

CHAPTER 17

Struggling with Origins: A Personal Story

Denis O. Lamoureux is Associate Professor of Science and Religion at St Joseph's College in the University of Alberta. He trained first as a dentist, and then went on to earn PhD degrees in both theology and biology. He debated with Phillip Johnson in *Darwinism Defeated?* (Regent, 1999), is the author of *Evolutionary Creation* (Wipf and Stock, 2008), and a contributor to *Four Views on the Historical Adam* (Zondervan, 2013).

I struggled with the issue of origins for over twenty years of my adult life. Understanding where we come from influences our beliefs about who we are, how we live with one another, and what we can hope for in the future. So, although in many ways my story is not unique, it is also rather unusual in that I pursued a PhD in theology followed by a PhD in biology in an attempt to make sense of origins. Becoming an evolutionary creationist and believing that the God of the Bible created the universe and life through an ordained, sustained, and design-reflecting evolutionary process involved many challenging moments.

In retrospect, I now recognize that struggle is a vital aspect of our personal relationship with our creator. In fact, the word "Israel" is made up of the Hebrew *śārâ* (to struggle, persist) and *'ēl*

(God). It first appears in Scripture after Jacob had wrestled with God. The Lord then stated, “Your name will no longer be Jacob, but Israel, because you have struggled with God and with men and have overcome” (Genesis 32:28, NIV 1984). Christians are the New Israel and we should expect some trying periods in our walk with the Lord. And I believe that our dealing with the issue of origins will be one of those challenging times.

Entrenched in dichotomies

I was raised in a good French-Canadian Roman Catholic home in Edmonton, Alberta, Canada. There was unconditional love and healthy discipline in my family. Through the 1960s, I was blessed with a fine education by the publicly funded Catholic school system. The issue of origins did not come to my attention until the eleventh grade in a biology class. One of my favourite teachers, Mr Adrien Bouchard, pointed out that evolution does not necessarily force us to reject our Christian faith. He was a man of deep religious conviction, and explained that biological evolution could be seen as God’s process for creating all living organisms.

Looking back at this critical period in my life, I would certainly agree. However, simply telling sixteen-year-olds that God could have created life through evolution is not enough to protect them from the challenges of a secular culture, especially if they decide to attend a public university. The full case for evolutionary creation needs to be made to young people.¹ In particular, they require an explanation as to why we should not read the opening chapters of the Bible literally as a historical

¹ I prefer the term “evolutionary creation” rather than “theistic evolution” to describe my view of origins. In recent years, the former has been embraced most by evangelical Christians like me.

record. Consequently, when I left high school I was not equipped to protect my faith from the soon-to-follow ravages of university secularism.

In 1972 I entered Collège St Jean, the French faculty of the University of Alberta. The college was the intellectual and cultural centre of the French-Canadian community. At this point in history, French-Canadian Catholicism had just undergone the “Silent Revolution” of the 1960s in which religious issues were gently set aside.² Even though the college had deep Roman Catholic roots through the Oblate Fathers, it became largely secularized and steeped in the philosophical thinking of twentieth-century French culture in Europe. Many viewed the existentialist atheists Albert Camus and Jean-Paul Sartre as intellectual heroes. I understood the message of these philosophers to be that life is ultimately meaningless and that our best response is to live so-called “authentically” for the moment. As an impressionable eighteen-year-old, I assumed the intellectual smugness of professors and senior students indicated that scholarship had long ago rejected the existence of God. Clearly no reasonable person could possibly be religious.

Yet, the most powerful force shaping the development of my worldview was science. For me, scientific evidence was more convincing than the arguments of philosophers, because it was tangible. As a science student, I soon embraced a second smug attitude. I assumed that science was the only credible form of thinking. From this perspective, I looked down on those in the humanities because they dealt merely with shifting “opinions” and “subjective” ideas. In contrast, scientists were engaged with hard “facts” and “objective” truth. Presumptuously, I contended

² See Michael Gauvreau, *The Catholic Origins of Quebec's Quiet Revolution*, Montreal and Kingston: McGill-Queen's University Press, 2005.

that scientists were the university's "pure" thinkers. After all, there was no need to defend the success of science since everyone enjoyed its fruits every single day. With scientism at its peak in the mid-twentieth century, it was almost inevitable that my generation of students would come to believe that only science could explain reality, and only science could offer solutions to all our problems. Under the influence of the zeitgeist of the public university education in the early 1970s, I was socially conditioned by atheism and scientism, and as a consequence deeply committed to a science versus religion dichotomy.

My very first biology course was on evolution. Just like my high school experience, the professor opened the first lecture by stating that evolution did not necessarily undermine religion. But once again, this had little to no impact on me (though I still remember the moment like it was yesterday). And to repeat my earlier comment, merely telling students that God could have used evolution is simply not enough to fully convince them. A reasonable defence for evolutionary creation must be given by presenting philosophical and scriptural arguments.

The underlying message throughout my evolution course was quite obvious. Life originated only through natural processes with no hint of teleology (i.e. no ultimate plan or purpose). I came to what I thought was a completely logical conclusion: *since evolution is true, then the Bible must be false and so too must Christianity*. I knew that Scripture states the world was created in six days, but I discovered in class that science proves the universe and life evolved. Despite having two instructors in my life telling me that evolution does not necessarily undercut faith, I was nevertheless hopelessly entrenched in the prevalent origins dichotomy. In this mindset, one is either on the scientific side

with the evidence for evolution, or on the religious side with the biblical account of creation in six literal days; there really is no credible middle ground. It is important to point out that coming to this conclusion occurred in the very first four months of being at a public university. High school simply had not equipped me to face the onslaught of secularism.

By Christmas 1972, I had rejected the Christian faith of my boyhood and was on my way to an atheistic worldview. Yet there still remained a ray of hope. I recorded in my diary at the end of my first year of university (28 April 1973), “It seems that man is nothing but mere chemical reactions programmed by DNA ... But there’s more, I’m sure.” Though I had dismissed the God of Christianity, there was still a nebulous deity that accounted for life being “more” than just “chemical reactions”. In reality, however, I lived as if this God only existed when I desperately needed Him, such as the times when I thought my girlfriend was pregnant. I merely had a God-of-the-emergencies to whom I fervently prayed to save me from the consequences of my foolishness and immorality.

I entered dental school in 1974 and joined the military to pay for my education. A number of my classmates were evangelical Christians. They often shared their faith with me, and I even found their apologetic arguments to be persuasive at times. But more importantly, their consistent and godly lifestyle impacted me more than any rational defence for Christianity. Though I could not articulate it at that time, in many ways, I wanted what they had. I yearned for God and holiness. Of course, the issue of evolution was a stumbling block, since most of these evangelicals were committed anti-evolutionists. Once again, the origins dichotomy reared its head in my life, forcing me to assume that I had only two choices: science and evolution, or religion and creation.

Though the reality of Jesus Christ was being wonderfully displayed in the lives of some of my dental classmates, I was also entrenched in a lifestyle marked by the godless excesses of the 1970s. Moving on from the nebulous deity of the first years of university, I slipped into and out of periods of agnosticism until finally I embraced atheism. In another revealing diary entry, I concluded (20 June 1977), “Love is a protective response characteristic of all animals, except expressed to greater levels in man because of his superior intelligence.” I remember writing this entry because at the time I was wickedly cynical. One of my favourite sayings was that “love is a herd response”. In other words, humans are merely a herd of animals in heat. It takes little imagination to picture how I treated women. I’m certainly not proud of that. Marriage did not really mean anything to me because it was nothing but a social convention. There wasn’t anything sacred about it, because the sacred did not exist. For me, an atheistic view of evolution led to a life with no ultimate moral boundaries.

I graduated from dental school in 1978 and began a four-year commitment to the Canadian Armed Forces. My education had fully persuaded me that happiness was to be found in a self-serving lifestyle. This meant women, rum and coke, and playing as much golf as possible. From the outside, many would say I was having the time of my life. But deep inside of me there was an uneasy feeling. There was an emptiness and a distinct feeling of being “unclean”.

A peacekeeper meets the Prince of Peace

In the autumn of 1979 I was posted to the island of Cyprus as a United Nations peacekeeper. There I became a Christian, by

the Lord's grace and in answer to my mother's prayers, and as a result of reading the Gospel of John. There were no dramatic signs and wonders, or major crises. I simply yearned for God and holiness. As I read the Bible, I started to have a sense of cleansing. If a conversion point has to be chosen, it was Good Friday. I attended a chapel service and it was there the Lord revealed to me the meaning of the crucifixion – Jesus loves us so much that He died for us (Romans 5:8). I began to weep during the Scripture reading and continued for the rest of the service. In an amazingly mysterious way, an everlasting peace had entered my soul.

The Cyprus tour changed my life for ever. When I arrived there, I was spiritually empty; six months later I returned home to Canada filled with the Holy Spirit and the peace of Jesus. Indeed, I had been born again, a new creation in Christ (John 3:3).

Upon returning home, I was led to an evangelical church with a wonderful pastor. His love for Scripture impacted me deeply, and it continues to shape both my personal walk of faith and professional practice as a theologian. Since this was an evangelical church, the view of origins espoused by most of the members was Young Earth Creationism. They convinced me that evolution was Satan's primary weapon for attacking the faith of young people. This made perfect sense to me because a first-year university course on evolution had destroyed my faith.

Before long, I was steeped in anti-evolutionary literature, including Duane Gish's *Evolution: The Fossils Say No!*, John Whitcomb and Henry Morris's *The Genesis Flood*, and the latter's *Scientific Creationism*. In 1981, I took part in a week-long summer workshop offered by the Institute for Creation Research and there I befriended Canada's leading Young Earth Creationist, Dr Margaret Helder. She held a PhD in botany and was proof there

were scientists with real academic qualifications who rejected evolution. During this period I was also introduced to so-called “theistic evolution”, but it was quickly dismissed as a view of origins held by liberal Christians because they weren’t really committed to Jesus and didn’t fully trust the Bible. For me, *true* Christians were Young Earth Creationists.

In the autumn of 1981, I made my views on origins public for the first time. Helder was the co-editor of *Creation Science Dialogue*, and she asked me for a short contribution defending my belief in Young Earth Creationism. The article was entitled “Philosophy vs. Science”. In it I enthusiastically promoted my newly found anti-evolutionism. “I challenge anyone who takes pride in their objectivity to entertain seriously scientific creationism. It may very well be the most important study of your life.”³ Obviously, I was still trapped in the origins dichotomy. As the title reveals, evolution was not science, but merely a secular “Philosophy”, and real “Science” was in actual fact creation science.

The depth of my commitment to Young Earth Creationism is illustrated by the fact that in 1983 I was studying medicine at the University of Toronto while being paid my full dentist’s salary by the Canadian military. After being in the programme for only three days, I left with the intention of becoming a creation scientist in order to attack evolutionists in public universities. I had lost my faith in a first-year course on evolutionary biology and I was committed to defending young Christian men and women at universities from the satanic lie that life evolved. To equip myself for the battle, I planned first to study theology and the opening chapters of the Bible at Regent College in Vancouver,

³ My article can be found at: www.ualberta.ca/~dlamoure/p_yec.jpg

British Columbia. This would be followed by a programme on Young Earth Creationism led by creation scientists Henry Morris and Duane Gish at the Institute of Creation Research in El Cajon, California.

Beyond Young Earth Creationism

During the mid-1980s, Regent College was one of the foremost evangelical graduate schools of theology in the world. Its faculty included leading scholars such as J. I. Packer, Bruce Waltke, Gordon Fee, and Michael Green. Though my intention was to focus on Genesis 1–11, I had a larger agenda. As my diary reveals on the day of registration (30 August 1984): “The Grand Plan: Declare absolute and pure hell on the ‘theory’ of evolution.”

But my plan soon came under attack and I discovered what seminarians before me have experienced – biblical interpretation is much more complicated than what we learn in Sunday school. In a lecture during the first month of the programme, J. I. Packer openly stated that the first chapters of the Bible “were obviously written in picture language”. This shook me to the core. Packer was arguably the most important evangelical theologian of the day, and his best-selling book *Knowing God* (IVP, 1973) had brought many people to Christ. I personally knew some of these converts. Packer’s claim that Genesis featured “picture language” unsettled most of the students in the class because evangelical Christians are concordists (or better, scientific concordists).⁴ In other words, the majority of evangelicals believe that there is an

⁴ Eighty-seven per cent of American evangelicals read Genesis 1 and Genesis 6–9 as “literally true, meaning it happened that way word-for-word”. That is, they believe that the entire world was actually created in six literal days and that there really was a global flood. Survey conducted 6–10 February 2004 by International Communications Research Media, PA at: www.icrsurvey.com/studies/947a1%20Views%20of%20the%20Bible.pdf

accord or alignment between the Bible and the facts of science, and that Genesis 1–11 offers a literal and historical account of origins.

Challenges to my simplistic literal reading of the opening chapters of Scripture continued in the next semester at Regent. I took a course on the relationship between science and faith taught by the philosopher and literary scholar Dr Loren Wilkinson. I asked him directly what he thought about Young Earth Creationism. He responded bluntly, “It is error.” I can still remember how the word “error” rattled my soul. I had previously taken a philosophy course from him in the first semester and had a great respect for his knowledge and integrity. In the final moments of his class, Wilkinson looked at me hard, and then he said, “Denis, I have a serious concern. Should you ever give up your belief in Young Earth Creation, would you also give up your faith in Christ?” That was one question I was not expecting. And that wasn’t Wilkinson talking. The Holy Spirit was flowing through his words and casting a light on my understanding of Christianity. I mumbled and stumbled, and never really answered. Deep in my heart of hearts, I knew that my personal relationship with Jesus was much more important than any view of origins. I stepped away from this science and faith class still a Young Earth Creationist, but for the first time as a Christian I asked myself whether or not a literalist reading of Genesis 1–11 was the correct interpretation of God’s Word.

For three years, Regent College repeatedly challenged me to rethink how the Holy Spirit inspired the biblical writers. It became quite evident that Scripture had an ancient understanding of the physical world, or if you wish, an “ancient science”. As the diagram and verses in Figure 17.1 reveal, the Bible features a three-

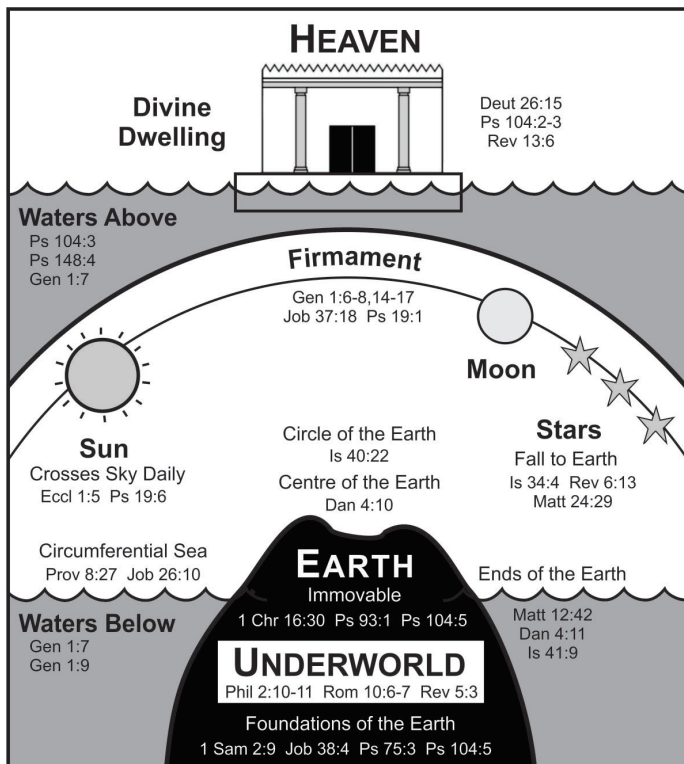


Figure 17.1 The three-tier universe: Regional geography and the horizon led ancient Near Eastern people to believe the earth was surrounded by a circumferential sea. Travel in any direction came to a body of water: Mediterranean Sea is west, Black and Caspian Seas north, Persian Gulf east, and Arabian and Red Seas south. This ancient understanding of the structure of the world sheds light on the meaning of Is 40:22, “God sits enthroned above the circle of the earth, its people are like grasshoppers. He stretches out the heavens like a canopy, and spreads them out like a tent to live in.” The “circle of the earth” does not refer to the outline of planet earth, but rather to a circular flat earth viewed from God’s perspective overhead. The three-tier universe also assists in the interpretation of Ps 104:2–3, “God stretches out the heavens like a tent and lays the beams of His upper chambers [i.e., divine dwelling] on their waters.” In this way, God’s heavenly dwelling is set in the “waters above”. Note the use of the tent metaphor in both verses to indicate the structure of the universe with a domed heaven overhead and a flat earth below.

tier universe. The presence of this ancient conceptualization of nature is particularly obvious in the Genesis 1 creation account. On the second creation day, God creates the firmament (Hebrew: *rāqîa'*) to separate the waters and create a heavenly sea overhead; He then embeds the sun, moon, and stars in this firmament on day four. From an ancient phenomenological perspective, this is exactly what the structure of the world looks like. The blue of the sky gives the impression that there is a body of water above, upheld by a firm structure, across which heavenly bodies like the sun move daily. In fact, this was the best science-of-the-day in the ancient Near Eastern World.⁵

I also discovered that Genesis 1 is built on an ancient poetic framework, a pair of parallel panels as presented in Figure 17.2. During the first three days of creation, God defines the boundaries of the universe. In the last three days, He fills the world with heavenly bodies and living creatures. Parallels emerge between the panels. On day one, God creates light in alignment with the fourth day's placement of the sun in the firmament. The separation of the waters above from the waters below on the second creation day provides an air space for birds and a sea for marine creatures, both made on the fifth day. Finally on day three God commands land to appear in anticipation of the origin of animals and humans on day six.

⁵ This ancient conceptualization of the structure of the universe appears in both Egypt and Mesopotamia. See www.ualberta.ca/~dlamoure/h83.pdf (accessed 10 July 2014) and also www.ualberta.ca/~dlamoure/h80.pdf

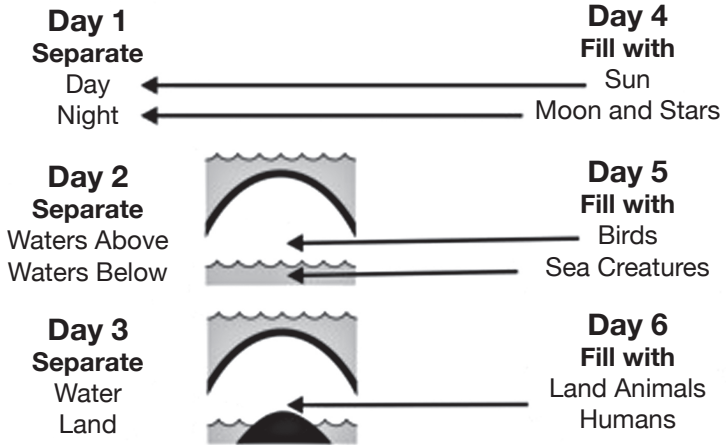


Figure 17.2 The parallel panels in Genesis 1. Recognizing and respecting this ancient poetic (i.e. structured) framework resolves the so-called “contradiction” of the light (day one) being created before the sun (day four). Poetic freedom allowed the inspired author to distinguish the forming of boundaries in the universe (days one to three) from the filling of the world with various creations (days four to six).

It became painfully obvious to me that Genesis 1 could not be a literal and historical account of how the world was made. We do not live in a three-tier universe and history does not unfold in parallel panels. Scientific concordism fails. However, with the many challenges to my Young Earth Creationism, Regent College also provided new approaches to understanding biblical inspiration. George Eldon Ladd’s aphorism offered a vital insight: “The Bible is the Word of God written in the words of men in history.”⁶ It underlines that Scripture indeed contained

⁶ George Eldon Ladd, *The New Testament and Criticism*, Grand Rapids, MI: Eerdmans, 1967, p. 12.

“the very words of God” (Romans 3:2, NIV), yet these were cast within the context of ancient times. In other words, the Holy Spirit *accommodated* in the revelatory process by coming down to the level of ancient people and using their ancient ideas about nature in order to communicate inerrant, life-changing, spiritual truths. Or, stated another way, the Lord employed an *incidental ancient science* as a vessel to deliver *Messages of Faith*.⁷ The inerrant spiritual truth in Genesis 1 was not *how* God created, but more importantly *that* He created. By understanding the ancient historical milieu in which Scripture was inspired by the Holy Spirit, I was freed from the chains of scientific concordism.

Regent College was the most challenging spiritual experience of my life. Ironically, it was the evidence within the Scripture itself that undermined my intention of becoming a creation scientist. After three years of focusing on Genesis 1–11, I came to the shocking conclusion that Young Earth Creationism is unbiblical.

Beyond so-called “Darwinism”

I moved from Regent College to the Toronto School of Theology in the University of Toronto for a PhD in theology specializing in science and religion. My thesis examined the first generation of evangelical scholars encountering Charles Darwin’s theory of evolution. I was surprised to discover that many of them did not have a problem with biological evolution because they viewed it as a teleological process. More specifically, evolution was understood to be the Lord’s ordained and sustained natural

⁷ I have termed this interpretative concept as the Message-Incident Principle. For more, see my book chapter entitled “Ancient Science in the Bible” from *I Love Jesus & I Accept Evolution*, Eugene, OR: Wipf and Stock, 2009, or online at: www.ualberta.ca/~dlamoure/ancient_science.pdf (accessed 11 July 2014).

process.⁸ These evangelicals embraced the time-honoured Two Divine Books model of the relationship between science and religion. They lived the spiritual messages in the Book of God's Words and they embraced the scientific method in the Book of God's Works. Neither dichotomies nor warfare marked their view of science and religion. These evangelical scholars acknowledged Intelligent Design in nature and even extended it to include evolutionary processes.⁹ They saw the reflection of God's mind not only in the details of the world but at an overarching level across the aeons of time.

I was also shocked to find that Darwin himself was not an atheist. Sunday schools had taught me that he was the father of modern atheism. Of course, like most evangelical Christians, I had never read Darwin's *On the Origin of Species* (1859). But I discovered

⁸ For a fine introduction, see David N. Livingstone, *Darwin's Forgotten Defenders*, Grand Rapids, MI: Eerdmans, 1987.

⁹ Regrettably, the term "Intelligent Design" has been co-opted and muddled by the so-called "Intelligent Design Movement." I embrace the traditional definition of intelligent design which asserts that beauty, complexity, and functionality in nature point to a Creative Intelligence. This concept is consistent with the theological notion of natural revelation and the biblical passages Psalm 19:1–4 and Romans 1:18–20. In contrast, ID theorists purport to detect design *scientifically*, entrenching another false dichotomy – biological evolution versus Intelligent Design. ID Theory is a narrow view of design that is connected to miraculous interventions in the origin of life. In other words, it is just another God-of-the-gaps model. For example, parts of the cell such as the flagellum are claimed to be "irreducibly complex". As a result, they could not have evolved through natural processes. With this being the case, ID Theory should be more accurately termed *Interventionistic Design Theory*. See my debate with Phillip E. Johnson, in Phillip E. Johnson and Denis O. Lamoureux, *Darwinism Defeated? The Johnson-Lamoureux Debate on Biological Origins* (Vancouver, BC: Regent College Press, 1999); also see my exchange with Michael Behe, in Denis O. Lamoureux, "A Box or a Black Hole? A Response to Michael J. Behe", *Canadian Catholic Review* 17:3 (July 1999), pp. 67–73.

that in it Darwin declared his belief in a creator who made living organisms through evolution.¹⁰ For example, he argues:

To my mind it accords better with what we know of the laws impressed on matter by the Creator, that the production and extinction of the past and present inhabitants of the world should have been due to secondary causes like those determining the birth and death of the individual.¹¹

I found this passage to be an absolutely amazing insight! Every Christian today believes that we were created in our mother's womb through natural embryological and developmental processes. I have yet to meet a Christian who thinks God intervenes dramatically to attach a leg or an arm to their developing foetus. Rather, we believe that the Lord "knit[s us] together ... fearfully and wonderfully made" (Psalm 139:13–14, NIV). So too with biological evolution. It is the Lord's ordained and sustained natural "knitting process" to create all the God-glorifying forms of life on earth.

But the most astonishing discovery made during my Toronto PhD was a letter Darwin had written about his religious beliefs only a few years before his death. Responding to John Fordyce in 1879, he opens, "It seems to me absurd to doubt that a man may be an ardent theist and an evolutionist."¹² In just

¹⁰ Darwin refers to a "Creator" seven times and always in a positive way in the *Origin of Species*. See *On the Origin of Species*, Cambridge: Harvard University Press (1859), 1964, pp. 186, 188, 189, 413 (twice), 435, 488.

¹¹ *Ibid.*, p. 488.

¹² Darwin to Fordyce, 7 May 1879, Darwin Correspondence Project Letter 12041. Online at: <http://www.darwinproject.ac.uk/letter/entry-12041> (accessed 11 July 2014). Also in Francis Darwin (ed), *The Life and Letters of Charles Darwin*, 3 vols., London: John Murray, 1887), I, p. 304.

one short sentence, Charles Darwin completely destroys both the science versus religion dichotomy and the creation versus evolution dichotomy. I can't help but ask, "Have atheists like Richard Dawkins ever read the Darwin literature?" To embrace either dichotomy is "absurd"! In addition, Darwin reveals in this letter, "I have never been an Atheist in the sense of denying the existence of a God." So the question must be asked, "Did Darwin actually embrace Darwinism?" No! The so-called "Darwinism" of Dawkins and his atheistic minions is not the Darwin of history, but was created in the image of religious hate-mongering.¹³

The fact of evolution and the overwhelming evidence

Graduate school in theology freed me from scientific concordism and began to offer insights into a Christian approach to evolution. However, I was still a committed anti-evolutionist. In 1991, I entered a PhD programme to study some of the best evolutionary evidence – the evolution of teeth and jaws. My plan was to quietly collect scientific evidence that disproved evolution, and after graduation I would publish my findings and declare war on the scientific establishment.

¹³ Dawkins seems to believe that insulting Christians is a productive strategy. He claims I am "an intellectual coward" and "a man with an air of desperation". See www.ualberta.ca/~dlamoure/dawkins.html (accessed 11 July 2014). Dawkins also states that "Darwin made it possible to be an intellectually fulfilled atheist". Richard Dawkins, *The Blind Watchmaker*, London: Penguin, 1986, p. 6. For my criticism of his aphorism, see my two-part paper entitled "Darwinian Theological Insights: Toward an Intellectually Fulfilled Christian Theism. Part I: Divine and Intelligent Design", *Perspectives on Science and Christian Faith* 64:2 (Jun 2012), pp. 108–119; "Part II: Evolutionary Theodicy and Evolutionary Psychology" 64:3 (Sept 2012), pp. 166–178. This paper is online at: www.ualberta.ca/~dlamoure/p_darwin_1.pdf and www.ualberta.ca/~dlamoure/p_darwin_2.pdf.

During my study of fossil teeth I started to see a definite pattern through the geological record: (1) the basic materials for teeth first arose as body armour on jawless fish, (2) the jaws of fish then became functional and simple teeth appeared on their margins, (3) with the arrival of land animals, dentitions became specialized and passed through numerous transitional stages, (4) leading to mammals with interlocking teeth and increased chewing proficiency in order to draw more nutrients from prey. In addition, I was seeing all sorts of transitional dentitions and transitional creatures in the fossil record. For many years I was taught by Sunday school teachers brimming with confidence that transitory fossils never existed. However, right before my eyes and even in my hands I saw and held a number of such transitional forms. This was not comfortable, but I could not deny the facts.

This mass of scientific evidence led me in 1992 to ask myself, "Am I headed in an evolutionary direction? I must admit I don't feel so intimidated by evolution as when I was a Young Earth Creationist." At the same time, I had to face my own past honestly. I confessed, "As a Young Earth Creationist, I was hopelessly ignorant." The reality was that seeing the scientific evidence first-hand in the Book of God's Works was a freeing experience. I no longer needed to fear the discoveries that science offered because science was a tool for revealing the glory of God in His marvellous creation (Psalm 19:1).

In the middle of my PhD programme I travelled to England for a science-religion conference sponsored at Cambridge University by the C. S. Lewis Institute. The founding members of the emerging Intelligent Design theory were in attendance – Phillip Johnson, Michael Behe, William Dembski, and Stephen

Meyer. Though I was still an anti-evolutionist, there was something that was starting to nag me. The popular evangelical argument that living organisms were too complex to have evolved gave me an uneasy feeling. Behe had recently coined the term “irreducible complexity” to describe components of the cell he believed could not have evolved. But saying we don’t know how cells evolved and therefore God had to create them in one fell swoop wasn’t cutting it for me any more.¹⁴ I knew this was a God-of-the-gaps argument.¹⁵ I had used this line of reasoning many times, and now my training in biology was closing many of those gaps. In reality, these were gaps in *knowledge*, not gaps in *nature* indicative of divine intervention. Ironically, the ID theorists were instrumental in pushing me towards evolution.

Alongside my research on tooth evolution, I was studying embryology and developmental biology. An amazing aspect of this science was discovering the incredibly complex concert of finely coordinated biochemical reactions from fertilization to birth. Developmental biology filled my soul with awe and offered reflections of Intelligent Design, and it was this scientific evidence that became the final piece of the evolutionary puzzle for me.

Stated briefly, living organisms go through embryological development using a single basic set of genetic and molecular processes. Striking evidence that animals and humans are evolutionarily related is found in corresponding genes that

¹⁴ Behe, *Darwin’s Black Box*, p. 39.

¹⁵ For the problem of the God-of-the-gaps, see Denis O. Lamoureux, *Evolutionary Creation: A Christian Approach*, Eugene, OR: Wipf and Stock, 2008, pp. 27–28, 60–62.

determine their underlying body plan (Figure 17.3).¹⁶ In other words, as organisms evolved, they passed down the genetic instructions for a general head-thorax-abdomen pattern – not unlike that in a family in which genes and physical characteristics descend from one generation to the next. Even more significant, experimental studies revealed that manipulating a single developmental gene or molecule can result in dramatic changes in the structure of an organism. This was the key conception that led me to accept evolution. I had seen a *pattern* in the fossil record of teeth and jaws indicative of evolution. Embryology and developmental biology offered a *process* to account for these changes. Let me give an example.

The limbs of fish, amphibians, reptiles, birds, and mammals begin as buds at the side of the developing body. As the limb buds grow, similar developmental genes and molecular processes appear sequentially, but they are expressed in differing combinations and concentrations between different animals. Simple experiments increasing the amount of these developmental molecules in a limb bud can alter the final number of bones in a limb and also change their shapes dramatically (Figure 17.4).¹⁷

¹⁶ Based on F. H. Rundle, J. L. Bartels, K. L. Bentley, C. Kappen, M. T. Murtha and J. W. Pendleton, “Evolution of *Hox* Genes”, *Annual Review of Genetics*, 28 (1994), pp. 423–442; G. Panopoulou and A. J. Poustka, “Timing and Mechanism of Ancient Vertebrate Genome Duplications”, *Trends in Genetics*, 21 (2005), pp. 559–567.

¹⁷ Drawn by Kenneth Kully, from A. Hornbruch and L. Wolpert, “Positional Signaling by Henson’s Node when Grafted to the Chick Limb”, *Journal of Experimental Morphology* 94 (1986), p. 261.

Fruit Fly



Lancet



Human

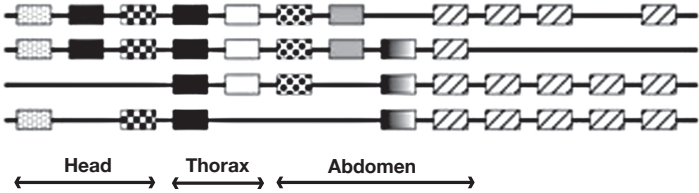


Figure 17.3 Body plan genes. Animals share a series of genes that instruct the development of a basic head-thorax-abdomen pattern. These genes are arranged on chromosomes in a front-to-back order. Organisms early in evolution have only one set of this gene series. This is also the case with simple creatures such as insects. Later and more complex animals have multiple copies. These arise through the duplication of genes and chromosomes, which can occur in organisms. The gene series is split in the fruit fly and appears on separate chromosomes as indicated by the break and slashes. The lancet is a primitive worm-like animal with no brain and only a nerve cord. In humans, the gene series is on the four chromosomes and are known as “Hox genes”. Missing genes are due to deletion, which is another well-known genetic phenomenon. Hox genes are also found in fish, amphibians, reptiles, birds, and other mammals, indicating that vertebrates descended from a common ancestor with four copies of an original body plan gene series.

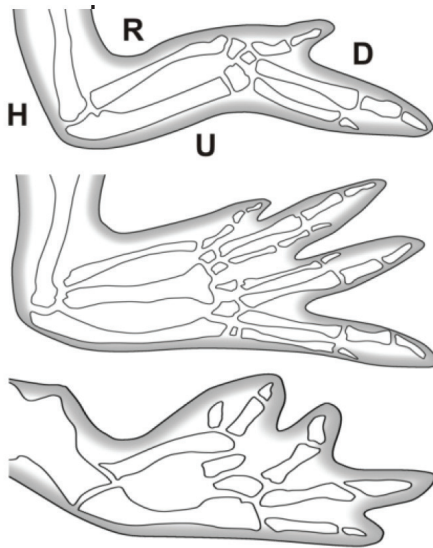


Figure 17.4 Experimental limbs. Placing a developmental molecule on a bead in the developing upper limb of the chick can produce striking differences from normal bone anatomy (top). In one experiment, a limb appeared with seven chick-like digits and a new bone between the humerus and radius (middle). Another experiment produced a limb with five digits similar in number to most land animals today (bottom). (H) humerus (R) radius (U) ulna (D) digits.

Therefore, only a minor genetic modification in the release of a developmental molecule can result in a major change in structure. With these developmental experiments in mind, and looking at the fossil record of the transition between fish and reptiles, it was easy for me to see how fins could have evolved into legs (Figure 17.5).¹⁸

¹⁸ Redrawn by Andrea Dmytrash. Lobe-finned fish from M. I. Coates, J. E. Jeffrey and M. Rut, "Fins to Limbs: What the Fossils Say", *Evolution and Development* (2002), p. 392; fish with fingers from Edward B. Daeschler and Neil Shubin.

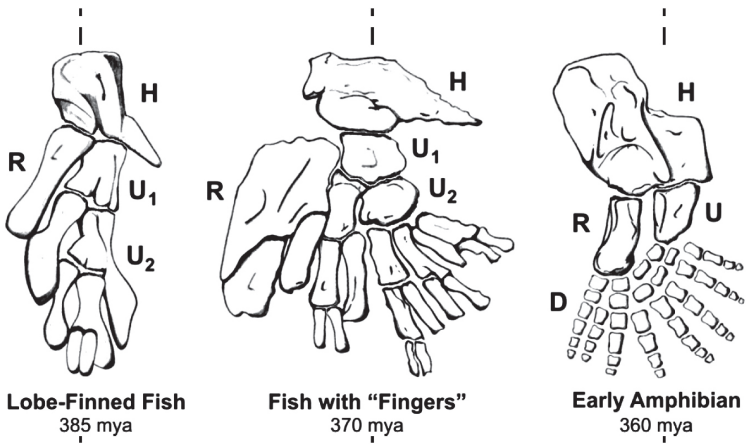


Figure 17.5 Fish fin-to-amphibian leg transition. Left: *Eusthenopteron*; Middle: *Sauripterus*; Right: *Acanthostega*. mya: millions of years ago

This newly emerging branch of science of the early 1990s, called “evolutionary development biology” or “evo-devo” for short, was the final piece of evidence that convinced me that evolution was a *fact*. After three and a half years of attempting with all my energy to fit the scientific data into an anti-evolutionary theory, I gave up and recognized that the evidence for biological evolution is *overwhelming*. I knew immediately that I would be marginalized within the evangelical community. And indeed this has happened. I have been blocked from teaching at my denominational college and seminary, and evangelical book houses will not publish my books. Nevertheless, I believe we should follow the scientific evidence in God’s creation no matter where it leads.

“Fish with Fingers?,” *Nature* 391 (1997), p. 133; early amphibian from Robert L. Carroll, *Patterns and Processes of Vertebrate Evolution*, Cambridge: University Press (1998), p. 233.

Final reflections

So that's my story. To be sure, it has been quite a struggle at times. But I want you to know that in being an evolutionary creationist, my love for Jesus and Scripture has not changed one little bit from the time I was a Young Earth Creationist. The Bible is unequivocal: "the word of our God stands forever" (Isaiah 40:8, NASB) and "Jesus Christ is the same yesterday and today and forever" (Hebrews 13:8, NIV). If anything has changed, my training in theology has made me more focused on the inerrant, life-changing spiritual truths in the Book of God's Words. Similarly, I have a much greater appreciation for the reflection of Intelligent Design in nature after having studied evolutionary biology in the Book of God's Works.

One lesson that I believe is worth taking from my story it is that we need to deal more directly with the pastoral implications of origins. Young men and women today are leaving Christianity in record numbers; science and the issue of evolution are significant factors.¹⁹ As a young person I was told by two instructors that evolution did not necessarily undermine Christian faith. This had little to no effect on me. High school students and university undergraduates need to learn about a healthy relationship between science and religion. In particular, they must be offered the case for evolutionary creation and the many reasons why the opening

¹⁹ A Barna Group study published in 2011 reveals that 59 per cent of young people "disconnect permanently or for an extended period of time from church life after age fifteen. One of the reasons for this disturbing exodus is that they perceive "Christianity is anti-science" (25 per cent of respondents), and that they have "been turned off by the creation-versus-evolution debate" (23 per cent). No Author, "Six Reasons Young Christians Leave Church" at www.barna.org/teens-next-gen-articles/528-six-reasons-young-christians-leave-church (assessed 27 August 2014).

chapters of the Bible should not be read as a literal and historical record.

I am quite passionate about this pastoral tragedy happening within our churches. A good part of my academic career has been spent developing materials for young people and I have placed these online free of charge. For high school students, I have a series of High School Web Lectures in audio-slides with handouts that can be found at: www.ualberta.ca/~dlamoure/wlhs.html.

For university undergraduates, my entire introductory course on science and religion is online with 24 hours of audio-slide lectures, 200 pages of class notes, and 100 pages of class handouts. The Class homepage is at: www.ualberta.ca/~dlamoure/350homepage.html.

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