

IMAGINATION, SPECULATION, SUPPOSITION, ASSUMPTION and EXTRAPOLATION

ARN Combined Keywords

Quote Report

#1

Edited by Kevin Wirth

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PREFACE

Thanks for ordering this special quote report - I hope you'll enjoy reading it. Each section listed in the Table of Contents refers to quotes based on specific keywords we think you'll find interesting with respect to Darwinism or evolution. It is our hope that the quotes you are about to read in this report will surprise, alarm, or challenge your thinking about commonly accepted assumptions or aspects about the origin and evolution of life.

First, we'd like to call to your attention how this report was created. As the ARN Director of Product Development, it has been my privilege to oversee the design and creation of a quotes database that is growing all the time. The quotes found in this database generally present an issue related to some aspect of naturalistic origins, and are therefore useful in challenging the claim that Darwinism deserves to be accepted without question, or that it has been overwhelmingly confirmed and is as reliable as the theory of gravity. I would suggest that questions are not only required when approaching a Darwinian interpretation of the evidence on origins, but these and other quotes in our database confirm this over and over. Keep in mind, we didn't make this stuff up – the quotes come from highly recognized and respected scientists, philosophers, legal minds, and other individuals (some of them are the cream of the crop) who have contributed their thoughts on some aspect(s) of the facts, ideas, and controversy surrounding origins.

If you'd like to gain access to more quotes and quote reports, please spend a couple of minutes and sign up (it's free...) at www.myevolutionquotes.com (MEQ). I hope you'll be pleasantly surprised by what you find there. Let me just say at this point, that there are currently over 5,000 quote reports available for you to peruse, and that number is growing all the time. Please also keep in mind that your financial support to ARN keeps this project going. If you'd like to send a donation, please do so by going to PAYPAL and send your donation to arn@xxx.org

Second, you'll notice that many of the citations for the quotes in this report have not yet been verified, or may be missing some pieces of information. That's because we need more people to work with us to verify quotes. If you'd like to participate with us as a contributing member of the ARN QUOTES PROJECT, then please accept my invitation to sign up and let us know what you'd like to do. Just go and visit this page: www.myevolutionquotes.com/signup. One of our key objectives is to ensure that the MEQ database presents accurate quote information, but we can't do that without the help of our contributing members. We've made it possible for you to distinguish between quotes that have been verified, and those that have not yet been

reviewed. Over the course of time, quotes at MEQ are constantly being upgraded and verified. To learn more about this, please visit our FAQ page [here](#).

Third, I'd like to take a moment and point out something I think will become obvious as you begin reading the quotes related to the keywords in this report. When brought together, they form a very powerful challenge to many assumptions held by thousands of students, professors, science professionals, and laymen. And, that's exactly why I created this report. Many critics of Darwin skeptics are quick to say that quotes challenging aspects of Darwinism are often presented dishonestly or out of context. While I recognize that this may be true at times, it's also just as obvious to anyone reading the quotes found at the MEQ site that such charges are not true the majority of the time. But, to quell such concerns, the MEQ website offers critics a way to address such concerns. They can either sign up as a contributing member as a quote Admin or Verification agent and ensure that the quotes are being presented accurately, or they can add comments to any verified quote challenging why the quote is out of context, no longer applicable because the author subsequently changed his view(s), or otherwise inappropriate.

The bottom line here is, we DO care about making sure that if any of the quotes presented in this report or at the MEQ web site do not stand on their own or need some additional info – you get to participate in letting everyone know about it. In that sense, MEQ is a type of social web site – and we hope it becomes THE site you will refer to when you want to quickly find accurate quotes related to origins topics. This report is just the first of many I hope you'll come to enjoy and rely on down the road.

Best regards and happy reading,

Kevin H. Wirth, ARN Director of Product Development and Media Relations

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IMAGINATION

(includes the keywords "imagine", "imaginary")

Quotes from **Book** sources

"Botanists construct as best they can an imaginary picture of the missing links, so as to complete the sequence of steps in the evolution of the plant kingdom . Obviously such a practice is mainly guesswork, but, like many such hypotheses, has been very useful in organizing subject matter and stimulating research...the record of the rocks reveals practically nothing of the earlier chapters in the evolution of the plant kingdom. For these, therefore, we must rely upon the types of plants still in existence, plus a liberal measure of scientific **imagination**."

Coulter M. C. in *The Nature of the World and of Man*. H. H. Newman, Garden City, NY (0), p.216.

"The chief distinction in the intellectual powers of the two sexes is shewn [shown] by man attaining to a higher eminence in whatever he takes up, than woman can attain-whether requiring deep thought, reason, or **imagination**, or merely the use of the senses and hands."

Darwin, Charles in *The Descent of Man*. (0), p.327.

"The fossil record pertaining to man is still so sparsely known that those who insist on positive declarations can do nothing more than jump from one hazardous surmise to another and hope that the next dramatic discovery does not make them utter fools... Clearly, some people refuse to learn from this. As we have seen, there are numerous scientists and popularizers today who have the temerity to tell us that there is 'no doubt' how man originated. If only they had the evidence..."

Fix, William R. in *The Bone Peddlers*. Macmillan, New York, NY (1984), p.150.

"The absence of fossil evidence for intermediary stages between major transitions in organic design, indeed our inability, even in our **imagination**, to construct functional intermediates in many cases, has been a persistent and nagging problem for gradualistic accounts of evolution."

Gould, Stephen Jay in ???? (1982), p.140.

"Since we hardly know anything about the major types of organization, suggestions, and suggestions only, can be made. How can one confidently assert that one mechanism rather than another was at the origin of the creation of the plans of organization, if one relies entirely upon **imagination** to find a solution? Our ignorance is so great that we dare not even assign with any accuracy an ancestral stock to the phyla Protozoa, Arthropoda, Mollusca, and Vertebrata. The lack of concrete evidence relative to the "heyday" of evolution seriously impairs any transformist theory. In any case, a shadow is cast over the genesis of the fundamental structural plans and we are unable to eliminate it."

Grasse, Pierre in "Chapter I: From the Simple to the Complex--Progressive Evolution, Regressive Evolution" in *Evolution of Living Organisms: Evidence for a New Theory of Transformation*. Academic Press, New York, NY (1977), 2nd edition, p.17.

"Another beauty - and an important weakness - of the theory of evolution by natural selection is that with a little **imagination** it is possible to come up with an explanation of anything. Evolutionary biologists like to spend their time making up stories about how selection has moulded the most unlikely characteristics. Sometimes they even turn out to be right."

Jones, Steve in *The Language of the Genes: Biology, History and the Evolutionary Future*. Flamingo, London, (1994), p.196.

"When preconception is so clearly defined, so easily reproduced, so enthusiastically welcomed and so long accomodated as in the case of Piltdown Man, science reveals a disturbing predisposition towards belief before investigation."

Reader, John in *Missing Links*. Collins, London, (1981), p.81.

"At this point, it is necessary to reveal a little inside information about how scientists work, something the textbooks don't usually tell you. The fact is that scientists are not really as objective and dispassionate in their work as they would like you to think. Most scientists first get their ideas about how the world works not through rigorously logical processes but through hunches and wild guesses. As individuals they often come to believe something to be true long before they assemble the hard evidence that will

convince somebody else that it is. Motivated by faith in his own ideas and a desire for acceptance by his peers, a scientist will labor for years knowing in his heart that his theory is correct but devising experiment after experiment whose results he hopes will support his position."

Rensberger, Boyce in *How the World Works*. William Morrow & Co., New York, NY (1986), p.1718.

"[T]he absence of fossil evidence for intermediate stages between major transitions in organic design, indeed our inability, even in our **imagination**, to construct functional intermediates in many cases, has been a persistent and nagging problem for gradualistic accounts of evolution."

Smith, John Maynard and Szathmary, Eors in *Evolution Now: A Century After Darwin*. W.H. Freeman and Co., (1982), p.140.

"One suspects that the only evolution that has occurred in the case of Peking Man has been in the **imagination** of those making the reconstruction."

Taylor, Ian T. in *In the Minds of Men - Darwin and the New World Order*. TFE Publishing, Toronto, Ontario (1984), 1st edition, p.237.

"...Personal convictions, simple possibilities, are presented as if they were proofs, or at least valid arguments in favor of the theory... The demonstration can be modified without difficulty to fit any conceivable case. It is without scientific value, since it cannot be verified; but since the **imagination** has free rein, it is easy to convey the impression that a concrete example of real transmutation [change of one species to another] has been given."

Thompson, W.R. in *Introduction to The Origin of Species*. E.P. Dutton and Co., New York, NY (1956), 1st edition.

Quotes from **Periodical** sources

"The absence of fossil evidence for intermediary stages between major transitions in organic design, indeed our inability, even in our **imagination**, to construct functional intermediates in many cases, has been a persistent and nagging problem for gradualistic accounts of evolution."

Gould, Stephen J.. 1980. *Is a New and General Theory of Evolution Emerging in Paleobiology*, 6:, January.

"Echoing the criticism made of his father's habilis skulls, he added that Lucy's skull was so incomplete that most of it was '**imagination** made of plaster of Paris', thus making it impossible to draw any firm conclusion about what species she belonged to"

Leakey, Richard E., May, 1983, in *The Weekend Australian*.

"Unfortunately, the vast majority of artist's conceptions are based more on **imagination** than on evidence. But a handful of expert natural-history artists begin with the fossil bones of a hominid and work from there. Much of the reconstruction, however, is guesswork. Bones say nothing about the fleshy parts of the nose, lips, or ears. Artists must create something between an ape and a human being; the older the specimen is said to be, the more apelike they make it.... Hairiness is a matter of pure conjecture. The guesswork approach often leads to errors"

Rensberger, Boyce. 1981, in *Science...*

"Even with DNA sequence data, we have no direct access to the processes of evolution, so objective reconstruction of the vanished past can be achieved only by creative **imagination**."

Takahata. 1995. *A genetic perspective on the origin and history of humans in Annual Review of Ecology and Systematics*. ...

Quotes from **Other** sources

"I here simply note that the concept of evolution in general (including cosmic, organic and cultural evolutions) has itself captured the **imagination** of our society in this century for various reasons, among which has been a struggle to get free of religious bonds standing in the way of various projects. ..."

Salthe, Stanley N. in *Analysis and critique of the concept of Natural Selection (and of the Darwinian theory of evolution) in respect to its suitability as part of Modernism's origination myth, as well as of its ability to explain organic evolution*, 1963.

Quotes from **Book** sources

"Nobody can **imagine** how nothing could turn into something. Nobody can get an inch nearer to it by explaining how something could turn into something else."

Chesterton, G.K. in *The Everlasting Man*. Hodder & Stoughton, London, (1925), p.21.

"Much evidence can be advanced in favour of the theory of evolution from biology, biogeography and paleontology, but I still think that to the unprejudiced, the fossil record of plants is in favour of special creation. Can you **imagine** how an orchid, a duckweed, and a palm have come from the same ancestry, and have we any evidence for this assumption? The evolutionist must be prepared with an answer, but I think that most would break down before an inquisition."

Corner, E.J.H. in *Evolution in Contemporary Botanical Thought*. Quadrangle Books, Chicago, IL (1961), p.97.

"A natural and fundamental question to ask on learning of these incredibly interlocking pieces of software and hardware is: 'How did they ever get started in the first place?' It is truly a baffling thing. One has to **imagine** some sort of a bootstrap process occurring, somewhat like that which is used in the development of new computer languages--but a bootstrap from simple molecules to entire cells is almost beyond one's power to **imagine**. There are various theories on the origin of life. They all run aground on this most central of all central questions: 'How did the Genetic Code, along with the mechanisms for its translation (ribosomes and RNA molecules), originate?' For the moment, we will have to content ourselves with a sense of wonder and awe, rather than with an answer. And perhaps, experiencing that sense of wonder and awe is more satisfying than having an answer--at least for a while"

Hofstadter, Douglas R., Godel, Escher, Bach in *An Eternal Golden Braid*. Vintage, New York, NY (1980), p.548.

"Ironically it is this apparent strength of the theory-that it can explain so much-which may be its Achilles' heel. Neo-Darwinism is incredibly ambitious; it attempts to explain a vast part of reality, all the subtlety and complexity of nature, in one breath. But do all the individual pieces of this cosmic jigsaw puzzle actually fit together? It is all very well to half close your eyes and **imagine** you see a coherent picture, but what is it like in close-up?"

Leith, B. in *The Descent of Darwin: A Handbook of Doubts about Darwinism*. Collins, London, (1982), p.20.

"A peculiarity of Darwinism, both in biology and in other fields, is that it explains too much. It is very hard to **imagine** a condition of things which could not be explained in terms of natural selections. If the state of various elements at a given moment is such and such then these elements have displayed their survival value under the existing circumstances, and that is that. Natural selection explains why things are as they are: It does not enable us, in general, to say how they will change and vary. It is in a sense rather a historical than a predictive principle and, as is well known, it is rather a necessary than a sufficient principle for modern biology."

MacRae, D.C. in *Darwinism and the Social Sciences*, Barnett, S.A., ed. Mercury Books, London, (1962), p.304.

"The [genetic] code is meaningless unless translated. The modern cell's translating machinery consists of at least fifty macromolecular components WHICH ARE THEMSELVES CODED IN DNA: THE CODE CANNOT BE TRANSLATED OTHERWISE THAN BY PRODUCTS OF TRANSLATION [emphasis original]. It is the modern expression of omne vivum ex ovo [all life from eggs, or idiomatically, what came first, the chicken or the egg?]. When and how did this circle become closed? It is **exceedingly** difficult to **imagine**."

Monod, Jacques in *Chance and Necessity*. Collins, London, (1972), p.134-135.

"If we **imagine** that the earliest self-propagating substances, were something like viruses that depended on organic material it is not difficult to suppose that further development of structures such as cell membranes and complex metabolic pathways could lead to larger, more complex organisms....."

Pearse, V., J. Pearse, M. Bushsbaum, and R. Buchsbaum in *Animals Without Backbones*. University of Chicago Press, Chicago, IL (1987), 3rd edition, p.6.

"The origin of the [genetic] code is perhaps the most perplexing problem in evolutionary biology. The existing translational machinery is at the same time so complex, so universal) and so essential that it is hard to see how it could have come into existences or how life could have existed without it. The discovery of ribozymes has made it easier to **imagine** an answer to the second of these questions, but the transformation of an

'RNA world' into one in which catalysis is performed by proteins, and nucleic acids specialize in the transmission of information, remains a formidable problem"

Smith, John Maynard and Szathmary, Eors in *The Major Transitions in Evolution*. W.H. Freeman and Co., Oxford, (1995), p.81.

"The big bang, the most cataclysmic event we can **imagine**, on closer inspection appears finely orchestrated."

Smoot, George in *Wrinkles in Time*. William Morrow & Co., New York, NY (1993), p.189.

"It is not difficult to **imagine** how feathers, once evolved assumed additional functions, but how they arose initially presumably from reptilian scales, defies analysis."

Stahl, Barbara in *Vertebrate history: Problems in Evolution*. Dover, New York, NY (1985), p.349.

"The models we consider are of three sorts: those that extrapolate processes of speciation to account for higher taxa via divergence, those that invoke selection among species, and those that emphasize that many higher taxa originated as novel lineages in their own right, not only as a consequence of species-level processes. It is in this latter class of model that we believe the record favors." "... many of the large populations should have been preserved, yet we simply do not find them. Small populations are called for, then, but there are difficulties here also. The populations must remain small (and undetected) and evolve steadily and consistently toward the body plan that comprises the basis of a new phylum (or class). This is asking a lot. Deleterious mutations would tend to accumulate in small populations to form genetic loads that selection might not be able to handle. Stable intermediate adaptive modes cannot be invoked as a regular feature, since we are then again faced with the problem of just where their remains are. We might **imagine** vast arrays of such small populations fanning continually and incessantly into adaptive space. Vast arrays should have produced at least some fossil remains also. Perhaps an even greater difficulty is the requirement that these arrays of lineages change along a rather straight and true course --- morphological side trips or detours of any frequency should lengthen the time of origin of higher taxa beyond what appears to be available. Why should an opportunistic, tinkering process set on such a course and hold it for so long successfully among so many lineages?"

Valentine, J., and Erwin, D. in "Interpreting Great Developmental Experiments: The

Fossil Record" in *Development as an Evolutionary Process*, Raff, Rudolf A. and Elizabeth C. Raff, ed. Alan R. Liss, Inc., New York, NY (1985), p.71.

Quotes from **Periodical** sources

"The late biologist Gerald Soffen, who oversaw the life-seeking experiments carried out by NASA's Viking probes to Mars, once outlined the early milestones in the evolution of living processes: development of organic compounds, self-replication of those compounds, appearance of cells isolating the compounds from their environment, photosynthesis enabling cells to use the sun's energy, and the assembly of DNA. "It's hard to **imagine** how these things could have happened," Soffen told me before his death in 2000. "Once you reach the point of a single-cell organism with genes, evolution takes command. But the early leaps — they're very mysterious.""

Easterbrook, Greg. December, 2002. [*The New Convergence*](#) in *Wired Magazine*, 10(12).

"Given the prominence of the evolutionary perspective in your work, can you comment on the current efforts to present Intelligent Design as an alternative to biological evolution in public schools in America? A: It is a sorry commentary on the state of public understanding of science that a large fraction of the US population is willing to accept that Intelligent Design (ID), essentially a tarted-up version of creationism, and evolution are in some sense parallel or comparable. The ID argument, as near as I can tell is These biological organisms are so complex that I cannot **imagine** how they got to be like they are. If I cannot understand that, nobody can understand it. Better call in God. To think that ID in any way provides evidence against biological evolution shows a lack of even a rudimentary understanding of the nature of scientific evidence and scientific argument. At the risk of sounding cynical, though, I would venture that most of the people pushing ID do not give a rat's patootie about having a scientific discussion over evolution or considering what the data might tell us; they're simply looking for a way to insert their own peculiar religious beliefs into public education."

Hendrix, Roger, in *Current Biology*, 16(16), August 22, 2006.

"It is entirely in line with the accidental nature of natural mutations that extensive tests have agreed in showing the vast majority of them to be detrimental to the organism in its job of surviving and reproducing, just as changes accidentally introduced into any artificial mechanism are predominantly harmful to its useful operation."

Muller, H. J., 1955. *How Radiation Changes the Genetic Constitution* in *Bulletin of the Atomic Scientists*, 11(9).

Quotes from **Book** sources

"Any suppression which undermines and destroys that very foundation on which scientific methodology and research was erected, evolutionist or otherwise, cannot and must not be allowed to flourish ... It is a confrontation between scientific objectivity and ingrained prejudice - between logic and emotion - between fact and fiction ... In the final analysis, objective scientific logic has to prevail - no matter what the final result is - no matter how many time-honoured idols have to be discarded in the process ... After all, it is not the duty of science to defend the theory of evolution and stick by it to the bitter end - no matter what illogical and unsupported conclusions it offers ... If in the process of impartial scientific logic, they find that creation by outside intelligence is the solution to our quandary, then let's cut the umbilical cord that tied us down to Darwin for such a long time. It is choking us and holding us back ... Every single concept advanced by the theory of evolution (and amended thereafter) is **imaginary** as it is not supported by the scientifically established probability concepts. Darwin was wrong... The theory of evolution may be the worst mistake made in science."

Cohen, I.L. in *Darwin Was Wrong - A Study in Probabilities*. New Research Publications, Inc., Sunderland, NY (0), p.6-8, 209-210, 214-215.

SPECULATION

(includes the keyword "speculate")

Quotes from **Book** sources

"It is, however, when we come to consider the actual course or lineage in the subsequent diversification of organisms...that we meet with disappointment and frustration if we rigorously distinguish between evidence and **speculation**...At this time there are no known living or fossil forms which unequivocally link any two of the proposed divisions."

Bold, Harold C. in *Morphology of Plants*. Harper & Row, (1967), p.515.

"The concept of organic evolution is very highly prized by biologists, for many of whom it is an object of genuinely religious devotion, because they regard it as a supreme integrative principle. This is probably the reason why severe methodological criticism employed in other departments of biology has not yet been brought to bear on evolutionary **speculation**."

Conklin, Edwin G. in *Man Real and Ideal*. Scribner, (1943), p.147.

"Feathers are features unique to birds, and there are no known intermediate structures between reptilian scales and feathers. Notwithstanding **speculations** on the nature of the elongated scales found on such forms as *Longisquama* ... as being featherlike structures, there is simply no demonstrable evidence that they in fact are. They are very interesting, highly modified and elongated reptilian scales, and are not incipient feathers."

Feducia, Alan in "On Why Dinosaurs Lacked Feathers" in *The Beginning of Birds*. Jura Museum, Eichstatt, West Germany (1985), p.76.

"[m]ost hominid fossils, even though they serve as a basis for endless **speculation** and elaborate storytelling, are fragments of jaws and scraps of skulls"

Gould, Stephen J. in *The Panda's Thumb*, (1980), p.126.

"With one exception, hardly any invertebrate chordates are known as fossils...In the absence of additional fossil evidence, most **speculations** on vertebrate ancestry have focused on the living cephalochordates and tunicates."

Hickman, C.P.; Roberts, L.S.; and Larson, A. in *Integrated Principles of Zoology*. McGraw Hill, New York, NY (2001), p.499-500.

"Let us recognize these **speculations** for what they are. They are not physics but, in the strictest sense, metaphysics. There is no purely scientific reason to believe in an ensemble of universes. By construction these other worlds are unknowable by us. A possible explanation of equal intellectual respectability - and to my mind greater economy and elegance would be that this one world is the way it is because it is the creation of the will of a Creator who purposes that it should be so."

Polkinghorne, John C. in *One World: The Interaction of Science and Theology*. SPCK, London, (1987), p.80.

"It does not seem strictly impossible that mutations should have introduced into the animal kingdom the differences which exist between one species and the next...hence it is very tempting to lay also at their door the differences between classes, families and orders, and, in short, the whole of evolution. But it is obvious that such an extrapolation involves the gratuitous attribution to the mutations of the past of a magnitude and power of innovation much greater than is shown by those of today."

Rostand, Jean in *A Biologist's View*. William Heinemann Ltd., London, (1956).

"This is true of all thirty-two orders of mammals...The earliest and most primitive known members of every order already have the basic ordinal characters, and in no case is an approximately continuous sequence from one order to another known. In most cases the break is so sharp and the gap so large that the origin of the order is speculative and much disputed... This regular absence of transitional forms is not confined to mammals, but is an almost universal phenomenon, as has long been noted by paleontologists. It is true of almost all orders of all classes of animals, both vertebrate and invertebrate...it is also true of the classes, themselves, and of the major animal phyla, and it is apparently also true of analogous categories of plants."

Simpson, George Gaylord in "Chapter III: Micro-Evolution, Macro-Evolution, and Mega-Evolution" in *Tempo and Mode in Evolution*, L. C. Dunn, ed. Hafner Publishing Company, Inc., New York and London, NY (1965), Reprint, p.106,107.

Keywords: gap, **speculation**, transitional, fossils, classes, phyla

"The search for Precambrian fossils has been intense and often disheartening. Few traces have been found, and of those few some later proved not to be organic or not to be Precambrian. ...fossils in Precambrian rocks... ...consist of single cells and simple aggregation of cells. ...they cannot be exactly placed in any groups still alive today, but they resemble bacteria and blue-green algae, confirming the view that these are the most primitive fully developed living organisms. This major mystery of the history of life has naturally excited a great deal of argument and **speculation**."

XXX. Simpson, George Gaylord in "Chapter II: The Beginnings of Life" in *The Meaning of Evolution*. Yale University Press, New Haven and London, CT (0), Revised edition, p.18,19,20.

Keywords: Cambrian explosion, origin of phyla, origin of metazoa, Fossil Record, fossil, transitional forms, intermediate form, intermediate, transition

"A long-enduring and regrettable effect of the success of the Origin was the addiction of biologists to unverifiable **speculation**. 'Explanations' of the origin of structures, instincts, and mental aptitudes of all kinds, in terms of Darwinian principles, marked with the Darwinian plausibility but hopelessly unverifiable, poured out from every research centre. The **speculations** on the origin and significance of the resemblances between animals, or between animals and their environment and of the striking colour patterns they often exhibit, constitute one of the best-known examples."

Thompson, W.R. in *Introduction to The Origin of Species by Means of Natural Selection*. J.M. Dent & Sons, London, (1967), 6th edition, p.xxi.

Quotes from **Periodical** sources

"Beginning with Lewis, there has been much **speculation** that changes in Hox gene number may have contributed to morphological evolution. Such ideas are a variation on the old theory that duplicating genes, particularly developmental control genes, may be an initial step in a process that increases regulatory circuit complexity, leading to increased morphological complexity, whereas elimination of control genes may be an initial step leading to less morphological complexity. In one case, gene-replacement experiments showed that two mammalian Hox paralogs have nearly identical functions in a variety of tissues, which may be an example of a Hox duplication and functional divergence at an initial stage. There is currently no rigorous evidence that connects the

loss or gain of specific Hox genes or gene complexes with specific morphological changes in different lineages, but there are a number of intriguing correlations."

Lemons, Derek and William McGinnis. 2006. *Genomic Evolution of Hox Gene Clusters* in *Science*, 313(5795).

"The modular addition of innovations to primitive structures, although speculative, has also been proposed as a mechanism for the genesis of other vertebrate organs and body structures."

Olson, Eric N.. September 29, 2006. *Gene Regulatory Networks in the Evolution and Development of the Heart* in *Science*, 313(5795),1922-1927.

"There is no agreement on the extent to which metabolism could develop independently of a genetic material. In my opinion, there is no basis in known chemistry for the belief that long sequences of reactions can organize spontaneously -- and every reason to believe that they cannot. The problem of achieving sufficient specificity, whether in aqueous solution or on the surface of a mineral, is so severe that the chance of closing a cycle of reactions as complex as the reverse citric acid cycle, for example, is negligible."

Orgel, Leslie. 1998. [The origin of life -- a review of facts and speculations](#) in *Trends in Biochemical Sciences*, 23.

"Take some matter, heat while stirring and wait. That is the modern version of Genesis. The 'fundamental' forces of gravity, electromagnetism and the strong and weak nuclear forces are presumed to have done the rest... But how much of this neat tale is firmly established, and how much remains hopeful **speculation**? In truth, the mechanism of almost every major step, from chemical precursors up to the first recognizable cells, is the subject of either controversy or complete bewilderment"

Scott, A. May, 1985. *Update on Genesis* in *New Scientist*, 106(0).

Quotes from **Other** sources

XXX "...I am quite conscious that my **speculations** run beyond the bounds of true science...It is a mere rag of an hypothesis with as many flaw[s] and holes as sound parts."

Darwin, Charles in ????? W.W. Norton & Co., New York, NY (), 1991, p.0.

DRAFT - Please do not copy or circulate

ASSUMPTION

(includes the keyword "assume")

Quotes from **Book** sources

"Much evidence can be advanced in favour of the theory of evolution from biology, biogeography and paleontology, but I still think that to the unprejudiced, the fossil record of plants is in favour of special creation. Can you imagine how an orchid, a duckweed, and a palm have come from the same ancestry, and have we any evidence for this **assumption**? The evolutionist must be prepared with an answer, but I think that most would break down before an inquisition."

Corner, E.J.H. in *Evolution in Contemporary Botanical Thought*. Quadrangle Books, Chicago, IL (1961), p.97.

"Virtually all the fundamentals of the orthodox evolutionary faith have shown themselves to be either of extremely doubtful validity or simply contrary to fact.... So basic are these erroneous [evolutionary] **assumptions** that the whole theory is now largely maintained in spite of rather than because of the evidence..... As a consequence, for the great majority of students and from that large ill-defined group, 'the public,' it has ceased to be a subject of debate. Because it is both incapable of proof and yet may not be questioned, it is virtually untouched by data which challenge it in any way. It has become in the strictest sense irrational..... Information or concepts which challenge the theory are almost never given fair hearing...."

Custance, Arthur in *Evolution: An Irrational Faith*. Zondervan, Grand Rapids, MI (1976), p.173.

"...it is the Christian world which finally gave birth in a clear articulate fashion to the experimental method of science itself...It is surely one of the curious paradoxes of history that science which professionally has little to do with faith, owes its origins to an act of faith that the universe can be rationally interpreted, and that science today is sustained by that **assumption**."

Eiseley, Loren in *Darwin's Century: Evolution and the Men Who Discovered It*. Anchor Books: Doubleday & Co., Garden City, NY (1961), Reprint, p.62.

"With the failure of these many efforts [to explain the origin of life] science was left in the somewhat embarrassing position of having to postulate theories of living origins which it could not demonstrate. After having chided the theologian for his reliance on myth and miracle, science found itself in the unenviable position of having to create a mythology of its own: namely, the **assumption** that what, after long effort, could not be proved to take place today had, in truth, taken place in the primeval past."

Eiseley, Loren in *The Immense Journey*. Vintage, New York, NY (1957), Reprint, p.199.

"I had motive for not wanting the world to have a meaning; consequently assumed that it had none, and was able without any difficulty to find satisfying reasons for this **assumption**. The philosopher who finds no meaning in the world is not concerned exclusively with a problem in pure metaphysics, he is also concerned to prove that there is no valid reason why he personally should not do as he wants to do, or why his friends should not seize political power and govern in the way that they find most advantageous to themselves. For myself, the philosophy of meaninglessness was essentially an instrument of liberation, sexual and political."

Huxley, Aldous in *Ends and Means*. (0), p.270.

"The overall impression that these [Dryopithecine] creatures give is that they were large and small versions of vaguely chimp-shaped animals. But they were not chimps. In many important features they were not like chimps at all. Pilbeam believes that the early dryopithecids actually resembled monkeys more closely than they did modern apes. And yet the **assumption** must remain that they were the ancestors of modern apes. Some, indeed, seem to foreshadow oranges; others, gorillas; others, chimps. But this is impossible to prove. Dryopithecid fossils disappear eight or nine million years ago. There are no in-between types known. There are, in fact, no ape fossils from anywhere after about eight million."

Johanson, D. C., and Edey, M. A., Lucy in *The Beginnings of Humankind*. Simon and Schuster, (1981), p.363.

"The third **assumption** was that Viruses, Bacteria, Protozoa and the higher animals are all interrelated. It seems from the available evidence that Viruses and Bacteria are complex groups both of which contain a wide range of morphological and physiological forms. Both groups could have been formed from diverse sources so that the Viruses and Bacteria could then be an assembly of forms that contain both primitive and secondarily simplified units. They would each correspond to a Grade rather than a

Subkingdom or Phylum. We have as yet no definitive evidence about the way in which the Viruses, Bacteria, or Protozoa are interrelated."

Kerkut, G.A. in *Implications of Evolution*. Pergamon Press, New York, NY (1960), p.151.

"The first **assumption** was that non-living things gave rise to living material. This is still just an **assumption**. It is conceivable that living material might have suddenly appeared on this world in some peculiar manner, say from another planet, but this then raises the question, "Where did life originate on that planet?" We could say that life has always existed, but such an explanation is not a very satisfactory one. Instead, the explanation that nonliving things could have given rise to complex systems having the properties of living things is generally more acceptable to most scientists. There is, however, little evidence in favour of biogenesis and as yet we have no indication that it can be performed. There are many schemes by which biogenesis could have occurred but these are still suggestive schemes and nothing more. They may indicate experiments that can be performed, but they tell us nothing about what actually happened some 1,000 million years ago. It is therefore a matter of faith on the part of the biologist that biogenesis did occur and he can choose whatever method of biogenesis happens to suit him personally; the evidence for what did happen is not available."

Kerkut, G.A. in *International Series of Monographs on Pure and Applied Biology, Division: Zoology*. Pergamon Press, New York, NY (1960), p.150.

"The first **assumption** was that non-living things gave rise to living material. This is still just an **assumption**. It is conceivable that living material might have suddenly appeared on this world in some peculiar manner, say from another planet, but this then raises the question, "Where did life originate on that planet?" We could say that life has always existed, but such an explanation is not a very satisfactory one. Instead, the explanation that nonliving things could have given rise to complex systems having the properties of living things is generally more acceptable to most scientists. There is, however, little evidence in favour of biogenesis and as yet we have no indication that it can be performed. There are many schemes by which biogenesis could have occurred but these are still suggestive schemes and nothing more. They may indicate experiments that can be performed, but they tell us nothing about what actually happened some 1,000 million years ago. It is therefore a matter of faith on the part of the biologist that biogenesis did occur and he can choose whatever method of biogenesis happens to suit him personally; the evidence for what did happen is not available."

Kerkut, G.A. in "Implications of Evolution" in *International Series of Monographs on Pure and Applied Biology, Division: Zoology. Volume IV.*, Kerkut, G.A., ed. Pergamon Press, New York, NY (1960), p.150.

"Under slightly reducing conditions, the Miller-Urey action does not produce amino acids, nor does it produce the chemicals that may serve as the predecessors of other important biopolymer building blocks. Thus, by challenging the **assumption** of a reducing atmosphere, we challenge the very existence of the "prebiotic soup", with its richness of biologically important organic compounds. Moreover, so far, no geochemical evidence for the existence of a prebiotic soup has been published. Indeed, a number of scientists have challenged the prebiotic soup concept, noting that even if it existed, the concentration of organic building blocks in it would have been too small to be meaningful for prebiotic evolution."

Lahav, Noam in *Biogenesis: Theories of Life's Origins*. Oxford University Press, (1999), p.138.

"Modern science directly implies that the world is organized strictly in accordance with deterministic principles or chance. There are no purposive principles whatsoever in nature. There are no gods and no designing forces that are rationally detectable. The frequently made assertion that modern biology and the **assumptions** of the Judaeo-Christian tradition are fully compatible is false."

Provine, William B. in *Evolutionary Progress*, Nitecki, Matthew H., ed. University of Chicago Press, Chicago, IL (1988), p.65.

"...Darwin did not show in the Origin that species had originated by natural selection; he merely showed, on the basis of certain facts and **assumptions**, how this might have happened, and as he had convinced himself he was able to convince others."

Thompson, W.R. in *Introduction to the Origin of the Species*. E.P. Dutton and Co., New York, NY (1956).

Quotes from **Periodical** sources

"In sum, the 3.5 million-year-old footprint traits at Laetoli site G resemble those of habitually unshod modern humans. None of their features suggest that the Laetoli hominids were less capable bipeds than we are. If the G footprints were not known to be so old, we would readily conclude that there were made by a member of our genus Homo... In any case, we should shelve the loose **assumption** that the Laetoli footprints were made by Lucy's kind, *Australopithecus afarensis*"

Anderson, Ian. 1983. in *New Scientist*, 98.

"We have reviewed the evidence that appears to support what we have described as the "classical" hypothesis regarding industrial melanism, i.e., that melanism has increased in industrial areas because of a cryptic advantage that melanics enjoy on the darkened substrates that industrialization creates. This hypothesis seems eminently reasonable and has become a standard textbook example of evolution in action. However, the process envisioned is based on a number of **assumptions**, many of which we feel are not convincingly supported."

Sargent, Theodore D., Craig D. Millar, and David M. Lambert. 1998. *The "Classical" Explanation of Industrial Melanism – Assessing the Evidence in Evolutionary Biology*, 30(0).

"The prevailing cosmology that greeted Darwin's Origin of Species in 1859 rested on the theologically based **assumption** that the universe was created at a single point in time by a purposive intelligence who selected a bestiary of species designed to be adapted to their environments. This was assumed to be given truth rather than something one had to infer from observation. By comparison, in biology we believe we are practicing a rigorous, objective, empirical method-of-knowing that does not rest on wishful thinking. Yet much of our work rests on axioms -- conventional wisdom or laws of Nature, if you will -- that we assume to be true, but cannot actually prove."

Weiss, Kenneth. 2001. *We Hold These Truths to Be Self-Evident in Evolutionary Anthropology*, 10(0) 199-203.

Quotes from **Other sources**

""In August of 1999 the Kansas State School Board fired a shot heard 'round the world. Press reports began to surface that evolution would no longer be taught. The specter of a theocratic school board entering the class to ensure that no student would be taught the prevailing wisdom of biology was envisioned. Political cartoons and editorials were drafted by the hundreds. To hear the furor, one might think that the teachers would be charged with sorting through their student's texts with an Exacto knife carving out pictures of Darwin. "However, the prevailing impression, as is often the case was not quite accurate. Here are the facts about what happened in Kansas. The school board did not ban the teaching of evolution. They did not forbid the mention of Darwin in the classroom. They didn't even remove all mention of evolution from the State assessment test. Rather, the school board voted against including questions on macro-evolution--the theory that new species can evolve from existing species over time--from the State assessment. The assessment did include questions on micro-evolution--the observed

change over time within an existing species. "Why did they do this? Why go so far as to decipher between micro and macro-evolution on the State exam? How would that serve the theocratic school board's purpose that we read so much about? Well, the truth is . . . their was no theocratic end to the actions of the school board. In fact, their vote was cast based on the most basic scientific principal that science is about what we observe, not what we assume. The great and bold statement that the Kansas School Board made was that simply that we observe micro-evolution and therefore it is scientific fact; and that it is impossible to observe macro-evolution, it is scientific **assumption**. "The response to this relatively minor and eminently scientific move by the Kansas school board was shocking. The actions and intentions of the school board were routinely misrepresented in the global press. Many in the global scientific community, who presumably knew the facts, spread misinformation as to what happened in Kansas. College admissions boards, who most certainly knew the facts, threatened Kansas students. The State Chamber of Commerce and Industry, and the State universities were threatened based on the actions of school board. All of these effects caused by a school board trying to decipher between scientific fact and scientific **assumption**. The response to the actions of the board, appeared to many as a response to the commission of heresy. "For this reason, I am very pleased that my friend from Pennsylvania offered this amendment. He clarifies the opinion of the Senate that the debate of scientific fact versus scientific **assumption** is an important debate to embrace. I plan to support the amendment and urge my colleagues to join me.""

XXX Brownback, Sam in Discussing Amendment 799: Senator Sam Brownback. (), 0, p.0.

Quotes from **Book** sources

"The virtual complete absence of intermediate and ancestral forms from the fossil record is today recognized widely by many leading paleontologists as one of its most striking characteristics, so much so that those authorities who have adopted the cladistic framework now take it as axiomatic, that, in attempting to determine the relationships of fossil species, in the words of a recent British Museum publication: "we **assume** that none of the fossil species we are considering is the ancestor of the other.""

Denton, Michael in "Chapter Eight: The Fossil Record" in *Evolution: A Theory in Crisis*. Adler & Adler, Bethesda, MD (1986), 2nd edition, p.165.

"... it is a considerable strain on one's credulity to **assume** that finely balanced systems such as certain sense organs (the eye of vertebrates, or the bird's feather) could be improved by random mutations. This is even more true of some ecological chain relationships (the famous Yucca moth case, and so forth). However, the objectors of

random mutations have so far been unable to advance any alternative explanation that was supported by substantial evidence."

XXX Mayr, Ernst in *Systematics and the Origin of Species*. (0), p.296.

"I now wish to give some reasons why I regard Darwinism as metaphysical, and as a research programme. It is metaphysical because it is not testable. One might think that it is. It seems to assert that, if ever on some planet we find life which satisfies conditions (a) and (b), then (c) will come into play and bring about in time a rich variety of distinct forms. Darwinism, however, does not assert as much as this. For **assume** that we find life on Mars consisting of exactly three species of bacteria with a genetic outfit similar to that of three terrestrial species. Is Darwinism refuted? By no means. We shall say that these three species were the only forms among the many mutants which were sufficiently well adjusted to survive. And we shall say the same if there is only one species (or none). Thus Darwinism does not really predict the evolution of variety. It therefore cannot really explain it. At best, it can predict the evolution of variety under "favourable conditions". But it is hardly possible to describe in general terms what favourable conditions are except that, in their presence, a variety of forms will emerge."

Popper, Karl in *Unended Quest: An Intellectual Autobiography*. Open Court, La Salle, IL (1982), Revised edition, p.171.

"Here, I **assume** without proof that natural selection was the key evolutionary mechanism and that, consequently, the organic world is to be understood as highly adapted."

Ruse, Michael in *Homosexuality: A Philosophical Inquiry*. Basil Blackwell, Oxford, (1988), p.131.

"I, as a scientist, must postulate a source of information to supply the teleonomy or know-how, I don't find it in the universe, and, therefore, I **assume** that it is transcendent to this universe. I believe, myself, in a living God who did it. I believe that this God, who supplied the information, revealed Himself in the form of a man - so that man could understand Him. We are made to understand. I want to understand God. But I can only do it if He comes down to my wavelength, the wavelength of man. I believe that God revealed Himself in the form of Christ, and that we can serve Him and know Him in our hearts as the source of the Logos - all information is necessary to make the universe and to make life itself ... Look at the beauty of nature around us. When you consider that it all grew out of matter injected with information of the type I have been describing, you can only be filled with wonder of the wisdom of a Creator, who, first of all, had the

sense of beauty to do it, and then the technical ability. I am filled with wonder as I look at nature, to see how God technically did it and realized the beauty of His own soul in doing it. The Scripture teaches perfectly plainly, and it fits in with my science perfectly well, that the one who did called Himself THE LOGOS. That Logos was Jesus. Jesus called Himself the Creator who made everything - 'for Him and by Him'. Now, if that is the case, then I am very happy and filled with joy that He made the Creation so beautiful and that He also valued me enough to die for me, to become my Redeemer as well."

Wilder-Smith, Arthur E. in *The Natural Sciences Know Nothing of Evolution*. Master Books, San Diego, CA (1981), p.154.

Quotes from **Periodical** sources

"The hypothesis of the molecular evolutionary clock asserts that informational macromolecules (i.e., proteins and nucleic acids) evolve at rates that are constant through time and for different lineages. The clock hypothesis has been extremely powerful for determining evolutionary events of the remote past for which the fossil and other evidence is lacking or insufficient. I review the evolution of two genes, Gpdh and Sod. In fruit flies, the encoded glycerol-3-phosphate dehydrogenase (GPDH) protein evolves at a rate of 1.1×10^{10} amino acid replacements per site per year when *Drosophila* species are compared that diverged within the last 55 million years (My), but a much faster rate of 4.5×10^{10} replacements per site per year when comparisons are made between mammals (70 My) or Dipteran families (100 My), animal phyla (650 My), or multicellular kingdoms (1100 My). The rate of superoxide dismutase (SOD) evolution is very fast between *Drosophila* species (16.2×10^{10} replacements per site per year) and remains the same between mammals (17.2) or Dipteran families (15.9), but it becomes much slower between animal phyla (5.3) and still slower between the three kingdoms (3.3). If we **assume** a molecular clock and use the *Drosophila* rate for estimating the divergence of remote organisms, GPDH yields estimates of 2,500 My for the divergence between the animal phyla (occurred 650 My) and 3,990 My for the divergence of the kingdoms (occurred 1,100 My). At the other extreme, SOD yields divergenc times of 211 My and 224 My for the animal phyla and the kingdoms, respectively. It remains unsettled how often proteins evolve in such erratic fashion as GPDH and SOD."

Ayala, Francisco J. July, 1997. *Vagaries of the molecular clock* in *Proc. Natl. Acad. Sci. USA*, 94(0), 7776-7783.

"The age of origin of some modern group of birds is very old, in the Early Cretaceous if not before. This places them very nearly as old as Archaeopteryx, and raises the possibility that Archaeopteryx is not the temporal benchmark of a vain evolution we so often **assume**."

Cracraft, Joel. 1982. *Phylogenetic Relationships and Monophyly of Loons, Grebes, and Hesperomithiform Birds* in *Systematic Zoology*, 31.

"What theistic evolutionists have failed above all to comprehend is that the conflict is not over "facts" but over ways of thinking. The problem is not just with any specific doctrine of Darwinian science, but with the naturalistic rules of thought that Darwinian scientists employ to derive those doctrines. If scientists had actually observed natural selection creating new organs, or had seen a step-by-step process of fundamental change consistently recorded in the fossil record, such observations could readily be interpreted as evidence of God's use of secondary causes to create. But Darwinian scientists have not observed anything like that. What they have done is to **assume** as a matter of first principle that purposeless material processes can do all the work of biological creation because, according to their philosophy, nothing else was available. They have defined their task as finding the most plausible-or least implausible- description of how biological creation could occur in the absence of a creator. The specific answers they derive may or may not be reconcilable with theism, but the manner of thinking is profoundly atheistic. To accept the answers as indubitably true is inevitably to accept the thinking that generated those answers. That is why I think the appropriate term for the accommodationist position is not "theistic evolution," but rather theistic naturalism. Under either name, it is a disastrous error."

Johnson, P.E. October 24, 1994. *Shouting 'Heresy' in the Temple of Darwin* in *Christianity Today*, 38(12).

"Darwin's theory of natural selection has always been closely linked to evidence from fossils, and probably most people **assume** that fossils provide a very important part of the general argument in favour of Darwinian interpretations of the history of life. Unfortunately, this is not strictly true."

Raup, David. January, 1979. *Conflicts between Darwin and Paleontology* in *Field Museum of Natural History Bulletin*, 50(1).

"This resulted in different views of limb development and evolution (those of Rabl and Gegenbaur) which **assume** that the early embryological stages of limb development are shared among all tetrapods and that these stages are representative of the adult ancestral stages."

Shubin, Neil H. and Pere Alberch. 1986. *A Morphogenetic Approach to the Origin and Basic Organization of the Tetrapod Limb* in *Evolutionary Biology*, 20.

"The prevailing cosmology that greeted Darwin's Origin of Species in 1859 rested on the theologically based assumption that the universe was created at a single point in time by a purposive intelligence who selected a bestiary of species designed to be adapted to their environments. This was **assumed** to be given truth rather than something one had to infer from observation. By comparison, in biology we believe we are practicing a rigorous, objective, empirical method-of-knowing that does not rest on wishful thinking. Yet much of our work rests on axioms -- conventional wisdom or laws of Nature, if you will -- that we **assume** to be true, but cannot actually prove."

Weiss, Kenneth. 2001. *We Hold These Truths to Be Self-Evident in Evolutionary Anthropology*, 10, 199-203.

Quotes from **Other** sources

"In August of 1999 the Kansas State School Board fired a shot heard 'round the world. Press reports began to surface that evolution would no longer be taught. The specter of a theocratic school board entering the class to ensure that no student would be taught the prevailing wisdom of biology was envisioned. Political cartoons and editorials were drafted by the hundreds. To hear the furor, one might think that the teachers would be charged with sorting through their student's texts with an Exacto knife carving out pictures of Darwin. "However, the prevailing impression, as is often the case was not quite accurate. Here are the facts about what happened in Kansas. The school board did not ban the teaching of evolution. They did not forbid the mention of Darwin in the classroom. They didn't even remove all mention of evolution from the State assessment test. Rather, the school board voted against including questions on macro-evolution--the theory that new species can evolve from existing species over time--from the State assessment. The assessment did include questions on micro-evolution--the observed change over time within an existing species. "Why did they do this? Why go so far as to decipher between micro and macro-evolution on the State exam? How would that serve the theocratic school board's purpose that we read so much about? Well, the truth is . . . there was no theocratic end to the actions of the school board. In fact, their vote was cast based on the most basic scientific principal that science is about what we observe, not what we **assume**. The great and bold statement that the Kansas School Board made was that simply that we observe micro-evolution and therefore it is scientific fact; and that it is impossible to observe macro-evolution, it is scientific assumption. "The response to this relatively minor and eminently scientific move by the Kansas school board was shocking. The actions and intentions of the school board were routinely misrepresented in the global press. Many in the global scientific community, who presumably knew the facts, spread misinformation as to what happened in Kansas. College admissions boards, who most certainly knew the facts, threatened Kansas students. The State Chamber of Commerce and Industry, and the State universities

were threatened based on the actions of school board. All of these effects caused by a school board trying to decipher between scientific fact and scientific assumption. The response to the actions of the board, appeared to many as a response to the commission of heresy. "For this reason, I am very pleased that my friend from Pennsylvania offered this amendment. He clarifies the opinion of the Senate that the debate of scientific fact versus scientific assumption is an important debate to embrace. I plan to support the amendment and urge my colleagues to join me."

XXX Brownback, Sam in Discussing Amendment 799: Senator Sam Brownback. (), 0, p.0.

Quotes from **Newspaper** sources

"Evolution is promoted by its practitioners as more than mere science. Evolution is promulgated as an ideology, a secular religion -- a full-fledged alternative to Christianity, with meaning and morality. I am an ardent evolutionist and an ex-Christian, but I must admit that in this one complaint -- and Mr. Gish is but one of many to make it -- the literalists are absolutely right. Evolution is a religion. This was true of evolution in the beginning, and it is true of evolution still today." ... "Today, professional evolution thrives. But the old religion survives and thrives right alongside it. Evolution now has its mystical visionary, its Saint John of the Cross. Harvard entomologist and sociobiologist Edward O. Wilson tells us that we now have an "alternative mythology" to defeat traditional religion. "Its narrative form is the epic: the evolution of the universe from the big bang of fifteen years ago through the origin of the elements and celestial bodies to the beginnings of life on earth." "Faithful to the oldest tradition of evolutionary theorizing -- reading his morality and politics into his science and then reading it right back out again -- Mr. Wilson warns us that we have evolved in symbiotic relationship with the rest of living nature, and lest we cherish and preserve biodiversity we will all perish. Drawing on the dispensationalism of his Southern Baptist childhood, with the eloquence and moral fervour of Billy Graham, Mr. Wilson begs us to repent, to stand up and acknowledge our sins and to walk forward in the ways of evolution. We have but a short time, else moral darkness will fall on us all. The language of Stephen Jay Gould is hardly more tempered. We learn that evolution "liberates the human spirit," that for sheer excitement evolution "beats any myth of human origins by light years," and that we should "praise this evolutionary nexus -- a far more stately mansion for the human soul than any pretty or parochial comfort ever conjured by our swollen neurology to obscure the source of physical being." "Mr. Gould ultimately rejects traditional readings of evolution for a more inspiring, liberating version: "We must **assume** that consciousness would not have evolved on our planet if a cosmic catastrophe had not claimed the dinosaurs as victims. In an entirely literal sense, we owe our existence, as large and reasoning mammals, to our lucky stars." If this is not to rival traditional Judaeo-Christian teaching -- with its central belief that we humans are not just random happenstances, but a major reason why God created heaven and earth -- I do not know what is." ... "But,

let us be tolerant. If people want to make a religion of evolution, that is their business. Who would deny the value of Mr. Wilson's plea for biodiversity? Who would argue against Mr. Gould's hatred of racial and sexual prejudice, which he has used evolution to attack? The important point is that we should recognize when people are going beyond the strict science, moving into moral and social claims, thinking of their theory as an all-embracing world picture. All too often, there is a slide from science to something more, and this slide goes unmentioned -- unrealized even. "For pointing this out we should be grateful for the opponents of evolution. The Creationists are wrong in their Creationism, but they are right in at least one of their criticisms. Evolution, Darwinian evolution, is wonderful science. Let us teach it to our children. And, in the classroom, let us leave it at that. The moral messages, the underlying ideology, may be worthy. But if we feel strongly, there are other times and places to preach that gospel to the world."

Ruse, Michael. How Evolution became a Religion: Darwininians Wrongly Mix Science with Morality, Politics, in Metanexus, May 13, 2000.

"Mr. Gould ultimately rejects traditional readings of evolution for a more inspiring, liberating version: "We must **assume** that consciousness would not have evolved on our planet if a cosmic catastrophe had not claimed the dinosaurs as victims. In an entirely literal sense, we owe our existence, as large and reasoning mammals, to our lucky stars." If this is not to rival traditional Judeo-Christian teaching -- with its central belief that we humans are not just random happenstances, but a major reason why God created heaven and earth -- I do not know what is."

Ruse, Michael. How Evolution Became a Religion: Darwinians Wrongly Mix Science with Morality, Politics, in Metanexus, May 13, 2000.

EXTRAPOLATION

(includes the keyword "extrapolate")

Quotes from Book sources

"The test of **extrapolation** to the most distant future does not, I think, disclose any definite weakness in the present system of science-in particular, in the second law of thermodynamics on which physical science so largely relies. It is true that the **extrapolation** foretells that the material universe will some day arrive at a state of dead sameness and so virtually come to an end, to my mind that is a rather happy avoidance of a nightmare of eternal repetition. It is the opposite **extrapolation** towards the past which gives real cause to suspect a weakness in the present conceptions of science. The beginning seems to present insuperable difficulties unless we agree to look on it as frankly supernatural. We may have to let it go at that."

Eddington, Sir Arthur in *The Expanding Universe*. Penguin, Harmondsworth, Middlesex (1940), p.117.

"Through use and abuse of hidden postulates, of bold, often ill founded **extrapolations**, a pseudoscience has been created. It is taking root in the very heart of biology and is leading astray many biochemists and biologists, who sincerely believe that the accuracy of fundamental concepts has been demonstrated, which is not the case."

Grasse, Pierre in "An Introduction to the Study of Evolution" in *The Evolution of Living Organisms: Evidence for a New Theory of Transformation*. Academic Press, New York, NY (1977), 2nd edition, p.6.

"Today, our duty is to destroy the myth of evolution, considered as a simple, understood, and explained phenomenon which keeps rapidly unfolding before us. Biologists must be encouraged to think about the weaknesses of the interpretations and **extrapolations** that theoreticians put forward or lay down as established truths. The deceit is sometimes unconscious, but not always, since some people, owing to their sectarianism, purposely overlook reality and refuse to acknowledge the inadequacies and the falsity of their beliefs."

Grasse, Pierre in "An Introduction to the Study of Evolution" in *Evolution of Living Organisms: Evidence for a New Theory of Transformation*. Academic Press, New York, NY (1977), 2nd edition, p.8.

"It does not seem strictly impossible that mutations should have introduced into the animal kingdom the differences which exist between one species and the next...hence it is very tempting to lay also at their door the differences between classes, families and orders, and, in short, the whole of evolution. But it is obvious that such an **extrapolation** involves the gratuitous attribution to the mutations of the past of a magnitude and power of innovation much greater than is shown by those of today."

Rostand, Jean in *A Biologist's View*. William Heinemann Ltd., London, (1956).

"Most scientific theories, however, are ephemeral. Exceptions will likely be found that invalidate a theory in one or more of its tenets. These can then stimulate a new round of research leading either to a more comprehensive theory or perhaps to a more restrictive (i.e., more precisely defined) theory. Nothing is ever completely finished in science; the search for better theories is endless. The interpretation of a scientific experiment should not be extended beyond the limits of the available data. In the building of theories, however, scientists propose general principles by **extrapolation** beyond available data. When former theories have been shown to be inadequate, scientists should be prepared to relinquish the old and embrace the new in their never-ending search for better solutions. It is unscientific, therefore, to claim to have "proof of the truth" when all that scientific methodology can provide is evidence in support of a theory."

Stansfield, William D. in *The Science of Evolution*. Macmillan, New York, NY (1983), 8th edition, p.8.

"We conclude that the **extrapolation** of microevolutionary rates to explain the origin of new body plans is possible, but does not accord with the primary evidence."

Valentine, J., and Erwin, D. in "Interpreting Great Developmental Experiments: The Fossil Record" in *Development as an Evolutionary Process*, Raff, Rudolf A. and Elizabeth C. Raff, ed. Alan R. Liss, Inc., New York, NY (1985), p.95.

Quotes from **Periodical** sources

"New concepts and information from molecular developmental biology, systematics, geology, and the fossil record of all groups of organisms, need to be integrated into an expanded evolutionary synthesis. These fields of study show that large-scale

evolutionary phenomena cannot be understood solely on the basis of **extrapolation** from processes observed at the level of modern populations and species."

Carroll, Robert. 2000. *Towards a new evolutionary synthesis* in *Trends in Ecology and Evolution*, 15, 27-32.

"This explosive evolution of phyla with diverse body plans is certainly not explicable by **extrapolation** from the processes and rates of evolution observed in modern species, but requires a succession of unique events."

Carroll, Robert. 2000. *Towards a New Evolutionary Synthesis* in *Tree*, 15(1).

"[W]ell represented species are usually stable throughout their temporal range, or alter so little and in such superficial ways (usually in size alone), that an **extrapolation** of observed change into longer periods of geological time could not possibly yield the extensive modifications that mark general pathways of evolution in larger groups. Most of the time, when the evidence is best, nothing much happens to most species."

Gould, Stephen J. *Ten Thousand Acts of Kindness* in *Natural History*, 97(12), December 12, 1988.

Quotes from **Book** sources

"The models we consider are of three sorts: those that **extrapolate** processes of speciation to account for higher taxa via divergence, those that invoke selection among species, and those that emphasize that many higher taxa originated as novel lineages in their own right, not only as a consequence of species-level processes. It is in this latter class of model that we believe the record favors." "... many of the large populations should have been preserved, yet we simply do not find them. Small populations are called for, then, but there are difficulties here also. The populations must remain small (and undetected) and evolve steadily and consistently toward the body plan that comprises the basis of a new phylum (or class). This is asking a lot. Deleterious mutations would tend to accumulate in small populations to form genetic loads that selection might not be able to handle. Stable intermediate adaptive modes cannot be invoked as a regular feature, since we are then again faced with the problem of just where their remains are. We might imagine vast arrays of such small populations fanning continually and incessantly into adaptive space. Vast arrays should have produced at least some fossil remains also. Perhaps an even greater difficulty is the requirement that these arrays of lineages change along a rather straight and true course

--- morphological side trips or detours of any frequency should lengthen the time of origin of higher taxa beyond what appears to be available. Why should an opportunistic, tinkering process set on such a course and hold it for so long successfully among so many lineages?"

Valentine, J., and Erwin, D. in "Interpreting Great Developmental Experiments: The Fossil Record" in *Development as an Evolutionary Process*, Raff, Rudolf A. and Elizabeth C. Raff, ed. Alan R. Liss, Inc., New York, NY (1985), p.71.

SUPPOSITION

(includes the keyword "suppose")

Quotes from **Book** sources

"To insist, even with Olympian assurance, that life appeared quite by chance and evolved in this fashion, is an unfounded **supposition** which I believe to be wrong and not in accordance with the facts"

Grasse, Pierre in *Evolution of Living Organisms Evidence for a New Theory of Transformation*. Academic Press, New York, NY (1977), 2nd edition.

"...Jacques Monod (Nobel Prize, 1965) calls evolution a 'gigantic lottery' or 'nature's roulette' and concludes: `Chance alone is at the source of every innovation, of all creation in the biosphere. Pure chance, absolutely free but blind, at the very root of the stupendous edifice of evolution: this central concept of modern biology is no longer one among other conceivable hypotheses. It is today the sole conceivable hypothesis, the only one that squares with observed and tested fact. And nothing warrants the **supposition** - or the hope - that on this score our position is likely ever to be revised."

Monod, Jacques in *Chance and Necessity*. New York, NY (1971), p.121.

"Hundreds of scientists who once taught their university students that the bottom line on origins had been figured out and settled are today confessing that they were completely wrong. They've discovered that their previous conclusions, once held so fervently, were based on very fragile evidences and **suppositions** which have since been refuted by new discoveries. This has necessitated a change in their basic philosophical position on origins. Others are admitting great weaknesses in evolution theory."

Sunderland, Luther D. in *Darwin's Enigma*. Master Books, San Diego, CA (1984), p.7-8.

PRECONCEPTION

(includes the keyword "preconceived")

"When **preconception** is so clearly defined, so easily reproduced, so enthusiastically welcomed and so long accommodated as in the case of Piltdown Man, science reveals a disturbing predisposition towards belief before investigation."

Reader, John in *Missing Links*. Collins, London, (1981), p.81.

"When Leakey announced Zinjanthropus to the press in 1959, he said nothing of the perfectly human remains found immediately above it forty-six years earlier...Louis Leakey had made extravagant claims for Zinjanthropus, allowing his **preconceptions** to get the better of good science. Later he had to retract his claim that Zinjanthropus resembled modern man more closely than Australopithecines that had been found in various parts of Africa up to that time. Eventually he conceded that Zinjanthropus was not unique at all but simply another Australopithecine..."

Taylor, Ian T. in *In the Minds of Men - Darwin and the New World Order*. TFE Publishing, Toronto, Ontario (1984), 1st edition, p.245.

Quotes from **Periodical** sources

"But our ways of learning about the world are strongly influenced by the social **preconceptions** and biased modes of thinking that each scientist must apply to any problem. The stereotype of a fully rational and objective 'scientific method,' with individual scientists as logical (and interchangeable) robots, is self-serving mythology."

Gould, Stephen J. February, 1994. *In the Mind of the Beholder* in *Natural History*, 103(0).

"The entire hominid collection known today would barely cover a billiard table, but it has spawned a science because it is distinguished by two factors which inflate its apparent relevance far beyond its merits. First, the fossils hint at the ancestry of a supremely self-important animal--ourselves. Secondly, the collection is so tantalizingly incomplete, and

the specimens themselves often so fragmented and inconclusive, that more can be said about what is missing than about what is present. Hence the amazing quantity of literature on the subject. Very few fossils indeed afford just one, incontrovertible interpretation of their evolutionary significance. Most are capable of supporting several interpretations. Different authorities are free to stress different features with equal validity ... but ever since Darwin's work inspired the notion that fossils linking modern man and extinct ancestor would provide the most convincing proof of human evolution, **preconception**s have led evidence by the nose in the study of fossil man"

John Reader in *New Scientist*, March, 1981.

"However, depending largely on **preconception**s generated from other evidence, observed mutations have been used to support both extreme micromutationism and extreme macromutationism as important modes of evolutionary change."

Stern, David L. *Perspective: Evolutionary Developmental Biology and the Problem of Variation* in *International Journal of Organic Evolution*, 54(4), August, 2000.

"It seems to me that, in our present state of knowledge, creation is the only answer-but not the crude creation envisaged in Genesis. I think that the fossil record shows successive experiments in introducing new properties, biomolecularly, into living beings, those that were successful being proceeded with and those that were failures being left alone or eliminated. As a scientist, I am not happy with these ideas. But I find it distasteful for scientists to reject a theory because it does not fit in with their **preconceived** ideas."

Lipson, H. *Origin of species* in *New Scientist*, May 14, 1981.