

A NEW ADAM? A NEW EVE?

My paper begins with an epigraph of words all of you have heard before. But listen, if you will, to this redacted version. Many think it is the most important history lesson ever written; others see it as part of the world's most muscular myth.

In the beginning, God created the heaven and the earth. And God said, Let us make man in our image, after our likeness.

So God created man in his own image, in the image of God created he him; male and female created he them.

And the Lord God commanded the man, saying. Of every tree of the garden thou mayest freely eat:

But of the tree of knowledge of good and evil thou shall not eat of it.

And the Lord God caused a deep sleep to fall upon Adam and took one of his ribs and made he a woman.

And Adam called his *wife's* name Eve;

I was born on the same day as Abraham Lincoln, February 12, 1809. The book that made me famous, and infamous, was published fifty years later, a few days before you Americans sent John Brown to moulder in his grave - and just about ten years after your venerable club was founded. Come to think of it, there may be, in your club's 19th century records, a paper about that book and perhaps one about my more focused book, the one that made me even more infamous, which was published in 1871.

The first book was a quick sellout - due to my prudence in having only 1,250 copies printed. I admit that was nothing like the sales volume of some other people writing at the time, the likes of Charles Dickens, John Stuart Mill and William Makepeace Thackeray. The additional editions of my first book and then the sales of my second book restored my confidence that my copious research had been worthwhile.

Those two books explain *what* I came to believe, *why* I came to believe it and *how* I

came to believe it, and were largely a function of *when, where and how* I lived.

I grew up in the provincial town of Shrewsbury, between the Midlands and Wales and I lived a life that was thoroughly Victorianized and Jane Austenized. It was essentially a quiet life of research and study, but I suffered more inner turmoil than was apparent.

Far from being stagnant and rigid, as some have claimed, England was then in an empire-building mode. It had been invigorated by the Renaissance and the Enlightenment.

The country was on the brink of the industrial revolution, a prolific time of new thinking and new ideas. Even vested ideas about religion were being questioned. My early education included tutoring by a Unitarian minister at a time when Unitarians had come to be chided as having "created a featherbed for fallen Christians".

My father was a successful physician and, moreover, as a shrewd investor, he became quite prosperous, a seemingly irrelevant fact, but one that had an extremely large bearing on my career. Throughout my life I earned almost no money on my own, except for a modest income from the various scientific books I wrote.

My father's support and my ultimate inheritance not only bestowed my education and some social position, but led to invitations to join various important scientific organizations and to meeting many prominent men helpful to my career.

Being part of the network at Cambridge, was another decided advantage in making valuable friendships and acquaintances. Even more important was the virtually unlimited time my father's wealth gave me to pursue research and study.

That cause certainly was not hurt by my ultimate marriage in 1839 to Emma Wedgwood, of the famous ceramics family (and, incidentally, my first cousin). We were both thirty at the time and with marriage came an expanded social life until I managed to persuade Emma to vacate London for the nearby village of Down in Kent, where life was much quieter, if not reclusive. We spent the rest of our lives there.

But early on, when I was 22 and just graduated from Cambridge, my already quiet life was interrupted by a friend, Henslow, who alerted me to an exciting opportunity and strongly recommended that I apply.

Captain Robert FitzRoy of Her Majesty's Navy, having experienced the loneliness of leadership on her majesty's vessels, was looking for a companion, one who was first and foremost a gentleman and secondly a naturalist, a field in which FitzRoy was also interested. I was eager for such an adventure.

Though known to be rather idiosyncratic, with a volatile temper, FitzRoy was a promising

naval officer who had already participated in a charting expedition to the east coast of South America. In 1831 he was planning another such trip to Tierra del Fuego and Patagonia, returning by the East Indies. In short, he planned to sail around the world.

But my father objected to my spending what was then anticipated to be a two or three-year voyage. He was thoroughly fed up with my lack of progress toward a useful career. I had disappointed him by dropping out of medical school at Edinburgh.

Though I had then been admitted to Cambridge, father had a low regard for the long hours I spent game bird hunting and wandering the countryside looking for fascinating things such as beetles. He was adamant that I not further waste my youth and risk disgracing my family by what he saw as a vacation cruise - and a risky one at that.

Thank goodness, my Uncle Josiah Wedgewood, with common sense beyond question, was enthused about the trip. My father, an admirer of common sense, relented. I applied and was accepted.

Captain FitzRoy, as a student of Lavater's ideas, revealed to me, months after our departure, that, in making his decision, he had been bothered by the shape of my nose. This was no idle matter. Captain FitzRoy was a man of strong ideas. He believed that he could read a man's personality and character by examining the projections, the hollows, the flats and rounds of his face.

FitzRoy was himself an aristocrat, being the nephew of a Duke on his father's side and of an equally impressive uncle on his mother's side. Among aristocrats, as you know, noses are of considerable importance.

So, as it happened, my nose, as non-aristocratic as it was, became a fateful factor in my life. Had my nose not ultimately passed muster with Captain FitzRoy I would have no story to tell.

I was, however, much more concerned about my stomach than my nose. My stomach taunted me all of my life and the discomfort of the regular seasickness that I suffered aboard ship was frequently matched on land. It simply made me miserable, often to the point that I could not proceed with my work for more than an hour or two at a time.

I must admit that later in life the resulting flatulence may have had something to do with my efforts to avoid social occasions whenever possible.

Uncle Josiah's common sense and Captain FitzRoy's forbearance about my nose thus combined to send me on a voyage that lasted almost five years instead of three - a voyage that changed my life dramatically.

When I left England on the HMS Beagle, two days after Christmas, 1831, I had about decided that on my return I would enter the clergy. I had graduated from Christ College at Cambridge with a degree preparing me for the church. It was, after all, a career in which many practitioners doubled as amateur scientists. In some quiet parish, I would be able to pursue my amateur interest in the natural world, collecting beetles and that sort of thing, without intruding too much on the spiritual lives of my parishioners.

HMS Beagle was a brigantine but rigged as a barque, i.e., the forward masts were square rigged and the mizzen fore and aft. It carried six guns. The cramped quarters and essential disciplines of life aboard ship made a long voyage even longer. Fortunately, FitzRoy's meticulous charting work made it possible for me to spend more than half the trip on dry land.

My various, and sometimes extended, field trips added up to a total of three years and one month. The vast majority of my 37 trips ashore lasted more than a week, and some were as long as four months. I covered an amazing amount of ground gathering many specimens of plants and animals that I hadn't found in England. I was usually working as rapidly as possible to avoid any interference with FitzRoy's schedule.

It was one of my visits ashore that greatly encouraged me in concluding that my growing interest in biology was far more important for me than a career in the clergy. In June, 1836 the Beagle had stopped at Capetown, South Africa, permitting conversations with the great English astronomer, John F.W. Herschel, who was then working there. His later descriptions of the appearance of new species as the "*mystery of mysteries*" excited me immensely. If a scientist of Herschel's caliber so characterized the importance of the origins of new species, it was without a doubt a quest worth pursuing.

Five years later, as the Beagle returned to England, I had changed by mind as to my career.

It's time to confirm what you have already guessed. My name is Charles Darwin. But I am not *the* Charles Darwin, nor even a relative of his. I am *a* Charles Darwin. When I first became aware of Darwin's fame, the confluence of our names prompted me to explore the great biologist's life and work.

Mere curiosity expanded into a deep interest and ultimately stretched to near obsession. I don't intend to force that emotional balloon on you, but when, as a visitor to your country, I was invited to come with a paper this evening, I decided to write an essay as Darwin might have written it, in the first person. And, moreover, I chose to ignore, as it were, Darwin's demise in

1882.

So I speak to you not only as Darwin spoke of events in his lifetime but, in some part, and *in my own words*, I also speak as I believe Darwin would have spoken as to certain matters occurring *after* his death. Having adopted this technique, I must admit that as to some few thoughts I believe relevant to this paper *my own ideas* may have crept in. So here I go again - as Darwin:

Before summarizing the importance of the concepts for which I do claim credit, I want to disabuse anyone who credits, or the vast host that blames me, for discovering evolution.

Not only did I *not discover* evolution, and thus deserve no credit and no blame, but I certainly did not *invent* it as some of my detractors would have the rest of the world believe.

The basic idea that living creatures descended with modification had been entertained, long before I was born, by Buffon, Lamarck and even my own brilliant and talented grandfather, Erasmus Darwin. Erasmus was not only a physician and botanist but a noted poet and writer. Let me quote portions from his book, "Zoonomia", published in 1794, 65 years before publication of the Origin of Species:

"Would it be too bold to imagine that in the great length of time since the earth began to exist...that all warm blooded animals *have arisen from one living filament* which THE GREAT CAUSE... endued with animality, with *the power of acquiring new parts* and thus possessing the faculty of continuing to *improve by its own inherent activity*, and of *delivering down those improvements* by generation to its posterity, world without end."

Simply put, *my* contribution was not that evolution happens - but *how* evolution happens. It became clear to me that until someone explained the *manner* in which evolution occurred, the *existence* of evolution would not gain wide acceptance.

In developing my explanation, ultimately to be named "natural selection", some components came rather quickly to mind. Aside from the ideas I accumulated from my grandfather's writings, I was certainly aware of my countrymen's intense interest in the breeding of fine horse flesh. It was done with well defined objectives in mind, such as increased speed or increased endurance.

And, at a less fashionable level, the breeding of pigeons was immensely popular in England, with a view to concentrating special attributes in one species. I kept a large flock of my own, without attempting any special breeding, simply to give me adequate credentials for exchanging thoughts with the breeding fraternity.

In composing my thoughts for The Origin of Species I focused on plants and animals and

purposely delayed any treatment of the *human species*, putting aside some fairly obvious facts known to anyone familiar with comparative anatomy, that is, "that all the bones in a (man's) skeleton can be compared with corresponding bones in a monkey, bat or seal. So it *is* with his muscles, nerves, blood vessels and internal viscera. The *brain...* follows the same law...."

Moreover, the evidence of rudimentary similarities and of vestiges in man of components useful to his predecessors seems almost persuasive by itself, without the need for the approximately 700 pages of detail which I utilized for publication in 1871 of the "The Descent of Man, and Selection in Relation to Sex."

These rather obvious elements supported the existence of evolution but did not explain *the fundamental method* by which it happened. As to that pursuit, I count at least three great scientific minds which led to my finding the solution to Herschel's "mystery of mysteries."

The first was *geologic* - let's call it *Lyellian*; the second was *competitive* - let's call it *Malthusian*; and the third was *sexual* - let's call it *Mendelian*. The third hero, Mendel, requires a special explanation, which I will reserve until later.

Time. Time. How obsessed we are with measuring time; running our lives according to time and yet how little we understand its nature. Time of such length that it cannot be easily measured became the first of my three fundamental elements.

I met Charles Lyell, England's leading geologist, shortly before embarking on the *Beagle*. FitzRoy, himself with an interest in geology, gave me a pre-departure gift of Volume I of Lyell's three-volume work, "Principles of Geology". I managed to acquire and read the remaining two volumes along the way. Lyell opened my eyes to geology, and it has been said, and quite correctly, that without Lyell there would have been no Darwin.

As to *time*, I put it this way in *The Origin of Species*:
"The mind cannot possibly grasp the full meaning.. .of a hundred million years; it cannot add up and perceive the full effects of many slight variations, accumulated during an almost infinite number of generations."

To me, time became crucial. I had at first mindlessly accepted the idea that the earth was formed some 6000 years ago, a baseless and intrusive idea given credibility only by "authoritarian" Holy Writ. As I thought about it, 6000 years hardly seemed enough time for the natural changes I was already aware of. If there was one overriding fact that held me to the notion of change by natural selection, it was that in nature not much can be understood until one understands the influence of periods of time so immense that they are *beyond* understanding.

Who among us can get his mind around 13 billion years ago, the birth of the Big Bang; or

4.4 billion years ago, the formation of an earth of our very own; or even 150,000 years ago - the advent of homo sapiens.

My study of geology convinced me that the stretch of time since the earth's creation had been vast beyond imagination; that there had been, in fact, not just 6000 years, but enough time for immensely complicated living creatures to have evolved from a common ancestor.

It was interesting and, philosophically, perhaps most important, that Lyell did not suggest any *direction or goal* for the revelations of geology. Could these monumental cataclysms in the earth's surface occur *for no particular reason*? Was there *no purpose* in these gargantuan explosions, sudden creations of new land out of the sea, upheavals and crushing slides of formations seemingly impregnable to more change, but changing nonetheless?

Surely England's emerald isle, for example, was laid down at the very least to ultimately give voice to the English language; or was created to give substance to the grand minuet of English Kings and Queens down through history; or to provide Shakespeare, who ever he was, with a birthplace? All this geological stupendousness could not have happened *for no reason.....or could it?*

As to the *competition element* in evolution, I thank Thomas Malthus. Although it wasn't until 1838 that I read his "Essay on the Principle of Population", by then I was well aware of his basic idea:

"The natural tendency *of mankind* is to reproduce at such a rate that, unless slowed down, the number of humans will outstrip the food available to feed them."

To my mind, preoccupied with plants and animals, Malthus's point was even clearer for non-human life. Given that the mutual relations of all organic beings to each other and their physical conditions of life are so infinitely complex and close fitting, and that more are born than can possibly survive, *those with even a slight advantage will survive and procreate, while others will die.*

Time and struggle seemed indisputably to be critical elements toward my goal but the very essence of my thoughts about evolution was the existence of *variations*. Simply to determine what is a "species" and what is a "variation" is a very difficult, if not impossible, task. I not only had great difficulty in distinguishing *variations* from *species*, but, at first, I could not see why variations existed at all. Yet, without variations, there could be no evolution. And where do variations come from?

Sex came to my rescue. It is sex, the combining of slightly disparate elements, that brings variation and thus it was sex that brought me to the critical third element in my thinking. It didn't

require any particular scientific study to draw my attention; after all, I am the father of many children.

Sexual selection, as I came to understand it, produces offspring who are in many ways biologically the same as the parents but also in many ways biologically *different* than the parents. Sexual selection involves choices so inherently diverse as to result in a regular supply of variations. While I was deeply into my work, *how* this process achieves its exquisite results was explained by the Austrian priest, Gregor Mendel.

I hasten to say that, although we were contemporaries and I was well aware of the elements *leading* to reproduction, I didn't know of Mendel's work with pea plants. The common belief was that the fusion of sperm and egg would produce a blend similar to the mixture of red and white paint producing pink. Mendel showed that the progeny resulting from the sperm and egg were not a blend but were dependent upon dominant and recessive genes, separate units which remained so without blending.

Mendel's revelations, first published in 1866, introduced the science of genetics and fit neatly into my ideas. They so quickly followed my own limited understanding of the process by which sex created variations, that they fostered comprehension by others. He thus deserves to be included in my trio of contributors.

My term for the underlying process, which I first used in 1842, was "*natural selection*". Having concluded that the ingredients for evolution are time, competition and sex, I defined natural selection as the "preservation of favorable variations and the rejection of injurious variations." The combining of favorable variations produces favorable progeny, who then reproduce and expand the number of those with favorable factors.

Looking back, I can see that my work is much better understood as an integral part of a whole. Natural selection, seen independently, seems improbable. Seen as an integral part of a slowly progressing panorama of reshaping continents, a churning geology, climate change, the solar system, our entire universe, always slowly but continuously changing, is to see more clearly the logic and truth of natural selection.

The term, "natural selection", was troublesome to some, who suggested that the word "selection" injected an anthropomorphic element into the process: that is, that *God* was *selecting* the strong parents of strong progeny. Direct divine coaching in each of these couplings was certainly not what I meant by the phrase "natural selection". But I was satisfied that I had found the correct name.

Ultimately, Herbert Spencer, the English philosopher, suggested the phrase "survival of

the fittest"; others adopted it and I finally accepted it as a tolerable substitute.

Lack of adequate time makes it inconvenient for me to fully describe the tumultuous episode regarding *primacy* as between myself and Alfred Russel Wallace, the fine field biologist who, without any of the advantages I enjoyed, managed to conceive and describe in writing the same process I had named "natural selection". Wallace, a thorough gentleman, despite the tendentious allegations of others, accepted my early notes and letters as establishing my primacy. We became good friends and, I am proud to say, he was one of my pallbearers at my funeral in Westminster Abbey.

Yes, the Beagle voyage had changed my mind. I underwent a mental metamorphosis, not due to an epiphany on the Galapagos Islands, as some travel agencies would have you believe, but due to the resolution of a troubling dispute going on in my mind as to my vocation.

It became so consuming that I couldn't be sure whether my ideas about Christian theology were drawing me further into the concept of natural selection or my ideas about natural selection were leading me further away from Christianity.

I had changed my mind about the church as a career, realizing that my principal interest was biology, not theology. That did not mean that I simply rejected out of hand the Eden story and the miracle stories in the New Testament.

It was not until I was forty years old that I gave up Christianity. To my mind it was simply not supported by evidence. I did, however, prefer the label of "agnostic" to that of "atheist" despite my friend Aveling's assertion that "the former was simply atheist writ respectable and the latter was simply agnostic writ aggressive."

By the time I published *The Origin of Species*, and despite my conviction regarding the unreliability of Christianity, I could not escape the idea that there must be a *First Cause*. I suppose I could then have been considered a *deist*. Indeed, in the closing paragraphs of *The Origin of Species* I speak of the ennobling effect and grandeur in life developing over eons of time from a First Cause, "not as the result of blind chance or necessity". I remind you that I then knew nothing of the *Big Bang* - nor did anyone else.

The contradiction between evolution by natural selection and the historicity of the Eden story did not necessarily mean that natural selection was a challenge to those religions which confine themselves to spiritual meaning, with no dependency on historical claims. Thus, by no means, did I see myself as creating a challenge to *all* religion.

And, of course, it was highly dubious that the scriptural account, developed over some hundreds of years BCE, was ever *intended* as history; instead, it was a collection of figures of

speech: metaphor, myth, symbolism and allegory.

Moreover, the ultimate detente among philosophical, if not political, adversaries apparently encouraged St. Augustine's casting of Adam and Eve as the poster couple for advertising the basic nature of humanity as "Original Sin". This followed apparently, by inferring a more - than - passing interest in their own nakedness, and condemning their disobedience of God in exploring the difference between good and evil.

To that subject was added, apparently as a fulfillment of Old Testament prophecy, the bone-chilling rescue for all believers in the redemptive drama of Jesus' crucifixion and resurrection.

Whatever else it was, the detente was a literary tour de force. The Jewish Bible and The New Testament were combined so adroitly that, in my time and yours, many worshippers in Christian pews easily lift the single volume without realizing what amazing philosophical weight lifters they have become.

Moreover, due apparently to complicated anthropological reasons, particularly in your country since the mid-nineteenth century, *the Bible itself has*, for many enthusiasts, *become* Christianity. The inerrancy of scripture is their battle cry and television has become their ultimate megaphone. It is often used to broadcast the obvious *errancy* of my distasteful idea.

The more sophisticated, with somewhat muted megaphones, carry the banners of "intelligent design" and a purposeful meaning of life, into the fray, the former ignoring the many centuries of medical experience demonstrating that the design, as marvelous as it is, has not always seemed so intelligent.

The teleological question, as to whether natural selection demonstrates a lack of purpose in life, is more intriguing. *It seems undeniable that natural selection produces useful traits, not by chance, but by the ^sexual decisions" that variant organisms make.*

But the *mutations*, which are essential to *variations*, must be considered random events. They are not *regular* in DNA replication; *which* genes will mutate is unknown, and mutations happen whether or not they are *helpful*. In fact, most mutations are damaging, not helpful.

Without mutations there are no variations and without variations there is no evolution. These random mutations inserted as an antecedent to the ultimate selection and mating seems to some to deny any external purpose to life, and to suggest that whatever purpose there is has been formulated by humankind itself.

In this view, it follows that in the absence of an external purpose there is no omniscient, omnipotent God. As the eminent biologist E.O. Wilson in his book, "On Human Nature" puts it:

"The first dilemma is that we have no particular place to go. The species lacks any goal external to its own biological nature."

Of course, if one, perhaps subconsciously, *postulates* an omniscient, omnipotent God, it would seem that almost *any* human activity can be justified as fulfilling an ultimate purpose of God.

Is it possible that the enormous egotism of humans has made us blind to our own true nature? Is it possible that there is no distinct *human* nature but only various stages of a biological nature that must be more carefully examined if we are ever to understand ourselves?

And what does it say about us when we are able to manipulate our own "evolution" by genetic engineering? I must confess fondness for the label "Darwinian" but if it must be replaced, I have thought that the name "sapiozoic" might be appropriate for a new space on the geologic scale in which that cataclysmic eugenic event occurs.

Thus, the philosophical implications of evolution by natural selection have become so bewildering, and yet so fascinating, that I sometimes wonder if my profundity has been hidden behind my importance.

With all this confusion it was inevitable that *some perceptive soul* would, quite rightly, think about the fate of *Adam and Eve*. These two, after all, have been old friends, old standbys, too much a part of us to be dismissed lightly.

Although you may think that I would be the last to worry about Old Testament fantasies, you should know that my beloved wife, Emma, a devout Christian, whose leaps of faith seemed boundless, was deeply troubled by the implications of my work. In deference to her, I have been inclined to make allowances with respect to issues that seem harmless. Thus, given the evidence that we were not created out of whole cloth but accumulated bit by bit, do we *need* ... do we *want*, a new Adam?, a new Eve?

The perceptive soul I was talking about, *Dr. John MacLeod*, in a paper read to you in June, 2006, suggested the appearance on the world stage of a "*genetic Adam and Eve*". I understand Dr. MacLeod to have suggested this as *a fait accompli*, simply the new reality, without his venturing into the questions of necessity and desire.

So, regardless of whether you have seen Adam and Eve as myth, metaphor, symbol, allegory or reality, anyone who accepts evolution by natural selection must now consider replacing the old Adam with a "Y chromosome Adam", and replacing the old Eve with a "mitochondrial Eve".

As a couple, however, they are a *singularity*. They cannot simply be retired, to be invited back for anniversaries and such things. Naming new additions simply won't do. The only

available solution seems to be either retention or elimination. I must say, however, that I shudder at the prospect of elimination.

I have always thought well of the stalwart Adam, who has impressed me with his fine physique and his apparent sensitivity and thoughtfulness. As to the classically beautiful Eve, I have had quite different and vivid feelings in other parts of my anatomy. As I gaze on paintings of this beautiful couple, pleased, but wondering about the efficacy of calling them naked when there was no such thing as clothes, I do not regret the absence of a seamstress.

I remember, as a young lad just edging into puberty, being fascinated by the world's first fig leaf camouflage carefully placed between Eve's comely thighs. Some time later I first heard the expression "original sin" and, until my father explained, I had trouble understanding the connection between Eve's thighs and sin, whether original or not.

I have always wondered at the delicacy of the Eden authors who distained any romantic scenes, leaving their readers to infer the physical relationship between Adam and Eve. There is, of course, the wag, left out of the text for some unknown reason, who putatively reported that when Eve asked Adam, "Adam, do you love me?", Adam replied, "Who else?"

Presumably, if we decide to replace Adam and the beautiful Eve, this time we would like to get it right. One could, of course, bestow this inestimable honor on a Y chromosome and a mitochondria organelle, as Dr. MacLeod suggests. But in the long history of evolving cells, *exactly which* chromosome and organelle would we choose? That could be troublesome, and, in any event, the fan club of any such Adam and Eve would be limited to serious minded geneticists.

Also, if chromosomes and mitochondria don't satisfy, I'm afraid, given the long, slow evolution during which homo sapiens branched off, it seems impossible to say exactly *when* our ancestors reached that point at which the high honor of such names could be bestowed.

It gives one pause, does it not, to think about the imagined *appearance* of a new Adam, a new Eve, in an array of Zinjanthropus, Homo habilis, Australopithecus afarensis (known to most of us as Lucy) or other such Paleozoic celebrities along the way. If nothing else, the *aesthetic* risk involved in making a choice from such a collection seems rather daunting, to say the least.

But, you protest, no one knows what Adam and Eve looked like and my anatomical stirrings were based, of course, on renderings by a series of imaginative artists. I rejoin by repeating that our choices from a long lineup of incipient Adams and Eves would also be based on unknown figures.

In this day of insistent realism, at best they would consist of fossilized fragments of bone

wired together, not by gloriously talented artists, but by workaday anthropologists struggling to recreate Eve's lovely thighs and bosom, with only dabs of plaster to do the job.

If we abandon Adam and Eve, what happens to Original Sin? As to the disobedient eating of the apple, and the haste with which Adam *blamed* Eve and Eve *blamed* the serpent, have we no respect for one of our most time-honored, virtually universal custom of blaming others for our misdeeds?

And, as my epigraph suggests, Adam and Eve seem to be an inextricable part of the Genesis story. If they are to be replaced, possibly by a Y chromosome and mitochondria, would we not, in the great deity debate, be changing the burden of proof, in order to consider it on a clean slate? Thus, would not the question become, what is the evidence that there *is* a God? Not, what is the evidence that there *is no God*?

As I think back on how all this happened, I can't fail to remember how fate bestowed Uncle Josiah with enough common sense to overcome my father's opposition to my Beagle voyage; how fate made my nose just barely felicitous enough to meet Captain Fitzroy's high standards; how fate opened for me a window into the inquisitive mind of John F. W. Herschel to see that I was pursuing the "mystery of mysteries".

Thus, I have been led by fate, that mysterious force, to the very question posed by the estimable Dr. MacLeod, a momentous question indeed. I'm afraid it must be answered. A new Adam? A new Eve? Despite all the uncertainties, reluctantly - I say yes. We must search for a new Adam, a new Eve. But surely not without a proper send-off to their predecessors. They have, after all, performed Herculean service.

If Adam and his lovely wife are not truly the very first, they are nonetheless our loyal exemplars for the joys and sorrows of life; for the profundity of human sexuality and other useful varieties of sin. Adam and Eve certainly don't *deserve* an *unheralded* exile. I think, instead, that they deserve a standing ovation.

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Autobiographies	Charles Darwin
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Charles Darwin - The Power of Place	Janet Browne

Charles Darwin's Letters - A Selection
Darwin
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The New Treasury of Science
Darwin's Dangerous Idea
A Delicate Arrangement
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A Theory of Evolution:
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On Human Nature

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