick, of his elderly. Compassion, self-awareness, art, ethics, it would seem these are the characteristics of being fully human. Why then did this culture persist for 20,000 years without change, but at the end succumb in a steady retreat of 3 yards/day for 3000 years? I believe the answer is language, or more precisely, the lack of language.³¹

The Neolithic Revolution is the name we give to that transition into history. For once language appeared, we have stories that describe the conquests, the battles, the scientific triumphs of that first, all-important generation, stories that no doubt form the factual basis of many shared cultural myths. While

³¹Contrast this speed with that of the spread of tomatoes when introduced to the Old World, or the speed with which the superior horse-cavalry of the Mongols overran Eurasia. For a Revolution in all aspects of humanity, it was mighty slow. Work with chimpanzees shows that they learn hunting skills from their mothers, and they are not transferable to other chimpanzee groups.

the earliest examples of written language go back to 3500 BC (in three separate locations: Indus river, Nile river, and the Tigris-Euphrates river valleys), they were all thought to be logographic, with alphabetic writing emerging perhaps among the Phoenicians much later.³² That is, the transition from visual to aural, from graphics to phonemes was difficult, and required the development of abstract concepts that went beyond the simply visual. This development parallels the abstractions that make modern logic, science or theology possible. And without that abstraction, the Cro-Magnon could never learn the science of farming, the technology of breeding. Despite beautiful cave art, Cro-Magnon could not grasp the abstraction of non-pictorial elements. Unable to spread the information of farming, and unable even to learn it, they could only retreat at the speed of modern man's advance.

The Theological (Abstract, Textual) Milieu

If one adopts a flexible timespan for *yom*, day, then the Genesis 1 account follows quite accurately the cosmological and geological chronology determined by observation, which is essentially the view of astronomer Hugh N. Ross,³³ as well as scientifically trained theologians C. John Collins³⁴ and Vern S. Poythress.³⁵ Although there is little to add to their comprehensive discussion of science and creation, I would point out that any textual account of creation suffers from an unavoidable circularity due to the need to employ descriptive words for the first instance. Imagine giving a Papua New Guinea islander a piece of chocolate, and ask for a description; he will naturally try to describe it by things he does know, "pig's liver".³⁶ But in describing the creation itself, to what shall we compare?

Accordingly Gen 1:2 uses *shamayim* and *eretz* but doesn't define them until Gen 1:8 and 1:10 respectively. Do they then have the same meaning in Gen 1:2 that they acquire later in the chapter, or

³²David Whitehouse, 'Earliest Writing' found, BBC news 1999 at <http://news.bbc.co.uk/1/hi/sci/tech/334517.stm> (accessed 10/14/08).

³³Hugh Ross *Creation as Science: A Testable Model Approach to End the Creation/evolution War*, Colorado Springs: NavPress, 2006.

³⁴C. John Collins *Genesis 1-4: A Linguistic, Literary, and Theological Commentary*, Phillipsburg: P&R Pub. 2006. C. John Collins *Science & Faith: Friends or Foes?* Wheaton, IL: Crossway, 2003.

³⁵Vern S. Poythress *Redeeming Science: A God Centered Approach*, Wheaton, IL: Crossway, 2006.

³⁶Neil Anderson *In Search of the Source*, Multnomah Press, 1992.

even in later literature, as Enns³⁷ would argue? Just as dictionaries must be circular, so also scientific observations must be circular, because they describe the new in terms of the old, unfairly reading into them the biases of concept-laden descriptions. But just as an acorn is not an oak, reading back into the formless *eretz* the maturity of a cultivated world, is a circularity the text warns us against.³⁸

But if both science and language are circular, how then can any progress be made? Helically. By recognizing that there is yet another dimension orthogonal to the circle that draws it out into a helix. And that dimension is supplied externally, teleologically, purposefully, predestined, designed, and is the proper subject of theology. This is not just the conclusion of theologians³⁹, but also of scientists.⁴⁰ That is, without insight, without meaning, without theology, science cannot make progress.⁴¹ So we see how Augustine's dictum works in practice: science seeking theology, theology seeking science. Just as Hugh Ross sees in the Genesis account a fair description of the Big Bang theory, interpreting scripture in the light of science, so we also find scripture enlightening of our science, and in particular, the *imago Dei*.

Genesis 1 is not Genesis 2

I begin by arguing that Genesis 1 and Genesis 2 are separated by some 20,000 years. There are many reasons why to argue, as others have done⁴², for stylistic and grammatical reasons to separate the two accounts, but there has not been a compelling textual reason to posit two separate creation events. So

³⁷Peter Enns *Inspiration and Incarnation: Evangelicals and the Problem of the Old Testament*, Grand Rapids: Baker, 2005.

³⁸E. A. Speiser "Genesis" lxiv, New York: Doubleday 1964. "Moreover, later Hebrew usage is by no means identical with early biblical usage. Yet successive interpreters would tend to make the secondary usage retroactive. And because the Bible had become sacred Scripture, such anachronistic interpretations acquired a normative bearing of their own."

³⁹Graham Buxton *The Trinity, Creation and Pastoral Ministry: Imaging the Perichoretic God*, 2-7, Milton Keynes: Paternoster Press, 2005.

⁴⁰Stephen Barr, *Modern Physics and Ancient Faith* South Bend: U. of Notre Dame Press, 2003; Henry Schaefer III *Science and Christianity: Conflict or Coherence?* Athens GA: Apollos Trust, 2003.

⁴¹Michael Polanyi, *Personal Knowledge: Towards a Post-Critical Philosophy*, Chicago: U of Chicago Press, 1958.

⁴²Most commentaries note the differences between Gen 1:1-2:4a, and the 2:4bff concluding that they are two different accounts of the same event, and therefore written by different people and spliced together e.g., JEDP theory: Hermann Gunkel, *Genesis* transl. M Biddle and E. Nicholson, Macon: Mercer U Press, 1997; Claus Westermann *Genesis 1-11* Minneapolis: Augsburg Pub, 1984; E A Speiser *Genesis in Anchor Bible Series*, 19 New York:Doubleday 1964; Robert S. Candlish *Studies in Genesis* 34, Grand Rapids: Kregel Pub 1979. Some who scorn JEDP nonetheless hold to a multiple account theory, Umberto Cassuto *Commentary on the Book of Genesis*, trans. Israel Abrahams, Jerusalem: Magnes Press, 1961. Even conservative scholars think they are the same event but with one author, Bruce Waltke, *Genesis: a commentary* Grand Rapids: Zondervan 2001; Gordon Wenham, *Word Biblical Commentary Vol 1*, Waco: Word Books 1987, John H. Walton *The NIV Application Commentary*, Grand Rapids: Zondervan 2001.

Ockham's razor, *pluralitas non est ponenda sine necessitate*, has persuaded scholars to view these passages as retellings of the same event by different persons. We take the alternate view that they are different events told by the same person, so that the differences in detail matter. We list several:

TABLE 1: Comparison of Genesis 1 and Genesis 2

Topic	Genesis 1:26-2:3	Genesis 2:4-25
1. Rhetorical intro	Let us make – continuity	<i>Toledot</i> – new chapter
2. <i>Ex nihilo</i>	Created w/o means	Dust of the Earth, then rib
3. Human names	Impersonal, "male & female"	Personal, Adam and Eve
4. Act of creation	Impersonal, <i>bara</i> – create	Personal, formed, fashioned
5. Post-creation	Impersonal, <i>bara</i> – create (repeated)	Personal, breathed into his nostrils
6. God's name	Impersonal, <i>Elohim</i>	Personal, <i>YHWH Elohim</i>
7. God's command	Impersonal, be fruitful and multiply	Personal, name animals, wife
8. God's purpose	General, dominion over creation	Specific, cultivate Eden
9. Man's location	General, fill the earth	Specific, Eden of the four rivers
10. Man's food	General, Every seed-plant, tree-fruit	Specific, Garden trees but one

We see that Gen. 1:26-2:3 is both impersonal and general, whereas Gen. 2:4-25 is both personal and specific. Now it is always possible to tell a story in generalities and then to go back and fill in details, which is how most conservative commentators view this difference, but in several instances the details don't fit into the general story. For example, note how male and female are created simultaneously in chapter 1, but sequentially in chapter 2. Or note how they are to fill the earth in chapter 1, but told to cultivate Eden in chapter 2, which would prevent them from wandering over the earth.

There are other strange inconsistencies between the stories that individually are perhaps not great, but taken together are a bit shocking. Note how everything in Chapter 2 has a name—God, man, woman, four rivers, the garden, even two trees—whereas nothing is named in Chapter 1, all designations are generic. Something more than filling in details is going on in this story, something about names themselves. Then we find out in chapter 2 that this is the first job of Man: naming the four rivers, naming the trees, naming the animals, naming his wife. Only after the naming, do we get the first prohibition in the Bible, which is itself only possible if distinctions (names) can be made. So what we first took as mere details becomes the primary significance, which means it is more than a detail, it is a difference.

And if it is a difference, then we should separate the acts of God, we should separate the blessings of God, we should even separate the foods of men. For if they are separate events, there is little indication

how much time has elapsed between Gen. 1:26-2:3 and 2:4-25. And because the Bible is silent, we turn to science for advice. I had said earlier that the ambiguity of the text was intentional, forcing us to turn outside our rationality, outside our text, to the Holy Spirit for resolution. Therein lies the genius of God, who unfolds for us the meaning through history, in the fullness of time, providing a lamp only for our feet, not for the future. Scripture may be perspicuous, but it is also progressively revelatory.

His Creaturely Nature

From science then, we learn that language likely came with the Neolithic revolution, which would correspond to the naming of Genesis 2:4-25. Then the preceding Cro-Magnon culture would correspond to Genesis 1:26-2:3 some 20,000 years earlier. But is this identification justified? Would God say “let us make man in our own image” to a Cro-Magnon? Yes, if the *imago Dei* were defined by the DNA.

That is, if with most evangelicals and Catholics, we say that life begins at conception, then we have to ask what is it about conception that is human, whereas egg and sperm a moment before are not? The biological answer would be that at conception, all the chromosomes are in place, all the cytoplasmic machinery primed, all the conditions right for a potential human to be born. It is the potential lying in the cell that is critical, not the capabilities *à la* Peter Singer⁴³ of the minuscule fertilized egg that make it human. Contrariwise, a trained chimpanzee in a diaper, no matter how capable and similar to a baby, is not human because it does not have the right genetic components. Therefore, if the Cro-Magnon has a chromosomal makeup identical to modern humans as discussed earlier, then he is likely human.

But if dumb Cro-Magnon is what God created, why then does He say in 1:28 “Be fruitful and multiply” as if they understood him? Well, we talk to our pets as if they understand us, so it isn’t unusual for humans. There are also Biblical precedents for God speaking to the dumb: Job 38:11 “And I said, ‘Thus far you shall come, but no farther; and here shall your proud waves stop?’”; Ps 103:22 “Bless the Lord, all you works of His”; and Ps 104: 6-7 “The waters were standing above the mountains. At Your rebuke they fled”. It is a poor argument from silence, of course, but in Gen 1:28-30 there is no response

⁴³Peter Singer *Writings on an Ethical Life*, New York: Ecco Press, 2000

from the man. And in fact, no need to even understand what had been told him, since unlike the Garden where Adam is told to avoid the Tree, Cro-Magnon was simply given these plants for food.

Is it necessary to posit a 20,000 year gap between Genesis 1 and 2? Could they be simultaneous creations 30,000 years ago, for example? Several paleological calendar dates restrict our options. The Neolithic Revolution at ~8000 BC is the latest date for Adam's creation. Likewise, ~50,000 BC is the latest for Cro-Magnon, though in Europe he appears around 30,000 BC. Adam's birthday could be pushed earlier, though his 930 year lifespan then becomes less consistent with the Neolithic Revolution and the remainder of the Genesis genealogy. If we acknowledge that the 28,000 year old DNA test conclusively demonstrates that Cro-Magnon is human, then a ~20-40 thousand year gap between Genesis 1 and 2 gives the best fit.

But if Cro-Magnon is human, does he have a soul? To answer that question, we need to delimit between souls and unsouls, between the eternal and the ephemeral. That will be a purpose of this paper, for which everything we have said earlier is prolegomena. The short answer, for those too impatient for our argument, is probably not, though he does possess the *imago Dei*. A thing can be alive and human yet lack a soul, such as Henrietta Lacks' cancer cells.⁴⁴ But the full resolution of this duality will require developing a trichotomy, a three-part description of Man's being, which is the real reason for this paper.

The Genesis of Body, Soul, and Spirit

There has been a lot of ink spilled on the topic of duality versus trichotomy; is Man just body and soul, or body, soul and spirit?⁴⁵ Most of the debate has centered on the use of Hebrew words versus the use of Greek words. Certainly the Hebrew seems to support a duality: *nephesh* and *ruach*; whereas the

⁴⁴Wikipedia, <http://en.wikipedia.org/wiki/HeLa>, (accessed 10/18/08).

⁴⁵Louis Berkhof, like Laidlaw before him, consider trichotomy to be a view rejected by the Church in the light of Apollinaris' heresy, enjoying only scattered support until 19th century works by Delitzsch and Heard. (L. Berkhof, Systematic Theology, 191, Bath: Bath Press, 1958.) Apparently Dispensationalism was highly enamored of the view perhaps because of its explanation of their own societal marginalization, and incorporated it into their core doctrines of evangelicalism (Perry B. Fitzwater, Christian Theology, 308-310, Chicago:Moody Press, 1948).

Greek favored trichotomy: *sark* (or *soma*), *psyche*, and *pneuma*. In John Cooper's defense⁴⁶ of "holistic dualism", he does not try to distinguish between duality and trichotomy, preferring to contrast both to "monist" views of the nature of man. And while he builds a strong case for the separate existence of the soul after death, he does not distinguish between soul and spirit. However once again, the stubborn existence of Cro-Magnon, the many bioethical conundrums encountered in modern medicine, and the hoary debate in systematic theology about wide/narrow sense of the *imago Dei*, all require a reexamination of the dichotomy hypothesis.

1st Bodily (Cro-Magnon, general, Genesis 1, genetic) Creation

If Genesis 1 records the creation of Cro-Magnon, then not only must the text support the characteristics of the Aurignacian culture, but the differences from Genesis 2 must also designate the changes observed in the Neolithic Revolution. In the same manner, the uniqueness of the Gen. 1:26 passage from the preceding creation must also comport with the differences of the Cro-Magnon from the Neanderthal. We will make good use of this dual comparison as we work through the Creation account.

1:26a Let us make man in our image.

We take this to mean exactly what it says. Since the Word has always been with God, then the pattern existed before the creation of the world. Cro-Magnon was to be made exactly like modern man and unlike Neanderthal, for it was in the body of a modern man that Jesus was incarnated. Since we know that Neanderthal lacked many of the genes and features of modern Man, we paraphrase this as "Let us make Man not like beasts and Neanderthals, but in the image of Jesus."⁴⁷ This is not the creation of man

⁴⁶John Cooper, *Body, Soul and Life Everlasting* Grand Rapids: Eerdmans, 2000.

⁴⁷Despite this being the Church Fathers and Medieval understanding as the reason for the "us", a reflection of the Trinity, (J. Laidlaw, "Man" 175-176) some Reformed exegetes have insisted that such a view is erroneous because it makes the Incarnation a necessity, positing the body of Christ in heaven before the Incarnation, (John Calvin, *Institut II*. Xii. 4-7, P470, Philadelphia: Westminster Press, 1960.) Calvin actually doesn't oppose the Fathers, he merely says one cannot draw Osiander's conclusions from this verse. Laidlaw concludes "For to affirm that man was at first created an image of the Logos is but a hypothesis, and one at best but slenderly supported." We hope this paper strengthens the support. (Laidlaw also makes the assumption that temporal causality extends to heaven, which Augustine would dispute, so it is his objection that is the more hypothetical.)

as son, but man as image. He looked like Jesus, he had the same genes as Jesus, but he was not a son like Jesus. He was only an image.⁴⁸

In this we differ greatly from most theologians and philosophers who imbue the image with far more theological importance.⁴⁹ All that importance, I argue, derives from the nature of the Edenic creation in chapter 2, and was mistakenly transferred here because the two creations have been unfairly collapsed. We take the image here as implying an inferiority, a copy rather than a conception, a clone rather than a son, a pretender rather than an heir. For it is an image only in body, but not in spirit.

1:27b male and female he created them

This would make Cro-Magnon just like Neanderthal, for they come in exactly the same two flavors, as do all mammals, and most reptiles and fish. Why then did God use this phrase to describe humans as if He had done something special? There is a lengthy debate in biology as to the reason for the development of sexual (rather than asexual) reproduction. The most compelling argument is that it is a way to “scramble” the genes to provide genetic resistance against parasitic attack. So it appears that God is placing Man in a hostile environment where death exists already, and He is providing tools for the resistance. This has important implications for the Genesis 2 story and the curse of the tree, because it suggests that bodily death is already known, so the curse must be related to something beyond the mere bodily creation of Cro-Magnon.

Another interpretation, as with the *imago Dei*, is as an expression of absence rather than presence, a demerit rather than an award. God is making Man like the animals—male and female—but unlike Jesus. Contrary to Barth,⁵⁰ we do not think that this has anything to do with relationships, since we argue that language came with the Edenic creation, and without language man is like the dumb beasts. Likewise

⁴⁸Gordon Wenham “Genesis” 30, says that this is the view of (P. Humbert *Etudes sur le recit du paradis*, 153-63) and somewhat (Westermann’s *Genesis 1-11*” 146,149-158), but argue against it because (a) Deut 4:15-16 says God had no form, (b) JEDP can’t support it, (c) too much like an idol of other cultures, (d) the OT is monistic (e) the *imago Dei* must have theological significance. Our response is that (a) is true of the Father, but Job16:19-21 suggests a heavenly man that the NT recognize as Christ; (b) n/a; (c) hardly a defense; (d) oversimplistic and disputable as Cooper (“Body, Soul and Life Everlasting”) argue; (e) begs the question. So Wenham has not really denied the interpretation so much as stated his preferences.

⁴⁹Norm Shepherd also finds refuge in divesting the image of theological content, with abundant textual support. (Norman Shepherd, *Man in the Image of God*, 113-122, ThM Thesis, Westminster Seminary, 1959.)

⁵⁰Karl Barth, *Church Dogmatics III/1*, 284-191.

without language it would appear there is no marriage, and one can search in vain for monogamous relationships among the higher mammals.⁵¹ Nor is there any indication that Cro-Magnon had a monogamous family unit.⁵² Not until Eden do we find the institution of marriage. And indeed, when Jesus defended marriage against divorce (Matt 19:4-5), he quoted the Edenic creation as the fulfillment or purpose of the Cro-Magnon creation of two sexes.

1:28a Be fruitful and multiply and fill the earth, and subdue it

Again, how is this blessing any different than that for beetles or birds? Surprisingly it does differentiate from the Neanderthals, who appear to be limited to hunting the long-haired megafauna which populated the boreal forests of the previous ice ages. But the Neanderthals were evidently unable to survive in the semi-deserts and savannahs of the plains, and thus could not fill the earth. The Cro-Magnon, at least in the “out of Africa” scenario, was singularly capable not only of hunting in the savannahs, but also surviving in the northern forests. Tied to this was the Holocene warming that ended the ice ages, and either competition with Cro-Magnon or global warming or both ended the 200,000 year reign of the Neanderthal. So God’s blessing was for the first race that could in principle fill the earth, as well as subdue the competition.

1:28b rule over the fish of the sea and over the birds of the sky and over every living thing that moves on the earth.

As we mentioned above, the Neanderthal seemed to have a restricted diet. Never having progressed in hunting technology beyond coarse spear points, he had to subsist off the large ice age animals. How he survived the Eemian interglacial 110,000 years ago, which was warmer than our present Holocene, is a mystery. But apparently he never learned the technology needed for fishing, or the arrows for duck hunting, or even for antelope hunting. So God’s blessing here is for a race that can achieve all these technological innovations: fishhooks for fishing, arrows for hunting small game, spears for large

⁵¹When I was married I was given two wooden ducks as emblems of fidelity, which indicate how far back into creation one must reach.

⁵²Nancy White. "Intro to archeology The First People and Culture", *Introduction to archeology*. At http://www.indiana.edu/~arch/saa/matrix/ia/ia03_mod_10.html (accessed 10/22/08).

game. No animal was safe from Man's hunger, and so Cro-Magnon was able to survive in many more habitats than his predecessor Neanderthal.

1:29 Behold, I have given you every plant yielding seed that is on the surface of all the earth, and every tree which has fruit yielding seed; it shall be food for you; and to every beast of the earth and to every thing that moves on the earth which has life,⁵³ every green plant for food.

Cro-Magnon excelled over Neanderthal in more ways than just hunting. He was also able to make use of fruits and cereals in ways that Neanderthal apparently did not. Isotopic analysis reveals that Neanderthals ate almost no plants,⁵⁴ whereas at the miraculously preserved Paleolithic site discovered under the Dead Sea at Ohalo II, there is no doubt that Cro-Magnon ate seeds, and not just uncultivated grass seeds but tree seeds and molluscs.⁵⁵ Therefore God's blessing is the novel ability of Cro-Magnon to process grains and plant food, taking both skill and patience, especially since gathering wild nuts or grains is not as high a caloric benefit as hunting. It is yet another indication of the superior learning abilities of the Cro-Magnon mind that God provided.

By 10,000 BC the Cro-Magnon had migrated out of the Middle East (or Africa, in the "out of Africa" hypothesis) not just to Europe, but to India, Australia, Asia and across the Bering Straight to America.⁵⁶ This migration is supported by genetic markers as well as Carbon-14 dating of hearths and campsites. All this happened before 10,000 years ago, when this Paleolithic culture sustained a marked change with the Neolithic Revolution. We have earlier remarked on the tight correlation of language, genes and technology in this transition, which we implied was the result of a new sub-species, the talking

⁵³The Hebrew is unclear whether the green plants are food for the beasts, or the beasts and the green plants are food for man. C. Westermann (*Genesis 1-11*, 79) finds the text somewhat damaged, but the meaning clear. Many take this explicit blessing as an implied curse, that man is forbidden to eat meat. (G. Von Rad, *Genesis*, 61). U. Cassuto (*Genesis*, 58-59) agrees defending it with "primeval legend" and eschatological passages in Isaiah. C. Westermann (*ibid*, 161-165) thinks that vegetarianism is a pagan concept, neither death nor carnivorous behavior is being banished here. Wenham ("Genesis" 34) concurs, citing Gen. 3:21, 4:2-4, 7:2. Also D. Kidner ("Genesis" 52) "...must not be pressed to mean that all were once herbivorous, any more than to mean that all plants were equally edible to all. It is a generalization, that directly or indirectly all life depends on vegetation..." So vegetarianism is neither exegetically supported, nor historically supported.

⁵⁴M. Richards et al. "Neanderthal diet at Vindija and Neanderthal predation: The evidence from stable isotopes" *PNAS* 97(13) 7663-7666, June 20, 2000, at <http://www.pnas.org/content/97/13/7663.full> (accessed 10/22/08).

⁵⁵Alvin Powell, Harvard Gazette, July 22, 2004, at <http://www.hnq.harvard.edu/gazette/2004/07.22/07-grain.html>, (accessed 10/19/08).

⁵⁶Science Daily, May 10, 2007, at <http://www.sciencedaily.com/releases/2007/05/070509161829.htm> (accessed 10/20/08).

Man. Now we look at the specifics of the Edenic creation of Adam, and discuss the changes in Man with respect to the previous Cro-Magnon creation.

Edenic Interlude

It would be a bit abrupt to jump into the creation of Adam without mentioning the Garden that God provided for him. As we pointed out earlier, everything in this chapter is specific and particular. There is no reason to generalize any of this Edenic creation to the whole earth, and accordingly there is information to be learned from the specifics. The first specific is the climate.

2:5 Now no shrub of the field was yet in the earth, and no plant of the field had yet sprouted, for the LORD God had not sent rain upon the earth, and there was no man to cultivate the ground.

We note the phrase “of the field”, which from the end of the sentence suggests “of the sort in cultivated fields”, so we are being told that there has not yet been domestication and cultivation of wild grasses or wild legumes.⁵⁷ The phrase “in the earth” uses the same Hebrew word, *eretz*, used of the global Earth in Genesis 1, but ties it to the man’s cultivation of the ground. It seems odd to connect a global condition to local cultivation, unless, as we have argued above, the entire passage is particular and specific. Then the reason for the lack of cultivation in this particular region, which is not the entire globe, is that it has a dry climate and lacked a cultivator or irrigator.⁵⁸

2:6 But a mist used to rise from the earth and water the whole surface of the ground.

Some commentators take “mist” to mean irrigation,⁵⁹ but even before irrigation, many dry areas of the world are indeed indebted to water-bearing mists. The most famous is the desert of Namibia that has morning mists as a warm wind comes in off the ocean and the land is colder than the ocean, and so condenses the moisture into mist.⁶⁰ So whether it is mist or irrigation, it would appear that we are looking

⁵⁷Bruce Waltke, *Genesis*, 84, also quoting U. Cassuto, *A Commentary on the Book of Genesis. Part I: From Adam to Noah*, Translated by I. Abrahams. Jerusalem:Magnes, 1961, argues that these are cultivated plants, whereas “shrub” refers to weeds.

⁵⁸G. Wenham *Genesis* 58 has a discussion of *eretz*, *'adamah* and *sadeh* also agreeing that cultivated fields are described.

⁵⁹G. Wenham, *ibid* 59, Westermann,*ibid* 200, Gerhard von Rad *Genesis* Philadelphia: Westminster Press 1972, all think this word is best translated “mist rising”. Waltke (*ibid*, 84) prefers the analogy to the annual Nile floods, e.g., irrigation. Kidner (*ibid*, 60) thinks it is over-watered, flood-plain.

⁶⁰National Geographic, Jan 1992, pp54-85 and referenced in Wikipedia, http://en.wikipedia.org/wiki/Namib_Desert (accessed 10/20/08).

at a semi-desert region adjacent to a body of water. Skipping verse 7 and the creation of Adam, we discover a few more things about this location.

2:8 The LORD God planted a garden toward the east, in Eden

The words here are suggestive of the first cultivation. Since we are told a direction, and we inferred a body of water, it would suggest a location just east of a lake or sea. The word *gan*, garden, carries the suggestion of an enclosed space. We infer it may be a peninsula, or a valley with a body of water on the western side.

2:9-10a Out of the ground, the LORD God caused to grow every tree that is pleasing.... Now a river flowed out of Eden to water the garden;

Trees require a great deal of water, but if the surface soil is dry, they may flourish where herbs cannot because their taproots go deep. Alternatively, God may have increased the water supply in the Garden to permit trees to grow. The ending verse suggests that He is indeed irrigating what would otherwise be a rather dry region.

2:10b-14 and from there it divided and became four rivers.... Pishon... Gihon.... Tigris.... Euphrates.

There have been many attempts to locate Eden, with medieval mapmakers placing it near China, whereas Reformation scholars preferred the Marshes of Iraq.⁶¹ I have written a lengthy essay on my selection of the Mediterranean basin, somewhat south and west of Cyprus but east of an inland lake, at a time when the outlet by the pillars of Hercules was blocked, so that the basin was nearly dry due to the higher evaporation than rainfall rate in this region.⁶² During the ice ages, this below sea level basin would have had a very mild climate though like the Grand Canyon or Death Valley, relatively dry. Noah's flood, then, would have buried Eden under the Mediterranean Sea when the "gates of the deep" e.g., straits of

⁶¹G Wenham *ibid* 66, see also Afshin Molavi "Iraq's Eden" *National Geographic*, May 2003 at http://news.nationalgeographic.com/news/2003/05/0501_030501_arabmarshes.html (accessed 10/22/08).

⁶²Robert Sheldon, YACC, at http://procrustes.blogtownhall.com/2007/07/28/yacc_part_5.shtml (accessed 10/20/08).

Gibraltar, were opened. If Eden were in this location (or even in the traditional Iraq location),⁶³ then the 4 rivers flow into, rather than out of, Eden, which takes some juggling of prepositions and water flow.⁶⁴

The purpose of locating Eden here is to say that it is (a) a real, identifiable, geographic location in the Middle East, but one (b) that is unlikely to ever be uncovered. That is, we do not have to resort to myth⁶⁵ when our science or history returns empty handed, we need only resort to our vast ignorance and finitude.

2nd Edenic (Adamic, personal, Genesis 2, epigenetic) Creation

2:7a *Then the LORD God formed man of the dust of the ground,*

We have noted the personal nature of this Edenic creation, with the personal name of God being used. Also note that man is formed, *yatsar*, from other stuff as an artisan forms a clay pot,⁶⁶ not created *ex nihilo* as in Chapter 1. While certainly “dust” is used to signify non-living material distinct from life, there is no indication what it is composed of. Since, as we argued earlier, Cro-Magnon was the creation of the body, of the *imago Dei*, it would seem that this clause is deliberately telling us that the Edenic creation involves something more than a material body. I would loosely paraphrase this as, “the LORD God formed spiritual man from the corpse of bodily man.” In this interpretation, Adam would then have the same genetic material as Cro-Magnon.

Is this bowing to some sort of crypto-Evolution? No, because Evolution demands that life produce life with modifications. We agree with anti-evolutionists that God is taking non-living matter and fashioning life from it, that Adam is not a mutant Cro-Magnon. But in the final analysis, it is not Evolution’s method of change, but the metaphysical claim of randomness, of purposelessness, which makes it godless.⁶⁷ We do not protect theology by insisting on the miraculous, as if the supernatural were

⁶³Carol Hill “The Garden of Eden:A Modern Landscape”, *Perspectives on Science and Christian Faith* 52 (March 2000): 31-46 at <http://www.asa3.org/ASA/PSCF/2000/PSCF3-00Hill.html> (accessed 10/22/08).

⁶⁴E. A. Speiser *Genesis* 19-20; Hamilton *Genesis* 168.

⁶⁵G. Von Rad (*Genesis*, 80) reads this as mythical, since these rivers “encircle the globe”. This fanciful reading is a result of assuming it to be mythical, rather than the other way around.

⁶⁶C. Westermann, *ibid* 203-206.

⁶⁷J. Laidlaw “Man” first edition, 39, 1879 at <http://books.google.com/books?id=Tc4UAAAAYAAJ> (accessed 11/3/08) “If, however, evolution be propounded not as a “causal,” but only as a “modal” theory of creation, its reception may be very different...So far as the theory is conceivable, the theistic view of creation has no quarrel

an impregnable fortress against unbelief, which it isn't, but rather, by insisting on the pervasiveness of purpose, whose manifestation is the improbable, the merciful, the beautiful, and the good. Nor is this an idealist metaphysical distinction that Kant would approve of, for there are quantifiable metrics for the improbable, the merciful, the beautiful and the good, making all these distinctions science. And that metric is us. The fortress of faith is the most impregnable when it is the most vulnerable. The fruit is, after all, of the tree of the knowledge of good and evil.

2:7b and breathed into his nostrils the breath of life

With this we see a personal commitment not present in Chapter 1. For here, God stoops down and exhales His mighty Holy Spirit into Adam, the same spirit whose power could raise Christ Jesus from the dead, now raises Adam from lifeless dust. What is this *neshemah chayyim*, this breath of life? The word for breath is not the much more common *ruach*, which is applied to animals as well, but *neshemah*, possessed only by God and Man.⁶⁸

It would be tempting to view it as a “life-force”, the principle difference between a corpse and a government bureaucrat, but then it would be merely a bodily creation, no different than Cro-Magnon. Nor would we want to say that all lower animals are vessels of God's breath, simply because they move and eat and breathe. Such a view takes us to pantheism. But the clear separation of Genesis 1 and 2 is indication that the personal creation of Adam rises above the bodily creation of chapter 1, from which it is meant to be separated by a vast gulf. There remains something unique about breathing God's breath,

with it.” The objection is sometimes posed as “means”, that Genesis disallows God's use of means when He created. Again, neither Laidlaw nor Kidner think this is a valid argument. Laidlaw (2nd ed, p 39) “The Bible should not be committed to any theory of the origin of species. The record of Genesis does not imply local, special, or successive creations for the various orders of animated being. On the contrary, a continuous line of creative process is suggested by it. The principle of mediate production, rather than of immediate formation, is recognized in it.” Kidner likewise (Genesis, p 28) “If, as the text of Genesis would by no means disallow, God initially shaped man by a process of evolution, it would follow that a considerable stock of near-humans preceded the first true man, and it would be arbitrary to picture these as mindless brutes. Nothing requires that the creature into which God breathed human life should not have been of a species prepared in every way for humanity, with already a long history of practical intelligence, artistic sensibility and the capacity for awe and reflection.”

⁶⁸V. Hamilton *Genesis* 159. However note that Laidlaw (John Laidlaw, *The Biblical Doctrine of Man* 134, Edinburg: T&T Clark, 1895) strenuously objects to making any distinction between *ruach* and *neshamah* citing Gen 7:22 and saying “The idea is of Rabbinic origin.”

something that Meredith Kline races to anticipate with his glory-spirit-Shekinah-theophany,⁶⁹ something that develops into the tongues of fire. That something is related to language (Gen 11:1-9), to speaking in tongues (Acts 2), to the prayers of the saints (Rom 8), to the conversation with God. For God did not just bequeath Adam a generic spirit, but His spirit, in a very personal act that will be developed through the rest of the chapter.

2:7c And man became a living being

Once again, it would be a temptation to treat this as mere “resurrection” of dead material, the impartation of a life-force. The KJV translates that “living soul”, though the word pair appears six times in chapters 1-2 (Gen 1:20,21,24,30; 2:7,19), where in all other cases (but for a slightly mangled version in Gen 1:30) the KJV translates it as “living creature”. It would appear that this is a very generic attribution for any animal, no more than an enlivening spirit. However, *nephesh* develops its meaning so that there are good reasons for the KJV to translate it as “soul”, since it becomes used that way in Lev. 17:11 and throughout the remainder of the OT. The point isn’t that man became alive, although he could hardly do otherwise, the point is that he became a holistic body-soul, a *nephesh chayyah*.⁷⁰ This creation, unlike the bodily creation of Genesis 1, is a spiritual, soulish creation.

2:8 The LORD God planted a garden toward the east, in Eden; there he placed the man whom He had formed.

Just as Gen 1:27 repeats the word *bara*, created, so also we see Gen 2:8 repeats the word *yatsar*, formed. The clause “whom He had formed” is modifying the noun, indicating that this is what is special about the man. We are being told that unlike the Cro-Magnon who was created *ex nihilo*, the Adamic man was formed. Forming implies personal attention like that of an artisan, just as specific as the placing of the man in Eden. But more importantly, forming adds information, taking a shapeless thing of pure potential and giving it specific shape. It is a personal creation, for everyone has access to hammer and rocks, but not everyone is Michelangelo.

⁶⁹Meredith Kline, *Images of the Spirit* Eugene:Wipf and Stock, 1980.

⁷⁰John Cooper, *Body, Soul and Life Everlasting* Grand Rapids: Eerdmans, 1989.

It is only after the forming of Adam that we encounter our first proper name in Genesis, that of the garden, Eden.⁷¹ Although this wouldn't normally arouse much interest if it occurred later in the book, the fact that no names have been used at all up to this point is significant. Likewise, when the animals are named, it is not God who gives them their names, so it would seem logical that Adam named Eden and its four rivers also. If that be so, then we are being told something very significant. First, God doesn't do the naming even of landmarks, man does. And second, if we are correct about Cro-Magnon existing 30,000 years previously, then Cro-Magnon has never named the garden or these rivers either. The logic is nearly circular, hanging on the slender thread that names appear after the creation of Adam, but it reinforces our general point made from archaeology, and therefore is a trustworthy detail. (A small illustration of what it means to argue helically.)

2:15 Then the LORD God took the man and put him into the garden of Eden to cultivate it and keep it.

The theme of placing Adam in the garden is repeated from Gen 2:8, just as the word "formed" is repeated, indicating that this is an important point. As we mentioned in our location of Eden, it appears that this region is dry and needs irrigation water. So one of the jobs of a cultivator is to irrigate, though trees hardly need much irrigation. But more importantly, one irrigates and cultivates herbaceous plants that produce food, the most important being annuals such as grasses. Cro-Magnon collected grass seeds and processed them, but he did not learn cultivation. In contrast, the Neolithic Revolution included the spread of farming practices with particular cultivated grasses: barley, rye, wheat. As I have argued elsewhere, the yield of those first grass cultivars was so low, that it hardly paid to plant them unless one were assured of a harvest, such as in an irrigated, sunny location.⁷² So the connection between irrigation and the beginning of cultivation is highly significant, and being repeated in this passage, is the significance of Adam being put in a garden. Note also the similarity of the three most ancient civilizations based in dry, sunny, irrigated locations: Nile, Tigris-Euphrates, and Indus River valleys.

⁷¹"Adam" is ambiguously both "man" and a proper name. The LXX are the first to use it as a proper name in Gen 2:16, AV in 2:19, Wenham, *ibid* 32.

⁷²Robert Sheldon, "Viruses, Genes and Sin" at <http://rbsp.info/rbs/RbS/CLONE/VGS/> (accessed 10/20/08).

2:19b And brought them to the man, to the man to see what he would call them; and whatever the man called a living creature, that was its name.

We postpone the discussion of the second “forming” of beasts until later, jumping to this passage about the explicit naming of the animals. The image is very striking: God bringing the animals to the man one-by-one to discover what their names would be. For the very first time we find man doing something that God himself could, but would not do. We might draw theological conclusions from this, but our goal is anthropological, so we restrict ourselves to Adam. Not only was Adam capable of naming, but he was commanded to name, and his first task was naming. The word *qara*, to call, is duplicated for emphasis. It is not the abstract concept of a name but the act of naming that is highlighted; emphasizing the ability rather than the existence of names.

So to summarize this second creation of Genesis 2, this personal, specific, Edenic, Adamic, Neolithic creation, we note all the differences from the first creation of Genesis 1, the general, bodily, Cro-Magnon, Paleolithic creation:

- 1) A personal, artistic formation from pre-existing bodily material imbued with divine breath, not just life in general, but a holy spirit.
- 2) The first blessing was the appointment as cultivator of a garden, with cultivars (plants specially chosen for food).
- 3) The (first implied, second direct) command was the act of naming: places, rivers, animals.

All of these properties are duplicated in the Neolithic Revolution, which was the spread of a special people group that didn't melt into the Cro-Magnon genetic landscape (divine spirit), bringing farming technology (cultivars, gardens), who had a specific language (Indo-European).

However, the relationship between 1 & 3 is a bit ambiguous in this presentation. Was the “divine breath” language? Did not Cro-Magnon have beautiful painted stories, why is this not language? We argue that language goes beyond the visual, beyond the logographic to the purely phonemic, so that a brain capable of language is also capable of abstraction, science, and technology. This is one of the things

portrayed by the “breath of God”, mixing or blurring the distinction between 1 & 3. Can science help us distinguish the two aspects?

There exist several possibilities for the nature of language and breath and their relationship. (a) It could be a material difference, such that when God formed Adam, He added to the Cro-Magnon genes a “talking gene”. Or it could be an immaterial difference, either characterized as epigenetic or nurturing.⁷³ (b) An epigenetic factor is one that operates on the genes, so hypothetically for example, in the womb babies that are exposed to certain “language hormones” develop into talking babies. (c) Alternatively, it could be a patterning of the brain, a nurture factor, such that babies growing up in a talking home will learn to talk, while those growing up in a Cro-Magnon home don’t.

These may seem like silly science questions to be asking of the Biblical text, but they have far-reaching consequences for the doctrine of Man. If we argue that Adam’s genes were different, then the Cro-Magnon race is sub-human by design, and racism is natural. If we argue that Eve’s womb was different, then we are arguing for superiority by development, and racism is unfortunate but potentially reversible after some generations. But if we are arguing for nurture, for upbringing, than racism is societal, and potentially immoral. Later on we will carry these concepts over to the imputation of Adam’s sin, but one should recognize the implications even as early as the creation of language.

3rd Societal (Recursive, Relational, Trinitarian, epilingual) Creation

We have intentionally glossed over some verses in Genesis 2 that dealt with the formation of animals and birds, culminating with Eve. If, as we argued above, the second formation was personal in distinction to the first, then why would God personally form the animals a second time? They certainly don’t have the ability to talk, so was this an artificial distinction? Was the second formation merely a recapitulation of the first creation, and we have been wasting our time describing unsupportable temporal distinctions?

⁷³In the great “nature vs nurture” debates, there is an intermediate position that I call “epigenetic”, but in former times was called “breeding”. Breeding is multi-generational, and stands between one generation nurture, and 100+ generation race or species.

I think the answers to this question are a bit more subtle, and perhaps a bit more circular. But I hope that in answering them, we will have learned something important about the Genesis 2 creation, something that makes these few verses worthy of being called a third creation. For what God is introducing here is a societal creation, one that involves recursion and demonstrates holiness in an integral way not as obvious in the first two creations.

2:18 Then the LORD God said, “It is not good for the man to be alone; I will make him a helper suitable for him.”

Many commentators remark on the compound prepositional phrase, “like opposite him” found only here, as meaning complementary help unlike him. Wenham says “The help looked for is not just assistance in his daily work or in the procreation of children...but in the mutual support companionship provides.”⁷⁴ So not only would it be crass to imagine that it is frustrated bodily union that makes Adam lonely, it neither fits with the Adamic creation, nor with the terminology used.

We note that this is the first time in Genesis that God says “not good”. And the thing that is described by this approbation is “aloneness”. Now if Cro-Magnon creation preceded the Adamic by 30,000 years, there should be plenty of Paleolithic friends and possibly even mates for Adam. Yet Adam is alone. This suggests that whatever new existence Adam possessed was unique enough to set him apart from the prior Cro-Magnon creation. It also suggests that it is not bodily or chromosomal or mating incompatibilities that set Adam apart, rather, one or more of the attributes we listed above: cultivated plants, language, or God’s breath has made him unique.

2:19 Out of the ground the LORD God formed every beast of the field and every bird of the sky, and brought them to the man to see what he would call them; and whatever the man called a living creature, that was its name. The man gave names to all the cattle, and to the birds of the sky, and to every beast of the field...

This aloneness inspires God to artistically form yet a third time. Let us dismiss at once the idea that God mistakenly thought a playmate would solve Adam’s loneliness; He has been planning Eve all along. But Wenham thinks that the delay builds up the pathos, increasing the tension.⁷⁵ It is also typical for God to give a task, withholding the reward until after its completion. So Adam is given the task of

⁷⁴G. Wenham *ibid* 68.

⁷⁵*Ibid.*

naming, which Cassuto believes will cause Adam to come to the same realization as that of God: he needs a helper.⁷⁶

Unlike the generic creation of Genesis 1, this is a personal formation of animals and birds. But what can be gained by redoing the impersonal creation with a personal one? By analogy with Adam, it would appear that these animals are not the globally new species described by Genesis 1, but specific subspecies shaped for man's use. The genes are the same, but now adapted or domesticated for Adam's use.

Support for "formed = domestication" comes from knowledge of the Neolithic farming revolution and its domestication of animals. Sheep and goats were domesticated 9,000 years ago,⁷⁷ pigs and cattle 10,000 years ago,⁷⁸ and chickens and dairy cows came a little later, perhaps 8000 years ago.⁷⁹ While this gap between pigs and chickens may not be important, it suggests that the events of Gen 2:18 may not have come immediately after Gen 2:7, that Adam may have spent a lot of time cultivating and naming before God decided to shape domesticated animals from previous genetic stock.

However, if domestication is what is being described here, then why is the Hebrew word "every" used in a form identical to the general creation of Gen 1:30? Cassuto is quick to state that the apparent double creation doesn't imply that there was a partial creation in chapter 1, and argues that the word "every" indicates a specific, particular event:

"...that of all the species of beasts and flying creatures that had already been created and had spread over the face of the earth and the firmament of the heavens, the LORD God now formed particular specimens for the purpose of presenting them all before man in the midst of the Garden."⁸⁰

Finally, there is the question of the two lists with differing members: God bringing beasts and birds, while Adam naming cattle, beasts and birds. Cassuto points out that "beasts of the field" is usually

⁷⁶U. Cassuto *Genesis* 128.

⁷⁷Heather Pringle, Neolithic Agriculture: Reading the Signs of Ancient Animal Domestication" *Science* 282(5393), 1448 doi: 10.1126/science.282.5393.1448 (20 Nov) 1998.

⁷⁸Greger Larson et al., "Ancient DNA, pig domestication, and the spread of the Neolithic into Europe", *PNAS*, 104(39), 15276-15281 (Sep 2007) at <http://www.pnas.org/content/104/39/15276.full.pdf+html> (accessed 10/22/08).

⁷⁹Barbara Westall and Ben-Xiong Zhou, "Did chickens go north? New evidence for domestication" *World's Poultry Science Journal* (1989), 45:205-218 Cambridge University Press doi:10.1079/WPS19890012 at http://journals.cambridge.org/action/displayAbstract;jsessionid=50BBD4CB015B8959BCAA514661A726E4.to_mcat1?fromPage=online&aid=624516 (accessed 10/22/08).

⁸⁰U. Cassuto *Genesis* 129.

an antonym for cattle, and suggests that the cattle had arrived earlier.⁸¹ I would argue that the process of domestication converts wild beasts to cattle, so in fact we are seeing the categories multiply as a result of Adam's efforts. It also suggests that not all the animals formed by God in this 2nd creation were domesticated by Adam, there remained some wild beasts that did not become cattle. It further suggests that "naming" is a more powerful operation than it would seem on the surface, also implying control and differentiation.⁸²

2:20b but for Adam there was not found a helper suitable for him.

A simple phrase that is often overlooked, but Cassuto spends a page and a half arguing for this expanded version, much like our argument above:

"as far as *man* was concerned, he did not find a creature worthy to be his helper and to be deemed his counterpart, and hence to be called by a name corresponding to Adam..."⁸³

If this is not to be a trivial restatement of Gen 2:18, then the search must have been meaningful. As we argued earlier, the search would probably have included Cro-Magnon (wo)man, so the message that Adam learned in his scientific pursuits (for naming is the function of all science), was the unsatisfactory nature of the first created man. Null results are the hardest to prove and the hardest to get published, because one is never sure if the search has been exhaustive enough. But finally Adam is sure, there isn't a woman out there that meets his standards. I will be accused of over-romanticizing Genesis, but this is the primeval story: a man goes off to see the world and gain knowledge but at the end returns empty-handed, only to marry the local girl.

2:21-22 So the LORD God caused a deep sleep to fall upon the man, and he slept; then He took one of his ribs and closed up the flesh at that place. The LORD God fashioned into a woman the rib, which He had taken from the man, and brought her to the man.

We note here that just as Adam was artistically formed from dust, so Eve is "built" from Adam's rib. Both are made from pre-existing stuff, but Eve even more so, because she inherits the "God breath" of Adam. And while I cannot top Matthew Henry's commentary,

⁸¹ *Ibid.*

⁸² C. Westermann (*Genesis 1-11* 228-229) disagrees, saying that naming is just a simple rational procedure, though he quotes F. Delitzch, A. Dillmann, O. Procksch who believe it has larger significance.

⁸³ U. Cassuto, *Genesis* 133.

Not made out of his head to top him, not out of his feet to be trampled upon by him, but out of his side to be equal with him, under his arm to be protected, and near his heart to be beloved.⁸⁴

It is the bone marrow of the rib where the body makes new blood cells from pluripotent stem cells. If stem cell researchers ever clone a human, it will be likely from the rib.

2:24 For this reason a man shall leave his father and his mother, and be joined to his wife; and they shall become one flesh.

Finally we come to the point of this third creation. The cultivation of crops is accomplished. The domestication of animals is done. The inventory and classification of nature is finished. The global search has revealed the uniqueness of Adam, and finally he has been given a wife suitable for him. For this reason, says the author, is monogamous marriage instituted (as Jesus confirms in Matt 19:5),⁸⁵ not because of procreation,⁸⁶ not because of food foraging, nor social conventions,⁸⁷ but because of the special characteristics of language, of naming, of being a vessel of God's breath.

Therefore the purpose of this third creation is social. We finally come to Barth's premature point⁸⁸ made a chapter early and two creations too soon: God intended for Man to be in communication, with Himself (2nd creation) and with others (3rd creation). The 2nd creation established Man as unique, and empowered him to name, to differentiate, to exclude. After searching all of God's creation, he found that he had excluded himself, language had become a barrier and not a bridge. So in the 3rd creation, as planned all along by God, Man is given the wife that language binds tightly together. And through procreation, language will become the glue of family, of society and the future.

So far we have fleshed out the Neolithic Revolution, showing the relationship between language and the breath of God. Language gives power to separate cattle from beasts of the field, but only within the God-given community does it bring about unity, cleaving, and support.

⁸⁴Matthew Henry *Commentary on the whole Bible: Genesis to Revelation* edited by Leslie F. Church. Grand Rapids: Zondervan, 1960.

⁸⁵G. Wenham (*Genesis*, 71) argues for legal language here, as if the concern of the author is for later justification of Mosaic sexual taboos. While it may be interpreted that way later, I find it anachronistic to think that this is the point of the verse.

⁸⁶U. Cassuto, *Genesis* 137) argues this point against Von Rad (*Genesis*, 84) who believes it to be purely sex and procreation, no monogamy in view. We think VonRad reflects not the context but the *weltgeist* of his age.

⁸⁷C. Westermann (*Genesis*, 233) argues that it is neither sex, nor taboos, nor parental influence, but love that provides the spiritual unity. I am in agreement if "love" is taken to be mediated through language.

⁸⁸Karl Barth *Dogmatics III/I* 181-206.

The Prohibition

We can now apply our understanding of the three creations to the nature of man. First, we note that the *imago Dei* is better used only to refer to the bodily creation of Man as determined from Cro-Magnon: his genes, his musculature, his posture, his artistic sense, his musical sense. It is the Adamic creation that gives Man the intellect, the language, the ability to grasp abstract principles. That language gives him power to differentiate, to domesticate, to subdue God's creation in obedience to His commands, but it is also a divisive power, leaving him alone and without equal. The third creation, however, provides for community, permits language to bind, introduces joy over duty, and promotes love over obligation. It is the spiritual fulfillment of man.

We do not have space to work out all the exegetical consequences for Genesis of this Neolithic synthesis, merely pointing out that it solves the question of whom Cain married, who were the daughters of men, why they shortened Man's lifespan, why Noah was commanded not to kill the *imago Dei*, and why Neolithic farming took 3000 years to reach Britain (they were forbidden to kill Cro-Magnon and so had to out-propagate them). It also puts severe constraints on supposed global consequences of the Fall, or eschatological recoveries of a pre-Fall state.

I had earlier raised the question whether the *imago Dei* was genetic, epigenetic or cultural. We can now answer that a bit more fully, that indeed, the *imago Dei* is genetic, and racism is excluded for we all possess the *imago Dei*, but it is not the element that separates Adam from Cro-Magnon. I am not entirely sure what God did when He formed Adam and Eve, whether He inserted new genetic material or merely reshaped the old. But since the 2nd formation of animals is taken to be domestication, we may ask what is known from these traditional sciences about husbandry and breeding? Simply that the existing genome is reshaped, eliminating some alleles all together, and emphasizing others. This manipulation "upon the genes" is called epigenetic, so my tentative guess is that Adam is epigenetically distinct from Cro-Magnon. He has the same genes, but differently expressed. The significance of this is that genes are extremely hardy, surviving millennia without change, whereas epigenetic effects are less robust, changing

in three or four generations.⁸⁹ And by analogy, 3rd creation relationships are fragile, affected within one generation by upbringing.

2:16-17 The LORD God commanded the man saying, “From any tree of the garden you may eat freely; but from the tree of the knowledge of good and evil you shall not eat, for in the day you eat of it you will surely die.

Now we are ready to consider the prohibition of God. If the 1st creation already contained death, and we have many Paleolithic and Neolithic bones to suggest that it did, then what does God mean when He says “surely die”? Given the serpent’s interpretation, and the actual consequences of eating the fruit, commentators are divided about the strength of the prohibition, but nothing in the text gives any indication that it means anything less than a fast-acting poison, killing within 24 hours.⁹⁰ However, if the 2nd creation concerns the immaterial language and soul, then it could refer to a less material death. I say “less” because epigenetic information has some material base in genetics, in the same way that sentences rely on words or language relies on phonemes. Given that God’s prohibition is followed by the domestication of cattle, the interpretation as epigenetic death would have been understood by Adam.

So I paraphrase this as, “On the day you eat of the fruit, you will find yourself unable to talk clearly, unable to think clearly, plagued by vice and passions, you will be not much better than Cro-Magnon, your special holiness will be dead.” But how could a fruit, made of material things, have such an effect on passions and vice? Through the brain connection, via the genome. That is, the 20th century has discovered many brain chemicals that alter behavior, some of them permanently, and the fruit probably contained such chemicals. But more importantly, that behavior became hereditary, affecting Adam’s offspring. An environmental affect on the genome is again, the definition of epigenetic, and in the 21st century we are only just beginning to appreciate the importance of gene expression, which is capable of possessing as much information as the genes themselves. I surmise that what the fruit did was to corrupt

⁸⁹Deut 5:9 “...for I the LORD your God am a jealous God, visiting the iniquity of the fathers on the children and on the third and fourth generations of those who hate Me,”, see also Robert Sheldon, “Viruses, Genes and Sin” at <http://rbsp.info/rbs/RbS/CLONE/VGS/> (accessed 10/23/08).

⁹⁰G. Wenham (*Genesis*, 67) argues that it is in the form of a divine/royal threat seen in the prophets, which would preclude a poisonous fruit, but cannot be finessed as a vague or future threat, remaining a “straightforward warning”.

the epigenetic formation of Adam, God's 2nd creation, leaving behind damaged goods that have plagued mankind ever since.⁹¹

Creation Conclusion

Therefore Man is a three-layer cake, built upon a sturdy genetic frame inherited from Cro-Magnon, he has a less-robust epigenetic superstructure of language, capped by a positively ephemeral relationship to family and God. Sin, being a corruption of the original creation, then has three components: a bodily genetic component that is inherited through Adam; a linguistic epigenetic component that has a shorter pedigree, 3-10 generations;⁹² and a societal component that perhaps is primarily upbringing. Redemption then takes place on these three levels. The bodily resurrection is of course, the repair of our genetic heritage. Sanctification is a multigenerational repair of our epigenetic inheritance. And justification / KoG is the immediate repair of our relationship with God and fellow man.

The Orthodox Trinity

In this section, I want to use our scientific understanding of Cro-Magnon and Modern man, limited as it is, to inform our three-creation theology of the trichotomous man. That is, the discovery of a time-lapse between creations, provides the interpretive framework for understanding the composition of man. This brings us to a trichotomous division of Man, but rather unlike any of the textbook examples. I hope that we can find our way back, and in the process of fitting the theological terms to the scientific categories, discover something about new about ourselves.

First Creation Body

In the usual trichotomy of body, soul and spirit, the 1st creation corresponds nearly identically to the first category, body. If anything, there is a slight expansion of the category to include the idea of "living," so that a corpse is not a body. Aspects of "enlivening spirit" are in that first creation as well, stealing most of the thunder from the Greek concept of a "sensate soul". It is difficult to determine from paleontology if Cro-Magnon had emotions, but I would surmise from the beautiful cave paintings

⁹¹ Robert Sheldon "Viruses, Genes and Sin" at <http://rbsp.info/rbs/RbS/CLONE/VGS/> (accessed 10/28/08).

⁹² Deuteronomy 23:3

combined with the common attribution of emotions to artists that it is likely he possessed emotions as well. Accordingly, the 1st creation includes not just a living body and sensate soul, but passions as well.

This broadened appreciation of the body would caution us against a too facile division of body and soul along material and immaterial lines, which would ignore the real contributions of the Cro-Magnon mind. That is, the Greeks found the material/immortal a logical dividing place between body and soul, but the Bible gives a different division, a scientific-theological one. While I do not want to claim some sort of “scientific” dogmatism, I do think it explains many conundrums caused by the Greek division, such as seen in Gnosticism, panentheism and the animal rights movements. Just because an animal has feelings does not grant it a soul, for the bodily creation includes many of those immaterial characteristics.

Second Creation Soul

The 2nd creation would then correspond to the second category of soul, in addition to the features mentioned in the previous paragraph. It includes language and meaning, science and duty to God (theology). There is no indication that it is immortal, so we are not descending into Greek Platonism, and in fact Gen 2:16-17 talks about death in the context of this 2nd creation. This is peculiar since death was already known in the 1st creation, and it isn’t obvious that the 2nd creation eliminated it.⁹³ But if we take the “soul” as being that which is unique about the 2nd creation, then the prohibition takes the sense of “soul death”. Cooper seems to think this is a reasonable way to understand souls,⁹⁴ and perhaps a reasonable way to understand Jesus’ command in Matt 10:28 “fear him who can destroy body and soul”. This is not to say that the soul is immaterial, however, which we discuss next.

Science can add little to the metaphysical understanding of the immaterial soul, since it assumes materialist metaphysics to begin with. Circular reasoning alone does not prohibit science from exploring metaphysics, however, for circularity still can be a test of self-consistency. So an anti-naturalist science

⁹³ See the Appendix for a discussion of death and immortality.

⁹⁴ John W. Cooper *Body, Soul and Life Everlasting* Grand Rapids: Eerdmans, 2000.

can indeed provide some metaphysical direction for immateriality. Having made this caveat, what can we learn about the immateriality of souls from the Adamic creation?

Immaterial language depends upon the material substrata of Broca's region in the brain, vocal cords, diaphragm control, larynx and bodily improvements in man over Neanderthal. Monkeys will never be able to talk for at least one reason—they lack the machinery to do so. But there is far more to language acquisition than the material, and Noam Chomsky's singular claim to fame is his recognition of this peculiarly immaterial human language ability. Yet even among talking humans, there are those who "have kissed the Blarney Stone", who have greater than average immaterial abilities. So if we can discuss greater and lesser immaterial abilities as if they are quantifiable substances, what are they?

Michael Polanyi in a ground-breaking work⁹⁵, discusses these layers of immaterial meaning as "emergent", using language as an example: consonants, phonemes, words, sentences, paragraphs, stories, myths, each building and increasing the information content of the layers below. Denying materialist reductionism and using insights from gestalt theory, Polanyi argues that the total is greater than the sum of its parts, that this added information has real meaning, real existence, and super-added character.

The recent Intelligent Design movement has undertaken the work of quantifying these immaterial layers and challenging the reductionist metaphysic of methodological naturalism. Along these lines, it is my firm belief that physics is able to provide proof of the immaterial and its indestructibility.⁹⁶ For one of the immaterial, but conserved, quantities in physics is entropy, or its reciprocal, "Shannon information", is found in the arrangement of matter but not in the matter itself. It has no mass, no energy, no motive force, yet its conservation throughout the Cosmos is universally acknowledged.⁹⁷ One of Stephen Hawking's major theorems involves the conundrum of the loss of entropy at a black hole event horizon, and the need for Hawking radiation to conserve information. To my knowledge, the only physical

⁹⁵ Michael Polanyi *Personal Knowledge* Chicago: U of Chicago Press, 1958.

⁹⁶ See Appendix.

⁹⁷ Astronomer Sir Arthur Eddington, wrote "The law that entropy always increases, holds, I think, the supreme position among the laws of Nature. If someone points out to you that your pet theory of the universe is in disagreement with Maxwell's equations—then so much the worse for Maxwell's equations. If it is found to be contradicted by observation—well, these experimentalists do bungle things sometimes. But if your theory is found to be against the second law of thermodynamics, I can give you no hope; there is nothing for it but to collapse in deepest humiliation." (*The Nature of the Physical World*, 1915)

contribution of string theory is a theorem explaining Hawking's conservation of information at a D-brane (black hole).⁹⁸ Arguing by analogy then, the 2nd creation of Adam begins with the substrata of the physical, the genes that allow Cro-Magnon to make noise, and add to them several layers of increasing linguistic abstraction, which nonetheless have a quantifiable and possibly even indestructible nature. Lacking a better physics word, let us call this epigenetic layer "information."

In terms of the traditional body-soul distinction, we have attempted to steer the discussion away from interpretations of the soul as a substance. Nothing in the Genesis text indicates a substance other than dust and the *neshamah* of God was involved in the formation of Adam, but we think the continuum between the body and the language is best spanned by a more immaterial distinction. So when God formed Adam from pre-existing dust, He indelibly changed Adam's entropy, He inbreathed information into the system, He placed there something that cannot be destroyed until the ending of the world. Many other questions arise concerning this identification of soul and information, but further development really needs more support than this Genesis passage provides.

Third Creation Spirit

What do we make of the mysterious 3rd creation and final category "spirit"? The 3rd creation involved material means, a rib of Adam, yet was for the purpose of relationships, of companionship, of family. We find ourselves arguing from silence, attempting to fill in the motivation for this third creation, but clearly God saw that Adam, despite having evening talks with God, was not complete by himself. This is more than procreation, because that existed in the 1st creation, but it implied that Adam needed a society, he needed other talking humans whom God provided through the fruitfulness of Eve's womb. We emphasize here how the later creations all require the earlier creations, they build upon them as a house builds upon its foundations. The distinction between soul and spirit, then, is not a distinction of substance anymore than one distinguishes a foundation by its different material from the upper stories. The principle difference between a foundation and the upper stories is their position, their logical relationship. Likewise

⁹⁸ Wikipedia, http://www.stringwiki.org/wiki/Black_Hole_Entropy (accessed 10/28/08).

the distinction between soul-spirit lies in their logical relations, not their composition, though of course, there are necessary material differences as well.

Therefore we consider the spiritual aspect of man to be primarily a relation.⁹⁹ Like Luther and many Reformed theologians, we consider this aspect of Man to be his relationship both with woman, and with God. The relationship to God is mainly implied in Genesis 2, because for all the activity of naming and cultivating, we don't hear Adam conversing with God until later in Genesis 3, though like a silent movie, we assume some sort of dialogue ensued during the activities. And of course the purpose for that communication, that relation, is also implied, the conformity to the God. Since Man was made to be in communion with God, which requires conformity to God, the spiritual aspect of Man also includes this Godlike conformity.¹⁰⁰

I have called this creation recursive, because the creation of Eve changed Adam. One cannot have a society without including oneself. One cannot maintain a society without procreating oneself. One cannot procreate a society without teaching one's language. And one cannot teach one's language without teaching about relationships, about one's relationship to God. Religion is not something that arose out of Man's need to explain the world, but out of the necessity of explaining the language of the world to Man.

Comparative Trichotomies

Two Dichotomies

A trichotomy can be formed from two dichotomies. Philosophically, we can distinguish two dualist anthropological constructions, one made of substances and one of actions, one ontic and the other active, a practice which has engaged systematic theologians for several centuries. Berkouwer summarizes some recent developments in the transition from ontological to relational Man, tying it to the Reformed "broader" and the "narrower" senses of the *imago Dei*, though most of his discussion is motivated by systematic theological concerns rather than the exegesis of biblical texts.¹⁰¹ Notice however, how the "broader" and "narrower" senses fall naturally out of our explication of Genesis. The "broader" image is

⁹⁹ *analogia relationis* (Berkouwer, "Man", 72)

¹⁰⁰ *conformitas* (Bekouwer, "Man", 52)

¹⁰¹ G. Berkouwer, "Man", 37-118.

found in the 1st Cro-Magnon creation, the “narrower” image is found in the 3rd relational creation. The Fall had little effect on genes, but tremendous effect on relationships, while the effect on the 2nd Adamic creation is intermediate and more problematical.

Confining our discussion to mainly scientific and textual relationships rather than philosophical ones, we turn to Laidlaw’s excellent summary of the textual support for soul-spirit distinctions.¹⁰² Laidlaw argues that the soul-spirit difference in the New Testament is based not on a difference in substance, but a difference in viewpoint. That is, “spirit” is used when emphasizing God’s initiative in man, whereas “soul” is used to describe man’s initiative toward others. This soul-spirit division then, concerns active, predicate-object distinctions, whereas the passive, body-soul division is more sensate, a material versus abstract immaterial distinction.

Classic Trichotomy

Because these two criteria distinguish in different ways, there are actually four different combinations of traits possible: material/selfward, material/Godward, immaterial/selfward and immaterial/Godward. If one says that God has ceased to create in the material world after Genesis 2, and that the Incarnation was a once-for-all-time event, then the material/Godward combination is static and can be safely ignored. The remaining three categories can then be mapped to the traditional trichotomy of body, soul and spirit.

If this be a valid analysis, then we can see that classic trichotomy is not adding an additional category to the double dichotomy, but subtracting one from the full set of dichotomies. A trichotomy is dangerous only inasmuch as the material/Godward combination is ignored. That is, a trichotomous view of man is not in danger of introducing an alternate way of salvation involving a mediated, instrumental “spirit” that is superadded or repaired after the Fall¹⁰³, so much as neglecting a Godward aspect of the

¹⁰² J. Laidlaw “Man” 90

¹⁰³ John Murray *The Imputation of Adam’s Sin* 42-95. Murray considers two possibilities: Immediate and Mediate imputation. As above we form 4 categories: !I!M, !I/M, I!M, and I/M. He assigns New England Theologians Dwight and Hopkins to the first category and denies it. He assigns Placeus to the second category and denies it. He assigns Hodge to a subset of the third category, and denies it. He assigns Edwards to the fourth category and approves. Then he gives his own position as affirming I (p70) and then after some 20 pages of discussion, affirms M. (p90) “...whenever the person comes to be actually, he comes to be as sinful.” (p91) “Sin is

material body, and by its absence producing the opposite trend, an anti-Godward body. By not recognizing the body as an instrument of salvation, the body becomes a barrier, a hindrance, a tool of Satan—a Gnostic pitfall.

A Reformed Trichotomy?

How then do the three creations fit into the Reformed view of a double-dichotomy? I hope the answer is obvious.¹⁰⁴ The 1st creation divides man from beast, the 2nd divides soul from body, and the 3rd divides spirit from soul. Each creation involves its own special distinction, and each is orthogonal, independent of the others. The 1st creation takes as its substrate the grammar of genes, the body, the senses, even artistic abilities. The 2nd creation takes as its substrate the arrangement of genes, the abstract logic, the words of the language. The 3rd creation takes as its substrate the social rhetoric, the family relationships, the I-thou distinction.¹⁰⁵

I had earlier used the paradigm of a 3-layered creation, a pyramid where each step depended on the previous creation. Consider the width of those steps as material, as genetic, as substances. Then the 1st creation is almost entirely stuff, the 2nd much less so, and the 3rd almost invisibly material. This is man reaching upward, the selfward perspective of man. But now I would suggest that the spirit is an interpenetration, an inner inverted pyramid that stands on its peak. This is God reaching down toward man with the Creator as subject. The 1st creation has a tiny amount of spirit, the 2nd more so, and the 3rd is almost entirely spirit. Then the philosophical tendency toward dualism, toward the dividing things into twos, can be seen as a Sisyphean task, for there is no real dividing point that will neatly separate man into any two categories. Rather we find almost a continuum between body-soul and between soul-spirit.

intertwined with our very existence..." Therefore we conclude that the Trichotomous view is not unorthodox for proposing a mediated (spirit) aspect to the Fall, as long as it does not deny the immediate aspect either.

¹⁰⁴ SU(2) is "surjective homomorphic" to SO(3) (Wikipedia, [http://en.wikipedia.org/wiki/SU\(2\)](http://en.wikipedia.org/wiki/SU(2))) accessed 11/9/08).

¹⁰⁵ J. Laidlaw ("Man" p 70) quotes Justin Martyr "that as the body is the house of the soul, so the soul is the house of the spirit" and from Franz Delitzsch "the human soul is related to the human spirit, as the divine *Doxa* is related to the triune divine nature. The spirit is the in-breathing of the Godhead, the soul is the outbreathing of the spirit. The spirit is *spiritus spiratus*, and, as *spiritus spirans*, endows the body with soul. The spirit is the internal of the soul, the soul is the external of the spirit."

Eastern Church Fathers

Comparing this Reformed double-dichotomy with the trinitarian Eastern Orthodox view, the question can be posed historically, why did the Greek church propose and continue to hold to a trichotomous view of Man? Conversely, why did the Latin church change to a dichotomous view, and why did the Reformers stress dichotomy so fiercely that some have even proposed monist views? We can even ask this question more philosophically, why do trichotomous views generally depend on multiple substances? Or why are dichotomous views so popular yet find the division point so impossible to find or hold still? Why is there this fatal attraction toward Greek thought and Gnosticism?

Laidlaw dismisses the Greek Church Fathers as hopelessly contaminated by Platonism.¹⁰⁶ And while it may be true, what is to prevent them from returning the compliment, that Laidlaw is hopelessly contaminated by Enlightenment rationalism? If the Greeks always saw things in threes, perhaps the Latins could only see things in twos? Likewise, Berkouwer is dismissive of the Eastern church,¹⁰⁷ as are most Reformed scholars, causing Eastern theologian Vladimir Lossky to quote Barth:

“the teachings of the Fathers of the Church about the “theology of the image” were entirely invented...since “it is no accident that the doctrine of the image of God was first developed at a time when the Greek language was making its way into the religious literature of the Jews.””¹⁰⁸

Lossky concedes that in the Hebrew text “there is nothing (or almost nothing) which would permit us to base either a *theognosis* or a religious anthropology on the notion of the image of God”¹⁰⁹ Yet Lossky argues the very greekness of the doctrine is a result of God having chosen the Greek language to reveal His truth. “What was allowed to the Greeks was forbidden to the Jews, but this prohibition was

¹⁰⁶ J. Laidlaw “Man” 106.

¹⁰⁷ G. Berkouwer, “Man” 48-51. “It is possible, therefore, without prejudice to speak descriptively of the “ontological realism” of Eastern theology...Thus the image of God, is both ontic and actual, and it is viewed in a manner which relates it closely to a semi-Pelagian view of man’s will...And thus, viewing the image as treated in Eastern theology, we may conclude that we should always be alert for the dangers of stressing the image of God in fallen man. There is always the possibility that such accentuation is the result of a kind of thinking in which emphasis on man’s reason, freedom, and personality surely seriously weakens, if it does not destroy, the reality of sin and corruption.”

¹⁰⁸ Vladimir Lossky *The Image and Likeness of God*, 126-127, Crestwood: St Vladimir’s Press, 1985

¹⁰⁹ *ibid*, 129.

their privilege as well as a restriction.”¹¹⁰ He then goes on to argue that the identity of Christ as bearer of the Image of God, makes the doctrine inherently Trinitarian.¹¹¹

The Trinitarian theology of “images” can have its place only in a vertical perspective, that of the self-manifesting action of the divine nature, to which the old patristic formula corresponds: “from the Father, by the Son, in the Holy Spirit.” This manifestation is not the act of an impersonal divinity surviving from unconquered Hellenism, for it presupposes the “monarchy of the Father” who manifests the attributes of His nature by the Logos in the Spirit. So, for example, in this theology of the image, the attribute of wisdom will have the Father as the source of wisdom, the Logos as hypostatic wisdom, expressing fully the Archetype in his person, the Holy Spirit as the energetic radiance of wisdom, common to the three hypostases, revealed outwardly and communicable as a gift to created persons....It is in the context of the Incarnation (say rather: it is by the fact, by the event of the Incarnation) that the creation of man in the image of God receives all its theological value, which remained unperceived (or somewhat impoverished) in the letter of the sacerdotal narrative of the creation as seen by critical exegesis. It is not that one wishes to deny the importance or deprecate the merits of the historical study of the Bible: it is most valuable and ought to be taken into consideration by theologians. But never must this exegesis usurp a place which does not belong to it: that of judge in theological matters.

It would appear that in this chapter Lossky is doing what Reformed systematic theologians also did, taking a Biblical concept, and adding to it fine distinctions not found in the text in order to draw from it a consistent theology. Reformers distinguish between the broader and narrower senses, Eastern theologians talk of the *hypostases* of the Trinity; one sees two divisions, the other three. Such are the differences of thought, that Lossky argues the 796 AD insertion of the *filioque* clause precipitated an East-West split because it converted the Trinity from a 1+1+1 to a 2+1 asymmetry, which naturally devolved into dualism and dichotomies.¹¹² But I would say that the split came even earlier, when the New Testament was translated into Latin, for it caused the Western church to view the inerrant Truth as residing in the meaning, in the translatable aspects of the Word, rather than in the words themselves. Recall our introduction where I said that both the text and the creation were divine, while translation and science are human. And this is my principal observation that more than anything else, it is language that separates the branches of the Church.

If Man be in the image of the Triune God, would it not be expected that he also be found a trichotomy? It is only because the West has debased the understanding of the Trinity, says Lossky, or

¹¹⁰ *Ibid* 133

¹¹¹ *Ibid* 136

¹¹² *Ibid* 71 -96.

translated the Trinity, I argue, that it continually finds dichotomies in the nature of man. Only when a rigidly symmetric external constraint is wrapped around theology, will it stabilize this spontaneous decay into two parts.¹¹³ Ultimately, a trichotomy of man will survive degeneration into dichotomies only inasmuch as it reflects the divine Trinity.

Conclusions

What is the advantage of our development of such a complex Trinitarian representation? It provides a mental framework, a metaphysical basis for the Reformed distinction of the *imago Dei* in the wider and narrower senses. It incorporates the Lutheran and Barthian emphases on the I-thou relationship. It allows for Godward features of the body that can mediate salvation, thereby overcoming the Gnostic tendencies of the traditional trichotomous view. By placing the *imago Dei* in the bodily creation, it provides answers for the bioethical dilemmas of abortion and euthanasia. By separating the spirit from the soul in the 3rd creation, it helps delineate the boundaries of the corruption of Adam's fall. It reduces the tension between science and the Bible, incorporating the latest findings of paleontology. With Barth, it emphasizes the relational and counteracts the intellectual idolatry that led the 20th century astray.

But most of all, it focuses and concentrates attention on the 2nd creation, on the epigenetic consequences of sin, for it reintroduces to Reformed theology the concept of a multi-generational holy inheritance.¹¹⁴ And with this clarified view of sin, we can understand more fully the redemption and sanctification offered in Christ that renews the Adamic creation, and makes us holy. Like the Eastern Orthodox, we can then focus on this sanctification process of humanity, this “θεωσις”, deification, which changes the nature of the 2nd creation, and through it, all the others.

Appendix

The usual dichotomous view of man as body and soul has been so tightly connected to the Genesis 1-3 account, that it is difficult to criticize one without the other. Since we have separated Genesis

¹¹³ Robert Sheldon “Math, Aesthetics and Theology” at http://procrustes.blogtownhall.com/2008/02/22/math,_aesthetics_and_theology.thtml (accessed 10/29/08).

¹¹⁴ Robert Sheldon “The Holy” at http://procrustes.blogtownhall.com/2008/07/01/the_holy_part_1.thtml (accessed 11/3/08).

1-2 into three creations that support a trichotomy, we find we have to defend both against the claim that we are departing from accepted systematic theology, and that our introduction of science has perverted a Biblical view of the immortal soul and body. While we may yet have to abandon these views if they prove too heretical, here are some responses to a few objections.

The Perspicuity of Genesis

If all these recent scientific discoveries really did revolutionize our understanding of Genesis, then were all the saints of the past wrong, deceived by the Holy Spirit as it were? No more than were all the great scientists of the past deceived by the Holy Spirit. For the world and the word were made perfect by God and imbued with His Wisdom from the very beginning, but it is we who theorize and theologize that are finite and fallible. If salvation were possible with a faulty understanding of Genesis, then either the theology is not very important for salvation, or the Holy Spirit insured that the important bits were understood. This is the doctrine of perspicuity.

But in fact, the important bits were understood, just as the important bits of Revelation are understood by children. It is only pride that confuses our complex theological constructions of *imago Dei* with the main message of Genesis—"In the beginning, God". And if in God's wisdom in these latter days He has revealed to us more of His divine mysteries, should we not in humility and awe kneel at His feet and praise the God of Heaven, to whom belong wisdom and might, who changes times and seasons, who gives wisdom to the wise and knowledge to those who have understanding, who reveals deep and hidden things, who knows what is in the darkness, and the light dwells with Him?

The Death of the Body before the Fall

If death be a punishment for sin, would not Adam have been created immortal, with his death being a change instituted by the Fall? Why then do I suppose that the first creation contained death? As I said earlier, we have plenty of bones and firepits to conclude that death preceded the Fall. As Berkhof points out, this doesn't prohibit a deathless 2nd creation.¹¹⁵ But then either 2nd creation man has the immortal properties of the gods, or a special dispensation must be given him to protect from lightning,

¹¹⁵ Louis Berkhof *Systematic Theology* 669.

cliffs, falling pianos, and the vicissitudes of life. These considerations cause Berkhof to refine his position on immortality to “Though the possibility of his becoming a victim of death was not excluded, he was not liable to death as long as he did not sin.”¹¹⁶ I think by this, Berkhof is thinking of old age and the senility of the flesh being a consequence of the Fall, which in modern parlance relate to the telomeric clock of somatic cells and the breakdown of collagen. So Berkhof is saying that if Adam had not sinned, he might have succumbed to a saber-toothed cat, but he would not have aged.

But is such a refined concept of cellular decay to be found in scripture? It hangs an awful lot of positive biological data on a singular negative textual datum. Logically speaking, the prediction of certain death is not the same thing as the promise of eternally baby-soft skin. And while I hate my wrinkles and fading eyesight as much as Berkhof, I do not think we can blame every form of senescence on the Fall. Many of the excavated Cro-Magnon bones show the travails of age, arthritis, and disease long before the Fall. I think theologians have gotten in the habit of blaming life’s difficult bits on the Fall, while ascribing the good bits to God, making the Fall a convenient scapegoat for theodicy. But this is both intellectually lazy and spiritually ungrateful, refusing to find God’s mercy in mosquitoes and male-pattern baldness, while opening the door to utopian nonsense and fad diets. It is time for Reformed theologians to confront theodicy squarely, and stop blaming the failure of sanctification on the Fall.

Alternatively, some have taken this death sentence to apply only to the immaterial soul; the body having been created to undergo natural death, which is a view Berkhof and other Reformed theologians resist because it suggests the separability of body and soul, with the body being uncorrupted by the Fall. I think this fear is mitigated here by the organization of the constituent parts, so that the effects of the Fall permeate to all three creations. That is, the Fall causes genetic, epigenetic and societal corruption, without hypothesizing some sort of genetic immortality before the Fall. But more significantly, the model allows a discussion of possible effects of the Fall on the genetic and epigenetic components without having to use such coarse and philosophically loaded terms as “death” and “life” of constituents. That is, by

¹¹⁶ *Ibid.*, 209.

incorporating insights from biology, we can refine our categories in ways that agree with both theology and science without resorting to speculative metaphysics.

To restate my position, bodily death preceded the Fall. Spiritual death, or 2nd and 3rd creation death, came with the Fall. The Fall was not restricted to 2nd and 3rd creation effects, though this was where it had its primary consequences, but just as the body can corrupt the soul and spirit, so also corruption of the soul and spirit can propagate back into the body. Over the succeeding centuries after the Fall, the lifespan of man was reduced from almost a thousand to three-score and ten, primarily through the corrupting influence of the Fall. Biologically speaking, I would say that the successful, sinful parasitization of Man led God to grant a shorter lifespan as a way of escaping racial and societal destruction. Death became a defense against the parasitic destruction of civilization, a gift from God that mitigated the pernicious corruption of the Fall.¹¹⁷

The Immortality of the Soul

Does this view of the soul support immortality? Have I perhaps introduced a Lutheran traducianism that is condemned by Catholic and Reformed theologians alike?¹¹⁸ As I have tried to demonstrate, the proper understanding of the 2nd creation is by comparison with the 1st and 3rd. We do know some of the characteristics of the Aurignacian culture of the 1st, and we have ample evidence from modern psychology of people lacking the 3rd, nevertheless, it is hard to discuss immaterial differences from material evidences. The analogies from physics were truncated somewhat, being both overly specialized and overly speculative. Nevertheless, their importance lies in their exhibition of a quantifiable, mathematical description of an immaterial thing without relapsing into a Platonic substance dualism represented by the classical creationism versus traducianism arguments. Here is a fuller exposition of the physics argument to avoid the traducian controversy.

Entropy is an immaterial quantity represented by the ordering of matter. Suppose we roll two dice and sum the pips. The sum “7” is by far the most likely, with “2” and “12” being the least likely. Entropy

¹¹⁷ Robert Sheldon “Viruses, Genes and Sin”, at <http://rbsp.info/rbs/RbS/CLONE/VGS/> (accessed 11/1/08).

¹¹⁸ Louis Berkhof *Systematic Theology* 196-198.

would then correspond to “likeness”. Suppose we have a room full of air molecules colliding randomly. Then an even distribution of air pressure is far more likely and higher entropy than if all the air molecules collect in one corner. With this definition, physicists argue that the entropy of a closed system (all the windows and vents in the room being shut), must either stay the same or increase. Which is to say, the air molecules cannot congregate spontaneously in one corner (asphyxiating the students) without violating a “law of nature” even if by some mechanism we were to start them all in that location. Now in our thought experiment, we can keep increasing the walls of our library to include the Earth, the planets, the Sun, the Solar System, the Universe, and conclude that the entropy of the Universe is a fixed quantity that cannot decrease.

So far, we have said nothing that all 19th century physicists would have been in total agreement with. In the 20th century, however, both Big Bang cosmology and Black Holes (BH) seem to violate this principle. Stephen Hawking’s first paper dealt with the Big Bang model and likened it to a BH played backwards, and then a few decades later, addressed the problem of entropy at BH. The problem is that a BH has such enormous gravitational attraction that all matter is compressed to a point. But a point cannot have order, it cannot have entropy, all it can have is mass, angular momentum, and charge. If our big room has a BH in the middle, we can have a system that shows decreasing entropy over time, and thus violates our earlier “law of nature”! How can one then preserve the entropy of the Universe?

Just to make this a more interesting problem, in the 1950’s Claude Shannon of AT&T concluded that “information” carried on telephone lines could be abstracted as the inverse of entropy. Thus our earlier statement that the entropy of a closed system must either stay the same or increase can be rephrased, the “information” of a closed system must either stay the same or decrease. Now we introduce quantum mechanics (QM), and suggest that Shannon information (since there are many definitions of this immaterial thing) can change the outcome of a probabilistic QM system. Since the entire Universe may be considered as an entangled probabilistic QM system, we are saying that the information of the Universe is not likely to be decreasing with time, unless the Universe is being converted into BH. Thus Stephen Hawking asked the question how the information of the universe could be preserved even as BHs were

consuming the matter of the Universe. His answer was Hawking radiation, and to the great surprise of theoretical physicists, the answer could also be derived from string theory, a mathematical theory heretofore unable to provide any physical results. Thus it would appear that not only does physics teach us of the existence of immaterial things, it also teaches us of the non-destruction, or immortality of immaterial things.

Entropy or information is not the soul, however, any more than the body is atoms. As C.S. Lewis would say of stars, “that is what they are made of, not what they are.”¹¹⁹ Hence we compare the composition of man as an intricate organization of atoms into layers and layers of hierarchical structure, to be an analogous to the construction of the soul as layers upon layers of organized information in a hierarchical structure.

Immediately, however, you will say that I have made the soul a compound object, and thus it can disintegrate and disappear upon death. This is essentially the Platonic argument for the soul being a simple substance. I am far too poor a metaphysician to argue my position philosophically, but only note that in the case of human bodies, it is organization that builds the hierarchy of atoms, whereas in the case of human souls, which have organization as the substance, we must invoke some other process that forms the hierarchy. My suggestion is that it will be the Fourier transform of spatial-temporal organization, which exists in the frequency domain, so that it would be wrong to consider it a spatially composite substance. That is, in another paper I have proposed that heaven and eternity exists in the frequency-domain where time doesn’t exist, where time has been integrated out of the equations, in contrast to our temporal and spatial life on earth.¹²⁰ Thus dissolution at death may not dissolve the soul, because it is composite not in spatio-temporal space but in a frequency-eternal domain. Plato has been defeated by adding a dimension he knows nothing of. Which is to say, Plato’s objection can be overcome with a broader physical understanding of composite and simple substances.

¹¹⁹ C. S. Lewis *The Voyage of the Dawn Treader*, New York: Harper-Collins, 1996.

¹²⁰ Robert Sheldon “Time, Eternity, and Quantum Mechanics” at <http://rbsp.info/rbs/RbS/TEQM/> (accessed 11/01/08).

Without Plato's metaphysical barrier, the inheritance of souls can proceed in the same manner as the inheritance of bodies. Conversely, the God's creation of souls also proceeds in the same way as his creation of bodies. They are complementary phenomena, and both Creationism and Traducianism are equally applicable, and non-contradictory.

The Necessity of the Spirit

What is the reason for bringing in an Eastern trichotomy for Man? Isn't there a danger, as Berkouwer alluded, of diluting the Reformed understanding of total depravity with the Eastern emphasis on the Godward image, of *theognosis*?

I have alluded to the importance of Eastern theology to elucidate the role of the spirit. In the West, the Trinity has become a 2+1 affair, with both the Son and the Father possessing similar substantial existences, whereas the Holy Spirit loses its uniqueness as a substance or entity, becoming the eternal love surrounding the Two. In contrast, says Lossky, the Eastern church is insistent on maintaining the uniqueness and necessity of all Three in hypostatic union. And when categories fail us, says Lossky, we fall back on the inexpressible. So it is unforgiveable to force the Trinity into our categories of language, since our language should be but a reflection of the eternal communion of the Three.

That makes what I am doing here hopeless, using language to talk about something that transcends language. Nevertheless, as we said about circularity, there are many things language can still do when describing the indescribable, such as telling us what things are not. Such an apophatic approach, Lossky informs us, is the traditional approach to the Trinity.¹²¹

So we come back to the question, what is the need for a spirit in our trichotomy? Have we not said all there needs to be said about Man in the dualist body-soul distinction? How can the 3rd creation of Eve change the makeup of Adam's humanity?

Again, it would be too facile to connect the spirit of Man to the Western view of the Holy Spirit as the "eternal love" of the Father for the Son. We would then make Barth's error of instantiating a relationship. Nothing is more insidious to a happy marriage than worrying about the health of the

¹²¹ Lossky, "Image", 13.

marriage. Abstract nouns are a powerful method of manipulating symbols and might be considered the pinnacle of 2nd creation capabilities, but when applied to verbs, when applied to relationships, when applied to recursive and holy things, they are deadly. Converting the love of a wife into a marriage covenant replaces love with duty. Converting the devotion to God into a ritual is disastrous. Abandoning God's face for the lure of an orthodox faith is idolatrous. Thus the Eastern church emphasis on the inability to "abstract noun-ify" the Holy Spirit. It is a tension at the heart of language, as Humpty-Dumpty said to Alice "The question is, which is to be master—that's all."¹²²

If we are not to let language separate us from the love of God, if we are to escape the aloneness of Adam in the Garden, if we are to avoid converting all our living relationships into dead abstract nouns, or as King Midas' discovered, avoid turning our living theology into gold-plated "God-talk," then we must hold in tension something equal to language, something irreducible to words, something consubstantial with real metaphysical existence. This is the challenge the Eastern church addressed in its composition of the third person of the Trinity. This is the challenge faced by every Protestant who endangers his faith by reliance on intellectual language. I think this is what Barth tried to express with his *relatio*. This is what Bonhoeffer sought with his community of believers. This is the promise "where two or three are gathered in my name". This is the foundation of the *ekklesia*. This is the antidote to Western individualism, and the autonomous intellect. This is the necessity of the spirit. This is the promise of Eve and the gift of Mary. This is the Trinitarian trichotomy of Man.

Bibliography

- Adler, Daniel S., Guy Bar-Oz. Ana Belfer-Cohen, Ofer Bar-Yosef, "Ahead of the Game: Middle and Upper Palaeolithic Hunting Behaviors in the Southern Caucasus *Current Anthropology* 47(1), Feb 2006.
- Anderson, Neil *In Search of the Source*, Multnomah Press, 1992.
- Barr, Stephen , *Modern Physics and Ancient Faith* South Bend: U. of Notre Dame Press, 2003.
- Barth, Karl *Church Dogmatics III/I*, Edinburgh: T&T Clark, 1958.
- Berkhof, Louis *Systematic Theology*, Grand Rapids: Eerdmans 1996.
- Buxton, Graham *The Trinity, Creation and Pastoral Ministry: Imaging the Perichoretic God*, Milton Keynes: Paternoster Press, 2005.
- Calvin, John *Institutes of the Christian Religion*, Philadelphia: Westminster Press, 1960.

¹²² Lewis Carroll, *Through the Looking Glass*, 73, New York: McLoughlin, 1871 at http://books.google.com/books?id=YGEHa6a9_xkC (accessed 11/3/08).

- Campbell, Lewis and William Garnett, *The Life of James Clerk Maxwell*, London: Macmillan, 1882, at <http://www.sonnetusa.com/bio/maxbio.pdf> (accessed 11/3/08).
- Candlish, Robert S. *Studies in Genesis* Grand Rapids: Kregel Pub 1979.
- Caramelli David et al., “A 28,000 Years Old Cro-Magnon mtDNA Sequence Differs from All Potentially Contaminating Modern Sequences” *PLoS ONE*. 2008; 3(7): e2700 July 16, 2008.
- Carroll, Lewis *Through the Looking Glass*, 1871 at http://books.google.com/books?id=YGEHa6a9_xkC (accessed 11/3/08).
- Cassuto, Umberto *A Commentary on the Book of Genesis. Part 1: From Adam to Noah*, transl. by I. Abrahams. Jerusalem:Magnes, 1961.
- Cavalli-Sforza, Luigi Luca. Paolo Menozzi, Alberto Piazza ,*The History and Geography of Human Genes* Princeton: Princeton University Press, 1993.
- Collins, C. John *Genesis 1-4: A Linguistic, Literary, and Theological Commentary*, Phillipsburg: P&R Pub. 2006.
- *Science & Faith: Friends or Foes?* Wheaton, IL: Crossway, 2003.
- Cooper, John W. *Body, Soul and Life Everlasting* Grand Rapids: Eerdmans, 2000.
- Darwin, Charles *The Origin of the Species*, London: 1859.
- Eddington, Sir Arthur. *The Nature of the Physical World*. 1928. Reprint, Whitefish MT: Kessinger, 2005. <http://books.google.com/books?id=PGOTKcxSqMUC> (accessed 11/17/08).
- Enns, Peter *Inspiration and Incarnation: Evangelicals and the Problem of the Old Testament* GrandRapids: Baker, 2005.
- Fitzwater, Perry B. *Christian Theology*, Grand Rapids: Eerdmans Pub, 1948.
- Geist, Valerius “The Neanderthal Paradigm” 2000, at <http://cogweb.ucla.edu/ep/NeanderthalParadigm.html> (accessed 10/14/08)
- Gunkel, Hermann *Genesis* transl. M Biddle and E. Nicholson, Macon: Mercer U Press, 1997.
- Hamilton, Victor *The Book of Genesis 1-17* in the New International Commentary on the Old Testament, Grand Rapids: Eerdmans, 1990.
- Henry, Matthew *Commentary on the whole Bible: Genesis to Revelation* edited by Leslie F. Church. Grand Rapids: Zondervan, 1960.
- Hill, Carol “The Garden of Eden:A Modern Landscape”, *Perspectives on Science and Christian Faith* 52 (Mar 2000): 31-46 at <http://www.asa3.org/ASA/PSCF/2000/PSCF3-00Hill.html> (accessed 10/22/08).
- Hodge, Charles *Systematic Theology II/1*, Edinburgh:T. Nelson and Sons, 1873.
- Humbert, Paul. *Etudes sur le recit du paradis*, Neuchatel: Secretariat de l’Universite, 1940.
- Kershner, Charles “An Overview and Discussion of Various DNA Mutation Rates” at <http://www.kerchner.com/dnamutationrates.htm> (accessed 10/27/08).
- Kidner, Derek *Genesis: An Introduction and Commentary*, Northwells: IV Press, 1967.
- Kline, Meredith, *Images of the Spirit* Eugene:Wipf and Stock, 1980.
- Komatsu et al. “Five-Year WMAP Observations: Cosmological Interpretation”, *ApJ suppl.* 2008, at http://lambda.gsfc.nasa.gov/product/map/current/map_bibliography.cfm (accessed 10/27/08).
- Laidlaw, John *The Bible Doctrine of Man* Edinburgh: T&T Clark, 1879. at <http://books.google.com/books?id=Tc4UAAAAYAAJ> (accessed 11/3/08).
- , *The Bible Doctrine of Man* new edition, Edinburgh: T&T Clark, 1895. at <http://openlibrary.org/details/bibledoctrineofm00laidala> (accessed 11/3/08).
- Larson, Greger et al., “Ancient DNA, pig domestication, and the spread of the Neolithic into Europe”, *PNAS*, 104(39), 15276-15281 (Sep 2007) <http://www.pnas.org/content/104/39/15276.full.pdf+html> (accessed 10/22/08).
- Lewis, C. S. *The Magicians Nephew* New York: HarperCollins 1994.
- *The Voyage of the Dawn Treader*, New York: HarperCollins, 1994.
- Lossky, Vladimir *The Image and Likeness of God*, Crestwood: St Vladimir’s Press, 1985.
- McFague, Sallie *A New Climate for Theology: God, the World, and Global Warming* 2008.

- Molavi, Afshin "Iraq's Eden" *National Geographic*, May 2003 at
http://news.nationalgeographic.com/news/2003/05/0501_030501_arabmarshes.html (accessed 10/22/08).
- Morgan, James in BBC Science, at <http://news.bbc.co.uk/2/hi/science/nature/7639024.stm> (accessed 10/14/08).
- Murray, John, *The Imputation of Adam's Sin*, Philipsburg: Presbyterian and Reformed, 1959.
- National Geographic*, Jan 1992, pp54-85 at, http://en.wikipedia.org/wiki/Namib_Desert (accessed 10/20/08).
- Noonan, James P. et al, "Sequencing and Analysis of Neanderthal Genomic DNA", *Science*: 314(5802), 1113 – 1118 (17 November 2006) accessed at Wikipedia /Neanderthal_Genome_Project on 10/7/2008.
- Polanyi, Michael *Personal Knowledge: Towards a Post-Critical Philosophy*, Chicago: U of Chicago Press, 1958.
- Powell, Alvin, *Harvard Gazette*, July 22, 2004, as listed at <http://www.hno.harvard.edu/gazette/2004/07.22/07-grain.html>. (accessed 10/19/08).
- Poythress, Vern S. *Redeeming Science: A God Centered Approach*, Wheaton, IL: Crossway, 2006.
- _____, "Creation and Mathematics" *The Journal of Christian Reconstruction* 1/1 (1974) 128 - 140. at
http://www.frame-poythress.org/poythress_articles/1974Creation.html (accessed 10/7/08).
- Pringle, Heather, Neolithic Agriculture: Reading the Signs of Ancient Animal Domestication" *Science* 282. (5393), 1448 doi: 10.1126/science.282.5393.1448 (20 Nov) 1998.
- Richards, M. et al. "Neanderthal diet at Vindija and Neanderthal predation: The evidence from stable isotopes" *PNAS* vol. 97(13) 7663-7666, 2000, found at <http://www.pnas.org/content/97/13/7663.full> (accessed 10/22/08).
- Ross, Hugh N. *Creation as Science: A Testable Model Approach to End the Creation/evolution War*, Colorado Springs: NavPress, 2006.
- Saine, Thomas "Who's Afraid of Christian Wolff?" in *Anticipations of the Enlightenment*, edited by Alan Charles Kors and Paul J. Korshin. Philadelphia: U of Penn Press, 1987.
- Schaefer, Henry, III *Science and Christianity: Conflict or Coherence?* Athens GA: Apollos Trust, 2003.
- Science Daily*, <http://www.sciencedaily.com/releases/2007/05/070509161829.htm> (accessed 10/20/08).
- Sheldon, Robert "Math, Aesthetics and Theology", 2008 at
http://procrustes.blogtownhall.com/2008/02/22/math,_aesthetics_and_theology.thtml (accessed 10/29/08).
- _____. "Yet Another Creation Candidate", http://procrustes.blogtownhall.com/2007/07/28/yacc_part_5.thtml (accessed 10/20/08).
- _____. "Cosmological Evolution: Spatial Relativity and the Speed of Life" *Instr. And Methods for Astrobiology XI, SPIE Proc.* 2008 at <http://rbsp.info/rbs/RbS/PDF/spie08.pdf> (accessed 10/27/08).
- _____. "The Cometary Biosphere", *Instr. and Methods for Astrobiology, SPIE Proc.* 2007. at
<http://rbsp.info/rbs/RbS/PDF/spie07.pdf> (accessed 10/27/08).
- _____. "Viruses, Genes and Sin" 2002 at <http://rbsp.info/rbs/RbS/CLONE/VGS/> (accessed 10/28/08).
- Shepherd, Norman *Man in the Image of God*, ThM Thesis, Westminster Seminary, Philadelphia, 1959.
- Singer, Peter *Writings on an Ethical Life*, New York: Ecco Press, 2000
- Speiser, E. A. *Genesis* in Anchor Bible Series, 19 New York:Doubleday 1964.
- Van Inwagen, Peter *Metaphysics*, Boulder: Westview Press, 1993.
- Von Rad, Gerhard *Genesis* Philadelphia: Westminster Press 1972.
- Waltke, Bruce *Genesis: a commentary* Grand Rapids: Zondervan 2001.
- Walton, John H. *The NIV Application Commentary*, Grand Rapids: Zondervan 2001.
- Wenham, Gordon "The Word Bible Commentary, *Genesis*, Waco: Word Pub, 1987.
- Westal, Barbara and Ben-Xiong Zhou, "Did chickens go north? New evidence for domestication" *World's Poultry Science Journal* (1989), 45:205-218 Cambridge University Press doi:10.1079/WPS19890012 at
http://journals.cambridge.org/action/displayAbstract;jsessionid=50BBD4CB015B8959BCAA514661A726E4.to_mcat1?fromPage=online&aid=624516 (accessed 10/22/08).
- Westermann, Claus *Genesis 1-11* Minneapolis: Augsburg Pub, 1984.
- Whitcomb, John C., and Henry M. Morris *The Genesis Flood*, Phillipsburg: Presbyterian and Reformed, 1960.
- White, Nancy "Intro to archeology The First People and Culture", *Introduction to archeology*. At
http://www.indiana.edu/~arch/saa/matrix/ia/ia03_mod_10.html (accessed on 10/22/08).

Whitehouse, David “‘Earliest Writing’ found”, *BBC news* 1999 at <http://news.bbc.co.uk/1/hi/sci/tech/334517.stm> (accessed 10/14/08).

Wikipedia, at http://en.wikipedia.org/wiki/Piltdown_Man (accessed 11/08/2008).

_____, at http://www.stringwiki.org/wiki/Black_Hole_Entropy (accessed 10/28/08).

_____, at http://en.wikipedia.org/wiki/Recent_African_origin_of_modern_humans (accessed 10/22/08).

_____, at <http://en.wikipedia.org/wiki/HeLa>, (accessed 10/18/08).

Wilson, Henry Bristow, *Essays and Reviews* London: J W Parker and Son, 1860.

http://lachlan.bluehaze.com.au/1860-essays-reviews/essays_reviews_1860_text.html (accessed 11/3/08).