The Failure of Darwinism

Evolution and the Enigma of Teleology and Design

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Contents

INTRODUCTION

Theories of evolution are undergoing a paradigm shift and as the limitations, long known, of darwinism become better understood the public will begin to experience a broader range of thinking. This book is a set of selections from *World History and the Eonic Effect(WHEE),* notably Chapter 2, 'The Evolution Controversy'. Additional selections are left to a set of appendices, the first referencing the 'Goldilocks Principle', the second on 'climbing Mt. Improbable', the third a short history since the Big Bang.

The second chapter of WHEE contains one of the shortest and what many have called one of the best overall short short critiques of darwinism. We leave to the appendix and a reading of the full text of WHEE the relationship of history and evolution. This is distinct from the critique of evolution seen in too many religious conservative groups where the 'design argument' is misused for attempts at proofs of the existence of god. These were long criticized by Kant, but it is also true that Kant suggested an idea of the demiurge in relation to history. The question of design is intractable, but the attacks on the idea by Darwinists are excessive. The factor of design in nature is unmistakable but this is not a theological issue. It requires seeing how complex machines can self-construct in directed sequences. Even if we considered the reality of some 'intelligence' in nature the fact remains that design defaults to a technological and constructivist question. We can't posit spiritual entities to solve problems of biology. But we can certainly posit 'spiritual' agencies in some other context within nature and the author's Enigma *of the Axial Age* considers such questions. We cannot technically forbid the idea of 'intelligent design', but we cannot easily specify agencies in nature that are 'intelligent' and we can't play a sly game of disguising references to 'god' behind discussions of biology. The ID question is thus ambiguous: natural selection used to refute design has failed and made the idea spread. The ID group in fact has made an effort to proceed in the context of science, but nothing in anyone's account has found an intelligent agent, explained teleological machines, or reduced design to either designers or reductionist machines. The whole question borders on the metaphysical. We can suggest a new approach as in our discussion of the Axial Age in the book cited.

The question of teleology arrives at the door step of evolutionary theory as a challenge to conventional science, and this challenge is actually as old as the successors to Kant called the teleomechanists. In addition the basic insight of Lamarck got the basic format of evolution right, we suspect: he saw two levels of evolution, the ancestor of the macro and microevolution distinction. Darwin's theory reduces evolution to one level and the result has been nothing but confusion.

The issue then is the acceptance of the fact of evolution and a critique of the theory of natural selection. The core sections of Chapter 2 deal with this in quick dispatch: as Fred

Hoyle pointed out decades ago the statistical argument for natural selection faisl. In WHEE we demonstrate in history the non-random patterning that would explain evolutionary processes without chance. Some readers have found the overall historical argument in later chapters difficult while considering the basic critique of core darwinian thinking to be helpful. The context of this discussion, however, remains oriented toward the Kantian critique of metaphysics next to that philosopher's discussion of history, the material reflects this. The idea for a science of history ironically reflects on the issue of a science of evolution. The questions of 'soul, free will, and self' tend to be on the boundary of the metaphysical and their resolution in terms of reductionist scientism tends to part of the problem of a theory of evolution.

This impinges in the question of the evolution of man which remains shrouded in mystery. Here the connection between evolution and history comes to the fore because we are confronted with the question of the 'evolution of freedom' as a concept and this invokes the realm explored by Kant (and later Hegel). The preposterous consideration of 'ghosts' reflects not only Wallace's attempt to explore the issue, but a famous essay by Kant, *Visions of a Ghostseer* which stands as the masthead of his critical thinking. Wallace remains a hidden source of the later darwinism, and works such as The Darwin Conspiracy have attempted to show the possible/probable plagiarism of Darwin. Wallace rapidly passed beyond the basic theory, including natural selection, and moved into an early version of a design argument, which freed of the obsessions of creationists, is one of the insights into the subject.

The point of the Kantian perspective is that the organismic frame appears to have an unseen component that is not as yet detected by science. That might be seen in terms of a distinction of the noumenal and the phenomenal that is characteristic of the Kantian perspective. And this in turn leads us to the school of biologists who were successors to Kant, the teleomechanists, who tried to correct the Newtonian world view with a new foundation for biology. All of this was shunted aside by the later reductionists such as Darwin. The design argument has been taken over by the religious world but its later incarnation in the Intelligent Design movement has tended to straddle science and crypto-theology. The issue of 'design' is inescapable and the appearance of complex machines in the biochemistry of life is a strong challenge to proponents of random evolution.

These larger issues are foundations laid for the larger argument of WHEE, and are useful out of context for seeing that evolutionary theories can easily become crypto-metaphysical. The reader can focus on the basic critique of Darwinian thinking based on the statistical challenge to randomness, i.e. random natural selection. Figures such as Dawkins have confused the issue by trying to sophistically claim that natural selection is non-random. The thinking of Fred Hoyle shows the way to the simple implausibility of the whole Darwinian framework. Complex biochemical structures simply can't evolve by random processes. It is very strange that biologists were stuck for so long on this point.

THE EVOLUTION CONTROVERSY

2.1 The Legacy of Darwinism

At a time when theories of evolution are under renewed controversy, discussion is hampered by the remoteness of the phenomenon of evolution, and the use of indirect inference to speculate about deep time. In the face of much criticism from religious Creationists, now accompanied by the Intelligent Design movement, adherents of Darwinism forever defend a flawed theory that has been challenged from its first appearance. The objections of the first reviewers of Darwin's book, indeed even of T. H. Huxley, the original champion of the theory, were never quite answered in the tide of paradigm change that swept modern culture. The perennial issue is natural selection as the mechanism of evolution. The assumption that evolution occurs, and must occur, at random is the crux of the dispute, one unreasonably confused by the claims of religion versus science.[i]

The rise of molecular biology shows a complexity of structure that cannot easily survive statistical challenges to claims of random emergence. The new genetics and the emergence of developmental biology have exposed the limits of Darwin's original theory, in the remarkable findings of complex biochemical systems and evo-devo. Therefore the critics, whatever the public pronouncements of Darwinists, have essentially won the debate, and retabled the views of many of Darwin's predecessors at the birth of embryology in the generation before *Origin*. We might proceed on that basis, beyond the distracting cultural politics of evolutionary theories, which now sees the resurfacing of the design theology of the generation of Paley. Nothing in the methodology of science requires us to accept the claims of natural selection as established.

> **The Developmental Perspective** Although the findings of so-called 'evo-devo' have already been grafted onto the mythology of natural selection, they raise the question of developmental interpretations of evolution, thence of natural teleology. As we examine world history in light of the eonic effect a developmental sequence unconnected with genetics emerges with a demonstration of evolutionary directionality visible as macroevolution over five millennia. The representation of teleology as intermittent directionality suddenly gives meaning to the idea of 'punctuated equilibrium'. World history has its own 'evo-devo', with no connection to genetics.

The new developmental perspective, although essentially genetic, strengthens once again our suspicion of processes that go beyond the selectionist account. The problem is one of observation. Evolution at close range is very difficult to observe. Darwinism applies a universal generalization to unseen events and claims in advance of demonstration that natural selection is the mechanism, frequently on the basis of no observations at all. As if

Newton's second law were taken forth from physics, Darwinism assumes no differential transformations at short intervals are to be found in the immense interstices of time they take for granted. Was this a theory or the absence of one? [ii]

> **The Limits of Observation** Claims for natural selection are all too conveniently pressed into service to cover over the absence of close-range empirical data, and drive out considerations of real evolution, which might be difficult to observe. This certainly holds true for human evolution, whatever the case for earlier eras of evolution. If we discover high-speed macro processes in history that can produce totalized cultural transformations at the level of centuries and less, witness the Axial Age, the Darwinian focus on selectionism is up in the air at once. The true record of real evolution may have been lost altogether. The observational standard for the Axial Age, a sub-pattern of the eonic effect, is that of centuries or less.

Secular thought is stuck in theoretical quicksand, harried between archaic religious teleologies, or the argument by design, and misapplied models of physical reductionism. Issues of philosophic history, the ideological tangle of nineteenth century evolutionism, and the struggle for scientific objectivity as value neutrality, move to becloud even further all hopes of resolving the ambiguity of evolutionary theories. The difficulty lies in the confusion over conceptions of physical or natural law, applied to the biological domain, in the search for universally valid generalizations. The entire realm of social theory from historiography to politics and sociology is poorly informed by the scientific literature, and is caught up in a biased discourse filled with subtle confusion, if not outright disinformation.

The presentation of the 'scientific' case on evolution is consistently rigged to show what it does not and cannot show, and then applied aggressively as a standard to the reductionist destruction of views the current regime of science wishes to decree out of existence. Darwin's theory is taken as established far in advance of the evidence offered, and yet one increasingly suspects it is wildly off the mark as to the descent of man. With remarkable overconfidence, the theory of natural selection is claimed as the talisman of universal explanation, to resolve all the mysteries of metaphysics. What is strange is the tenacity of easily challenged assumptions, and that only fundamentalist religious groups seem aware of the issues or able to challenge them.

These groups are now joined by an immense proliferation of New Age movements, correctly suspicious that an entire dimension of man has been amputated from consideration by a technocratic redefinition. Darwinists have too long enjoyed the misleading luxury of debating fundamentalism, which throws everything into confusion. Reductionist radicalism seems bent on the elimination of the entire evolutionary psychology of man known for millennia. In fact, still another set of fallacies is emerging under the category of 'spiritual evolution', with highly metaphysical mythologies promoted in the propaganda for guruism. But such traditions remind us the issues are wrongly posed between theists and scientific reductionists. And 'evolutionary naturalism' has another history there, which doesn't fit into the 'secular-sacred' rubric emerging from the collision of science with monotheism.

The basic issue is that no one is under a truly scientific obligation, to take Darwin's theory of natural selection as established, or grounds for the blanket revision of all views

of man and culture. Back to square one: an operational hypothesis. Most importantly, this is not the same as denying the 'fact' of evolution. But what are the facts pertaining to the descent of man? We have a very weak empirical record here. Darwin's oversimplification succeeded as a bestseller, but a host of critics realized almost at once a problem with the basic claims. And we now have the Darwin book market where the calculation of dissent on sales causes amusingly undisguised Darwin prostration. This drives out clear exposition of the facts. New findings are disguised behind Darwin eulogies. Contradictory issues are finessed in double talk.

Nearly upstaged by Alfred Wallace, Darwin rushed into print, breaking the long delay in making his views public, all too obviously obsessed, despite his clear doubts, with the need to seize his last chance for priority, and none too sure his theory really held up. Publicity now, doubts later, is the unconscious tactic of the author. Fudging doubts is evident in the later editions of the text. The fact of evolution was already an established claim, one needed that theory, credo-specific and general issue for the troops, to consolidate one's name, 'my theory'. Forever after we are beholden to this bizarre moment, and its displacement of Wallace. And Wallace, to the permanent embarrassment of the iconic founder, had the intelligence and honesty to see the limits of selectionist explanation applied to the descent of man.[iii]

The Neo-Darwinian Synthesis is the second round of these tactics. By the end of the nineteenth century Darwinism was almost in eclipse, until the rise of the Mendelism, followed by the new mathematical population genetics. The models used here are of interest in their own right, but hardly constitute a foundational theory. The appearance of scientific rigor in population genetics tends to confuse the issue all over again in the claims for these useful but limited models the educated public tends to take on faith, reserving judgment to experts. This added complexity, based on random variation and genetic drift, is the new cover for the old universal claims. Sometimes random variation is paired with non-random natural selection to produce directionality, but this is misleading, and not the same as non-random evolution. We are to suppose without proof that this theory explains human consciousness, language, and morality, and much else. The theory is so heavily promoted we forget how implausible its extensions are.[iv]

In the realm of physics the use of mathematics is a triumph, but in the realm of biology it might be under suspicion at once for a failure to model a qualitative aspect. Bogus models have long since been critiqued in mathematical economics, but Neo-Darwinian theory seems exempt. A population of organisms over time is an immensely complex system, one that can defy intuition. The observation of such a stream is very difficult. To claim that the evolution of such an entity is fully explained by random variation and natural selection without a closely tracked dataset is simply gross extrapolation, leaving one puzzled by the violation of correct procedure in such a simplistic reductionism. Such a theory is of the same order of difficulty as a science of history where these population streams are clearly visible. Here the encounter with historical fact enforces a reality check, and demonstrates at once systems of far greater complexity than anything dreamed of by current science. Is this a foundational science, like Newton's physics? Is natural selection a 'force', or the lack of one, in a foundational theory?

We should note that the realm of population genetics is not of the same character as basic physics. And here manipulations of the formalism of theory are no guarantee of

correct foundations. No amount of technical knowledge can easily resolve the ambiguity because it requires a gestalt change with respect to reductionist thinking and a new basic methodology, with an understanding different from that found in the calculations of numerical models. The acumen of many of the most intelligent technical experts has been crippled by wrong education. And the fringes of knowledge do not easily produce the ombudsmen required to sort through the fallacies of expert delusion.

In general, scientists tend to assume that the spectacular successes of mathematical physics (and the heroic episodes of the Galileo in the drama of secularization) will be repeated in all fields. Yet this expectation has not been born out by the facts, which record a very poor showing for science in the realm of the psychological and the social sciences. Science has not achieved any of its theoretical objectives in any of the human sciences. The rote Darwinization of all domains results over and over in a species of shoddy pseudo-science. In fact, this confusion is nothing new, and we already see the reaction at the end of the eighteenth century. The attempts to define the interaction of the human and natural sciences has a rich tradition, one now almost forgotten in the short memory of resurgent positivistic science. Over and over Darwinism is given as the justification to invade the social sciences, and yet the claims are a promissory note based on a demonstrably inadequate theory.

The stubborn persistence of the Darwin debate is therefore no mystery, and is not the result of Creationist conspiracy. The rise of Darwinism has produced a false view of man, we see the long-predicted limits of the modern scientific worldview. It is easy, in the case of Darwinism, to see this if we explore the limits of theory, for example, in the realm of ethics or aesthetics. Beyond that lies the immense realm of ‘potential man’ clearly recorded in traditions such as those of the classic Buddhist sutras. Hardly a single reference to such discourse occurs, or is allowed, in scientific literature, a clear sign of institutional agenda. Adaptationist scenarios of the Darwinian type must endure a reality check here, yet the illusion induced by the all-explanatory theory is so ingrained none see the discordance as even odd. The claim by narrowly specialized scientists to a methodology that can pass judgment on all questions, sight unseen, in a hierarchy of credentialed expertise has become a strategy of social domination enforcing a worldview that most are forced to disregard in private and assent to in public.

In a nutshell, there is, as yet, no methodologically sound basis for a theory of evolution. That’s a surprising statement, but the point will become obvious as we look at the gray area between history and evolution. We should recall the reservations of Kant, as to the hope ‘that one day there would arise a second Newton who would make intelligible the production of a single blade of grass in accordance with the laws of nature the mutual relations of which were not arranged by some intention’. Darwin’s theory, at least, does not resolve such doubt.[v]

The Metaphysics of Evolution The philosophy of Kant offers a useful benchmark for the examination of evolutionary theories as these impinge on the intractable issues of metaphysics. Questions, he warns, of god, soul or self, and free will are destined to exhibit antinomies that will haunt any universal generalization. We have the Darwin debate in a nutshell, and can see at once that Darwinian natural selection, used as the universal talisman of metaphysical reduction, presumes judgment on unobserved totalities, and is troubled on each of

these questions. Questions of divinity founder in the design debate, of soul in the basic definition of self and organism, and free will in the attempts to reduce moral action to the mechanization of adaptationism. Current biology lacks so much as a basic definition of the organism.

A clue to the problem lies in the failure to produce a science of history, where the facts are visible, even as Darwinists claim a science of evolution, where the facts are not visible. And at what point do we divide history from evolution? This situation is altogether odd, and we left suspicious Darwinism is failing a photo finish test. Not a single hard result has ever been achieved for a science of history. That should make us suspicious of Darwinian claims at the onset. We indulge in far too much idle talk about evolutionary theory in the abstract. These discussions are impoverished, but brilliant sounding speculations about something we never observe. It's time to take a long, slow motion look at the one good data set that we have, world history. We will soon be cured of Darwinian fantasies. The scale of evolution is tremendous. Even the record of world history, five thousand years over the whole surface of a planet, is nothing compared to deep time. That is a reality check. We see at once the fallacy of throwing generalizations at such a complex system. It is primitive behavior.

Is There a Science of History? The question of a science of history generates a contradiction that the Darwinian framework never addresses. The question is at the core of a Kantian critique of metaphysics and demands a way to reconcile the so-called antinomy of freedom and causality.

Looking at history we can easily show where Darwinian theory is going wrong. The relationship of history and evolution creates a paradox, and placing the two in conjunction allows us to infer something about earlier evolution. The quest for a science of history is now beginning to overflow from Darwinian confusion as a reductionist tactic for the social sciences in the claims of sociobiologists, ambitious to dismiss all other forms of discourse. It seems like a welcome mistake, a foolhardy gesture we can applaud! Just at that point we do have facts, facts that can stop Darwinist thinking in its tracks, and in the process discipline the current confusions.

2.1.1 Debates and Darwin Trials

The Darwin debate has assumed a new form in the so-called Intelligent Design movement, which has resurrected the world of Paley, and the obsessive dialectic of theists and atheists heats up once again. Associated with, but preceding the Intelligent Design movement is critique of Darwinism, *Darwin on Trial*, by the lawyer Philip Johnson, in an effort, influenced by Michael Denton's *Evolution: A Theory In Crisis*, to look closely at the difficulties with Darwin's theory, without the confusions of the design argument yet infiltrating the discussion. We seem almost back in the world of Mivart, one of the first religious critics of Darwin. Reviews of Darwinism by lawyers seem a new genre, beginning with Norman Macbeth's *Darwin Retried*. Johnson's arguments are cogent, and reflect the right of any group confronted with implied non-existence in the name of modernism to hire itself a good lawyer. The problem with lawyers is that you need two of them, one for each

side. We cannot forget the political context of the debate, in the midst of the American political polarization between liberal and conservative factions.

Johnson also launches a campaign against scientific naturalism. In some sense, he is right. The much-heralded 'naturalistic explanation' remains almost an impostor, if its definition cannot state the limits of nature. This issue is almost irresolvable given the shifting foundations of physics, in the complexities of this 'nature', the gaps in our knowledge, and the tenacity of claims of the sacred against the secular. Between Spinoza, Kant, Hume, and Hegel, naturalistic explanation endured a shock treatment from which it has never recovered. But the 'spiritual' wasn't the winner either. At one and the same time, a critical methodological naturalism remains a useful, almost inevitable, starting point, and this has consistently born fruit in the empirical discoveries of the facts of evolution. But as with a wistfully noted Gödelian short-circuit in the consistency/completeness of logical systems, this naturalism seems incomplete, and destined to inconsistency, requiring the evolution of its own definition by the extensions of its axioms confronted with empirical discoveries, perhaps of freedom facts. We can see that we must confront the prospect of methodological naturalism surviving nervous breakdown in the face of an inconsistent axiom for a science of freedom.

Johnson engages the lists for a near campaign against modernism itself, with Darwin placed beside Nietzsche, Marx, and Freud as the triad of culprits for the evils of secularism. Fundamentalism deserves to join this list. The themes of postmodernist fashion are now the grounds for a comeback of the sacred against the domination of the secular. But the dilemma is false, and the postmodern strategy quixotic. This strategy is based on an incorrect perception of what constitutes 'modernism', which certainly includes the Protestant Reformation. So evidently Johnson is referring to the abrogation of the treaty of Westphalia. This postmodern strategy shared by conservatives, traditionalists, New Age groups, and leftist vanguards is completely self-contradictory, and silly, a clear sign of historical disorientation created by general propaganda versions of history. This issue is often confused by Darwinian secularists wishing to define the modern in an exclusionary sense using Darwinian theory, as a reductionist triumph of the Enlightenment narrowly defined. There is no inherent equation between 'modernism' and Darwinism, or even the viewpoint of science with the Enlightenment. If anything, the theory of Darwin represents a mere episode of scientism deviating from the far richer starting point of evolutionary thinking in the generation before Darwin.[vi]

The emergence of design argumentation, almost as a conservative religious cult and interest group lobby, has introduced an immense confusion into the Darwin debate, which is not about design argument, naturalism or theology, but about the limits of natural selection theory. The *argument by design* has a long history, and this is not the same as the issue of 'design' as such. It is not hard to see that 'something like design' is at work in genetic structures. Historical amnesia reigns. We might, for example, review the early debates here, and consider a Kantian perspective or the classic critiques of the argument by design. The Intelligent Design group has not demonstrated the argument by design. These tactics can be very destructive. We cannot examine design under the aegis of particular religious groups with ambitious social strategies. Such questions require strict religious neutrality. But that is unlikely here, making discussion pointless. In any case the

design interpretation thrives only because Darwin's theory is very extreme in its claims for natural selection.

> **G-design vs. N-design** Design arguments tend to confuse two meanings of the term 'design'. It is incontestable that many biochemical structures show design, in the complexity of their almost programmatic functionality. We might call G-design the action of a known 'designer', viz. a supernatural agent (god?), with the term N-design to refer to the bare functional aspect of complex biological structures. We can infer N-design, but this does not resolve the question of its evolution. It is hard to explicate N-design by arguments using natural selection. It does not follow that we can infer G-design.
>
> **Natural Teleology** The design argument is ambiguous and is really a theological version of teleological thinking. In the pursuit of N-design the factor of teleology might arise as a challenge to reductionism, but this teleological aspect can better be seen as a discovery of methodological naturalism.

This 'design' in quotation marks falls between two stools, scientific and religious, and can hardly be taken as a proof of divinity. It is, at least, an aspect of nature, one that monotheistic traditions seem unable to confront. Such thinking is meaningless if we know so little about nature. Only the false claim that Darwin's theory of natural selection resolved the issue of design could have started such a confused discourse on both sides. Let us set this booby-trapped terminology aside, having acknowledged the cogency of the critique, without succumbing to theological legerdemain.

> **Secular Postdarwinism** The religion/science divide has confused the debate over evolution, which isn't conflict of the spiritual and the material but a confusion as to the nature evolutionary dynamics and the limits of natural selection.

There is a far broader, essentially secular, critique of Darwinism already latent in the legacy of the Enlightenment. The overall period of Enlightenment was not the source of Darwinism, although it did resurrect the ancient idea of evolution from its long dormancy. Diderot at the dawn of modern biology is already concerned over embryological issues, now resurfacing in the age of complex genetics. For some reason this seminal era was able to maintain a strange clarity. Darwin's theory is a poor rendition of the initial discovery of the fact of evolution. And one of the real achievements of the earlier period was to distinguish the human from the natural sciences. The emergence of secular modernism produced its own cultural software to mediate the long foreseen problems with the scientific worldview, but Darwinism has crippled our ability to use it.[vii]

2.1.2 Evolution and Ethics

It is altogether apt that the metaphor of a trial should appear in the Darwin debate, as if an injured party wished to take action in a court of judgment. This theory was and is dangerous, and any evidence of its limits should clearly be labeled on the package. It is ironic therefore that this theory is now increasingly pressed into service to account for ethics. Here is the Achilles heel of scientific thought. We are given to assume that scientific

methods can account for all aspects of reality, and that a kind of bootstrap reductionism can start at the most fundamental and proceed to explain the most complex.

Why are we to grant the assumption? Newton did not grant it. Absent a demonstration, this betrays the ambition of science to control, more than to explain. Apparently Laplace whispering in the ear of Napoleon is the beginning of this campaign. The attempts to push Darwin's theory to the limit to account for the evolution of morality suggest the failure of this assumption. The result is the paradox of value-free science confronted with the domain of values. The obsession with dealing with all aspects of reality as a branch of physics is one of the strangest outcomes of the Scientific Revolution.

This is in fact an old issue, and the secular philosophical verdict of an earlier period is that science is *intrinsically* limited here. We should note that the philosopher Kant, already from the generation after Newton, was about the business of correcting this reductionist confusion, witness the clear distinction in Kant of theoretical and practical reason as a way to mediate causal phenomena and intentional action. He is considered purely a philosophic outsider to science, but that is misleading. His deliberations on freedom and causality strike to the essence of what is creating the confusion over evolution.

The world of Kant reminds us of the immensity of early modern discourse in this area, and what many saw as the decline from this peak in the onset of positivistic sciences. He certainly demonstrated the great complexity of the question and the limits of rational endeavor in this regard. Modern scientific education systematically misleads students here, and we are left with technical experts trained in a scientific religion, and a facile contempt for the Two Cultures dilemma.

> **The Triumph of Positivism** Histories of scientism too often confuse the rise of scientific culture with the later emergence of so-called scientism at the end of the nineteenth century. The two are not the same. As we move to explore the modern transition we will see that the era of the early modern is a balanced set of opposites, while the later scientism is a misleading over-simplification.
>
> **Ethical Reductionism** One of the prime confusions of the positivistic sciences is the attempt to physicalize ethics under the rubric of causal explanation. As Kant carefully noted, ethical discourse is by definition about the freedom of an ethical agent. The attempt by Darwinists to eliminate this complexity has produced a good part of the intractable Darwin debate.

Selectionist accounts of ethics violate the first requirement of producing an ethical agent to make ethical choices. We have no clear picture of the evolution of such an agent, leastwise by natural selection. Darwinists seem satisfied to account for ethics on an *ad hoc* basis, e.g. showing how natural selection could produce altruism. This agent must choose, yet is granted no choice, in what must be, on scientific grounds, the blind mechanization of ethical action. The problem here is that the level of software and hardware is scrambled. The most obvious possibility is that altruism is simply counterevidence to theory.

The philosopher Daniel Dennett speaks of 'Darwin's dangerous idea', almost in a Nietzschean boast, with a rebuke to our cowardice in failing to meet the challenge of realism in 'hard men'. It would seem a dangerous idea deserves a second look, there to see Darwin's dangerous goof, and the misapplication of theory to social complexity. Since Darwinism shows clear correlation with militaristic and genocidal history, deferring to

experts is not an excuse if we can see that expertise has not proven sufficient or that it is itself influenced by political or institutional ideology, the ethics of competitive economies. At rare moments, such as the induction of capitalist economies in formerly communist societies, the truth comes out (not that it is concealed at other times), and we hear the language of 'shock treatment' and 'greed programming', as a system of non-altruistic 'ethics' is wished for on economic grounds. Thus theories of ethics are the politician's wild card, theory now caught up in Machiavellian *raison d'état*. The Darwinian backdrop is altogether useful here.[viii]

> **Freedom Evolves?** In another work, Dennett exposes a critical weakness in selectionist Darwinism: anything like 'free will' must explained in terms of the rubric of natural selection and adaptationism, a highly implausible claim, given no evidence. As we examine the eonic effect, we will detect a counterexample, a macro component to the emergence of freedom.[ix]

The confusion of foundational science as legitimation, ideology, and the basis of ethics neutralized in economic environments, was prefigured in the figure of Malthus, one source of the confused thinking of both Darwin and Wallace. The Malthus debate was an early cousin of the Darwin debate, in the 'better they starve' version. A recent philosophic critique of Darwinism by the philosopher David Stove, in *Darwinian Fairytales*, skewers the mechanization of ethics. The author targets the confusion generated by Darwinism in the sociobiological attempt to derive altruism from adaptationist scenarios. Stove points out the most obvious fact:

> If Darwin's theory of evolution were true, there would be in every species a constant and ruthless competition to survive: a competition in which on a few in any generation can be winners. But it is perfectly obvious that human life is not like that, however it may be with other species.[x]

Nothing in archaeology, the search for fossils, or DNA, is required to see this, or able to contradict this. We have no scientific proof that massive population catastrophes lead to evolutionary advance in the crucial questions under consideration. History shows any number of semi-Malthusian episodes, but its advances spring from a different source.

We are left to wonder at this obsession with altruism on the part of theorists falling head over heels to justify economic selfishness. Not a difficult riddle. We know this game when we see it. 'Good for the economy', the prime suspect when smart people play dumb. It is stuck in their craw, and some fancy mathematics to the rescue seems the best way to keep the masses confused in the process of de-ethicization of market behaviors.

2.1.3 The Metaphysics of Evolution

There is nothing mysterious about the Darwin debate or the limitations of Darwinian theory: value-free science must eliminate questions of the value domain. But is this legitimate for the question of evolution? Related to this is the attempt to produce purely causal explanations of ethical behavior and its evolution. The positivist methodology of scientific reductionism, by declaring the rigid separation of facts and values, leaves us to

wonder if nature itself truly respects this division in all its processes, especially those of evolutionary emergence.

> **Is a science of evolution possible?** This provocative question should stand as a warning that the question of evolution probably won't reduce to the category of science in the usual sense. We should support the project of empirical research, as science, in the exploration of the facts of evolution in deep time, but mindful that the limits of observation and the intersection with the domain of values demands an extended definition of science (such as, indeed, was pioneered by the philosopher Kant.[xi]

Sometimes the naturalistic fallacy is cited here. But how do we know that evolution doesn't process values amidst facts, this in a naturalistic fashion? Reductionist science has, ironically, made itself blind to the high end of evolution. In general, a theory of ethical behavior must explicate the consciousness of an ethical agent, and produce a model of choice-based behavior. But theories of evolution cannot yet account for consciousness. To make ethical consciousness an epiphenomenon of natural selection, and to propose that it arises as an adaptation in the game of survival beggars the nature of the phenomenon itself. What's more, this approach creates a de facto standard of ethics based on the evolutionary 'value' of pure selfishness.

> **The Axial Age and Values** As we examine the historical dynamic behind the phenomenon of the Axial Age we see the explicit transformation of values in a complete and balanced spectrum of opposites. Religion, philosophy, science emerge together in a mysterious seeding process that occurs very rapidly, and over independent cultural regions. Remarkably, this seems to show a balanced spectrum of values.

Further, a suspicious resemblance to economic ideology arises at this point in the Darwinian theory game. Even as you reduce ethics you produce one in disguise, and the implicit ethical character of 'survival of the fittest' and 'competitive struggles' instantly creates a substitute ethics. This fails to account for the facts of the case, which shows that man, at least, is impelled to react against his own (supposed) evolution, in the Darwinian sense. Why is altruism such a problem for Darwinism? Is it any more metaphysical to posit the existence of a selfish beast?

Thus, one of the reasons for the confusion of the Darwin debate is that the right way to do science might be the wrong way to do evolution. To be sure, there are few ways that are better as a preliminary to a more sophisticated science needed to match the phenomena under enquiry. But the strategy of explanation needs to be something better than the elimination of the problem by making it logically consistent with natural selection. That this should precipitate conflict with religion is hardly surprising, and even if we champion a secular stance toward religion, it is hard to avoid the feeling that the research program of evolutionary biology on this question is a failure step one in the midst of the great success of its expansion of our knowledge. And part of the problem is the confusion of 'theories' with 'protocols of action'.

> **Theory and Action: The Oedipus paradox** Later we will examine the so-called Oedipus Paradox and more generally the confusion between theories and motives of action. Theories are, or should be, timeless generalizations about a set of data,

but in practice theories have an all too temporal birth point. In the case of natural selection this resulted in the confusion between a theory about organisms in the past, and the social Darwinist impulse to carry out the implications of natural selection as a motive to evolve, a quite egregious fallacy.

How we should act is not given to us by a theory. With physical theories such as that of gravity no confusion can arise, since we have no ability to manipulate the law of nature here. But with evolution theories an agent is the executor of the so-called 'law', thus the attempt to posit universal laws produces an immediate contradiction, suggesting we are looking in the wrong direction. A theory proposes a causal explanation of action, but that by definition is not a protocol of action. Action requires choice, and we could choose to act against the theory, raising questions about its claims for causality. We are stuck trying to explain the freedom to act. We could eliminate that freedom in the name of science, but then we would be stuck with a typical situation where we would 'preach the theory' to something who choose to defy it. That freedom to act is an obstinate given.

There is actually no mystery here: the 'subject' (object) of evolution is complex, and has a different character from that of a point mass in physics. We must reckon with the sense of meaning, consciousness, and deliberation that are, by definition, subject to contra-causal forms of explanation. The issue must be the 'evolution of the freedom' to choose between different courses of action. This would seem to apply to the case of man, or else the later stages of primate evolution, and there the point remains that mechanized explanations of ethics are not ethics. So, is ethical behavior an illusion, as strict positivism must claim? These are actually issues carefully addressed earlier in the Enlightenment, before Darwin, with such figures as Kant standing out by their careful consideration of the implications of the rise of Newtonian physics.

The Darwin debate revolves around the claims and definitions of naturalism. The project of science is the discipline of methodological naturalism. We can certainly embrace naturalism, but its definition cannot prejudge the issue of what nature itself shows to be the case. We are stuck with the obstinate Cartesian legacy of dualism, leaving our naturalistic assumptions schizophrenic. Religious critics then proceed to the opposite confusion of spiritualizing the leftovers at the limits of reductionism. The glaring lack of any account of the evolution of consciousness ought to have made Darwinian certainties close to preposterous, but it is assumed in advance that some scenario of adaptation can account for this.

Even as Darwinism challenges the legacy of metaphysics, its claims for evolution are forced to impinge on this realm with tacit assumptions that belong to the same genre. The problem is, first, the complexity of the organism, and its intangible mysteries such as the nature of the 'will', if such exist, in the human evolutionary development of ethical behavior. If we invoke science we should recall its history, and the moment of the scientific revolution in the seventeenth century. Descartes not only founds the science of analytic geometry, he creates his famous dualism of body and consciousness. This dualism is forever rejected, but never transcended, although the appearance of Spinoza produces a new perspective on the question that will be the undercurrent of a classic Enlightenment debate. Newton, beside his great achievements in physics, nonetheless exempts the human will from his dynamics. In the wake of Rousseau, it is the figure of Kant, beside Hume, who, embracing the system of Newton, formalized a more refined version of this dualism,

in a classic gesture arising during the so-called crisis of the Enlightenment. And it is significant that Kant stands at the dawn of the rise of evolutionary biology, with a set of critiques that can mediate the contradictions of causality, freedom, and teleology, especially in the analytical study of organisms. The onset of the positivistic period completely bypasses this important stage in the development of the modern social and biological sciences.

It is not surprising, and yet remarkable, therefore that the work of the philosopher Kant is too little considered in the dialectical collisions of science and religion, since his system of philosophy addressed wholesale the problematic that pervades not only the philosophies of rationalist theology, but of the empiricist tradition as well. In fact, positivism is a form of collapsed Kantianism and it is a pity that scientific methodology, mostly through reductionist downshifting, has lost his analysis of the boundaries of science.

> **Visions of a Ghostseer** In essence the question is simple. The need for a 'science of metaphysics' is the first step to a 'science of history and/or evolution'. But it is just this requirement that proves the stumbling block. In a classic work, *Visions of a Ghostseer*, and then in his great critiques, Kant isolated the three great issues of the metaphysical tradition destined to get into trouble on the way to a 'science of metaphysics': that of divinity, followed by those of soul and free will. To these we should add the question of teleology, and note the way Kant considered teleology within the bounds of methodological naturalism, albeit ambiguously. The questions of divinity, soul, and free will demand proofs of existence, and Kant exposed the way that the road to these three proofs is beset with contradictions. They are metaphysical because they stand beyond the empirical.

The important issue here is that while we can easily agree, for example, that a 'soul' question (there are a multiplicity of such) is metaphysical, we might forget that its antithesis, the negation of the existence of soul, is equally metaphysical. The very term 'existence' is unclear in this case. The possibility that definable 'soul' has a reality but is beyond the possibility of knowledge would prove a severe check to a theory of the organism, and, unfortunately, that is just where Darwinian theory is going wrong. We can easily predict, then, that a theory such as Darwin's will become ambiguous on these three issues, even as it has banished the fourth. There can be no mystery to the Darwin debate. Each of these questions enters into the ambiguity of evolutionary theory. We see Darwinists attempting to claim that free will rises in the context, once again, of natural selection, and adaptation, a very peculiar approach, one with no evidentiary basis. We should demand the strictest evidence of this, and we rapidly discover just how difficult demonstration would prove there. We need a much broader approach. Discussions of 'soul' have played out and suffer the confusions of their abused terms. The indirect deductions of Kant can help by suggesting, for example, the relationship of space and time perceptions to deeper categories of experience.

We notice immediately that the conflict of science and religion, notably Darwinians and fundamentalists, impinges on the first issue of Kant, divinity, soon followed by the second, the 'soul' quagmire, the third creating a dilemma even in the context of secular culture where 'free will' is an essential foundational belief for the performance of cultural interaction. The monotheistic religions have shown an obsessive reluctance to yield ground

on the issue of divinity in history, hence evolution. The Eastern religions have not yielded an inch on the question of 'soul' (although Buddhism gives the misleading appearance of rejecting the idea of 'soul'), would grant the problematic shown by Kant, yet demonstrate methods of enquiry into issues of self. And the core concepts of modernity, its definitional liberalisms, are equally problematical in relation to the causal monism of the defining scientism of the modern era.

The principle of freedom shows ironically the way in which secular thought is entangled in metaphysical ambiguity as much as the religionist, and this idea creates a more subtle version of the drama of theists and atheists. For the will to freedom soon shades into the hopeless quagmire of the 'will of god'.

Kant's thinking enforces a severe discipline of the limits of our knowledge on these questions, and, this being the case, we can see that while the affirmation of a thesis on divinity is taken as metaphysical, its negation is destined to suffer a similar fate. We can see at once that, if Kant is right, then the theory of natural selection, the spearhead of much secular thought in a post-religious mode, is forced into a task that it cannot fulfill.

Legitimation Scientists, especially Darwinists, often proclaim their dethronement of human illusions. In part this springs from the defining episode of Galileo confronting religious tradition. The genre of 'dethronement' rhetoric was invented by Freud who, wishing to promote a weak theory, placed himself last in the list of great liberators, from Copernicus onward, dispensing shocks to mankind's vanity. In general, we are constantly informed of the shock to our pride implied in Darwin's heroic breakthrough. This was a clever tactic, but what is the real status of the modern scientific view of man? It is undoubtedly true that we must confront our illusions, not least in the realm of scientific theory. But it is too seldom grasped, and comes as the worst shock of all, that Darwinism was as much the beginning of complete muddle in all fields, and that the principle of natural selection as universal explanation is a specimen of nineteenth century scientism fit for some dethronement.

None of this should even be surprising. A student of classical metaphysics, and, more importantly, of its limits, knows in advance where this theory will go wrong, and even an amateur can launch a metaphysical search and destroy on the foundations of Darwinism. One, two, three the antinomies of divinity, soul, and free will skewer pretenders in this field, and right on schedule, with stubborn pretense, Darwinists founder in these quagmires, claiming to have resolved all of them, and that this is scientific! And it is not only the monotheist who is puzzled here. The theory, implicitly metaphysical, posits conclusions in advance, on the basis of virtually nothing in the way of a definition of an 'organism'.

The crux of the problem is the effort to promote a new foundationalism for a secular agenda. A recent biographer of the philosopher Hegel notes:

> Many in Germany quickly understood that Kant's denial of knowledge of things as they were in-themselves had potentially explosive consequences. First of all, it implied that there could be no theoretical knowledge of God, since God was precisely the kind of metaphysical entity about which Kant said we could in the literal sense know nothing. But in Germany, since the authority of the myriad German princes was almost always bound up with their being the heads of the

churches in their respective *Länder*, Kant's demonstration that we could not know about these supernatural things was taken to suggest that we also could not know whether the authority of the princes was in fact legitimate.[xii]

This passage tells us virtually everything about the Darwin debate, for it is cousin, in an inverted fashion, to the effort to establish 'right', in a slightly different context. What is ironic is that insistence on the theory of natural selection resembles this legitimation strategy of the 'princes' to establish a basis for social authority. Kant was especially honest, and he did not speak as an atheist. But that was not good enough for the princes. They wished their authority to be established on a rigid basis with proofs of divinity. In the same way, with Darwinists, it is not enough to grant the fact of evolution. The claims for natural selection both make that secure and allow a further extension of their subject to derive a whole world view based in science. It is interesting that only two parties have the social power to indulge in the debate. Where spiritual authority is on the wane, the authority of scientific law, bogus scientific law, comes to the fore. Armed with the claims for natural selection, and enough shouting down the opposition, the keys to the kingdom are had. Needless to say, the religious critics of Darwinism are not exempt from a similar charge.

2.1.4 Is There A Science Of History?

The attempt to posit a science of history suffers a severe complication in the dilemma of freedom and causality, with a series of confusions not dissimilar to what we see with the question of the evolution of ethics. But as we proceed we will discover nature's ingenious and, in the end, obvious solution to the contradiction, one visible in some of the simplest situations of ordinary life.

A Science of History? The question of a science of history provokes a contradiction as an antinomy of causality and freedom: in the stance of science, there *must* be a science of history, but in the consideration of freedom there *cannot* be a science of history. This variant of a classic Kantian antinomy is resolved in a dialectic that 'somehow' unites both thesis and antithesis, and bursts asunder the limits of space-time in the context of a discovered analog to 'transcendental idealism', the classic companion to Newtonianism. If we connect this to our question, when did evolution stop and history begin? we can precipitate the same antinomy for earlier 'evolution'. The Darwinian framework is inadequate for this situation. As we will see there *can* be a science of history: this requires an evolutionary basis, and a mediation of causality and freedom together, a strange requirement, one most surprisingly satisfied, and very exactly, by the data of the eonic effect. We must connect history and evolution in a new way, and this can be found if we pursue a 'science of freedom', in the resolution of the paradox of determinism. We can bring evolution into history by asking still another paradoxical question, has man become '*homo sapiens*' yet, by 'evolving freedom' (according to various definitions of freedom)? If man is 'not yet free' the 'evolving freedom' must show a macro aspect, otherwise, as his freedom evolves,

man's self-evolution will become a micro process, exiting from evolution in our Great Transition. In fact, as we discover the eonic effect we see that nature provides us with the elegant and simple solution to these enigmas of the descent of humans. We will adopt a rubric of 'self-consciousness' as the intermediate transitional category, compatibalist with respect to causality and freedom.

A Science of Freedom? The idea of a 'science of freedom' emerged in the wake of the Kantian critique of metaphysics. We can easily establish that, while such a science is not easily attainable, the idea itself is at least coherent, and can be approached empirically. As an example consider the relationship of a computer with a GUI and a user. The tandem system, computer/user, is a relationship of the user's options and the computer's (deterministic) program. We must analyze a combined system in which the field of the user's options and its relationship to a larger system must be studied together. The eonic model discovers such a system in historical/evolutionary terms.

The debate over free will always enters to both fulfill and yet distract this kind of discussion. In order to proceed we need to detour through the discourse of the metaphysics of freedom. But in practical terms we don't have to assume anything about the abstraction 'free will', and can make do with a simple distinction of the action of a system and the free activity related to it. There can be mechanisms that apply to a field of choices. Freedom itself might be evolving and be 'unfree' at the starting gate. Free will might have a surrogate in the fluctuations of human 'self-consciousness'. The paradox is resolved by considering degrees of freedom, or self-consciousness. The question of causality and freedom is very complex, but there is a simple way to proceed by looking at the question of choice, as a given from our experience. Choice is real, whether or not we ascribe that to 'free will' or not. There is also a kind of dynamics of this duality of a 'system acting', causally or not, and an agent given choices in that system. Examples are numerous.

Computer/User GUI's As an example, we might consider the situations in which free choice appears, without getting distracted by the question of free will. One example might be the distinction of two types of computer programs. One is the deterministic variety that proceeds from start to finish in a preprogrammed fashion. Another might be the situation created by GUI program where a user interacts with a computer. First the computer acts, then the user responds, and so on. We need not make any claims about free will or determinism to see that this second situation is as natural as any other. And whatever we do, we cannot explain away the existence or possibility of this situation. The context of ethics is similar. We must account for the situations in which ethical agents bifurcate the potential of unrealized events by the very nature of their considered choices.

System Action, Free Action Armed with this hint, which shows us that, contrary to usual thinking, there are any number of situations where the action of a system and the action of an individual inside that system constitute a net unified 'system' of a new kind. This new kind of system is, in principle, what will allow us to proceed, however difficult the details, in principle toward a science of history.

We will explore this new kind of hybrid system in constructing a new perspective on history. The point is that if we embrace the contradiction in a science of history, instead

of evading it, we arrive a potential system of a new type. Remarkably, the eonic effect will show us just such a system. A little reflection will suggest that we are already familiar with this kind of situation, and that we deal with the distinction of a system and our options inside that system all the time! Consider an ocean liner and the passengers voyaging on board. Note that the dynamic of the ship is one thing, that of the passengers another. The two together form a new hybrid system of a new and intriguing kind, where causality and freedom are mutually related. The causal motions of the ship contrast with the relative free action of the passengers on that ship.

2.2 Beyond Natural Selection

The most confusing aspect of the study of evolution is the nature of the first step, natural selection. The debate over evolution tends to degenerate into a conflict of science and religion, deflecting our attention from the basic problem with Darwin's theory: the limits of selectionist explanation with 'Just So Stories', or adaptationist scenarios. It is very convenient for Darwinists to confront Creationist critics who tend to reject the fact of evolution. This deflects attention from the real problem. In the final analysis the proposition of natural selection would seem implausible. The original criticisms of the first generation of Darwin critics in many ways still stand. T. H. Huxley himself, ironically, warned Darwin on the eve of publication of the problem with natural selection. The intractable character of the debate is no mystery and arises from the violation of the limits of observation, Karl Popper famous 'metaphysical research program'.[xiii]

In general some process of self-organization is at work beyond the limits of selectionist oversimplifications. In the words of S. Kauffman in his *At Home in the Universe*,

> The existence of spontaneous order is a stunning challenge to our settled ideas in biology since Darwin. Most biologists have believed for over a century that selection is the sole source of order in biology, that selection is the tinkerer that crafts the forms. But if the forms selection chooses among were generated by laws of complexity, then selection has always had a handmaiden. It is not, after all, the sole source of order, and organisms are not just tinkered-together contraptions, but expressions of deeper laws. If all this is true, what a revision of the Darwinian worldview will lie before us! Not we the accidental, but we the expected![xiv]

In general, severe, almost certainly fatal, mathematical challenges have always stood in the way of selectionist assumptions. In a now classic text, *Evolution From Space*, Hoyle and Wickramasinghe give one version of this objection.

> Darwinian evolution is most unlikely to get even one polypeptide right, let alone the thousands on which living cells depend for their survival. This situation is well known to geneticists and yet nobody seems prepared to blow the whistle on the theory.[xv]

This viewpoint has been 'refuted' so many times that we forget genetic research has essentially confirmed it with the discovery of new developmental structures and

processes. The full random run is in fact ‘compressed’ by the existence of some other process of development. In general, we must be wary of statistical reasoning applied to evolution. Even the suspicion of a directional process will throw any calculations here out of kilter. The amount of sophistry attempting to counter Hoyle, strewn over the Internet, is remarkable. Current thinking has quietly shifted to claims for the emergence of some ‘evolutionary toolkit’. Now it is claimed *this* arises by chance alone.

The literature critiquing natural selection is considerable, and we will assume some familiarity with such. A number of classic studies beggar the idea that all critics are religiously motivated. Beside Soren Lovtrup’s *Darwinism: Refutation of a Myth*, we have Robert Reid’s *Evolutionary Theory, The Unfinished Synthesis,* where the author notes, “I thought my failure to understand selection theory fully was the result of the specialization of the subject beyond my simple comprehension. Confident that every aspect of natural selection was for the best, I little knew that it had long been criticized for just that Panglossian felicity”. In *Beyond Natural Selection*, Robert Wesson gives a naturalist’s second opinion of the gritty details that mount up and cast a shadow on the Neo-Darwinian Synthesis, noting, “Natural selection is credited with seemingly miraculous feats because we want an answer and have no other. There probably cannot be another general answer. Biologists, it seems, must do without a comprehensive theory of evolution.” Wesson summons up an impressive list of oddities that current theories simply disregard. Simple things, like the absence of selective advantage in dreaming, the failure of sexual selection in practice to feedforward intelligence, the six-leggedness of insects, a host of discrepancies. “Many very simple facts, such as that all the millions of species of insects, and no species of non-insects have six legs, might well be considered to disprove natural selection as a generalization.”[xvi]

Again, as S. Kauffman notes in *At Home in the Universe*, “Since Darwin, we turn to a single, singular force, Natural Selection, which we might well capitalize as though it were the new deity. Random variation, selection-sifting. Without it, we reason, there would be nothing but incoherent disorder. I shall argue in this book that this idea is wrong. For, as we shall see, the emerging sciences of complexity begin to suggest that the order is not all accidental, that vast veins of spontaneous order lie at hand. Laws of complexity spontaneously generate much of the order of the natural world. It is only then that selection comes into play, further molding and refining.”[xvii]

We are still without a theory of evolution, in part because we have never observed its mechanics in action, confused by the superficial surface of evolution, selection-sifting.

Historical Counter-evidence Debates over natural selection are mostly repetitive propaganda exchanges. The debate revolves around a set of abstractions. But a picture is worth a thousand words. It can help to examine a rich data set such as that of the eonic effect in order to see how misleading the claims for natural selection can be. We soon discover that natural selection is often counter-evolutionary, and can lead to degradation of evolutionary forms. A close look at world history shows that the fittest survivors are a problem historical evolution is required to solve.

The Axial Age/Eonic Effect World history seen at close range suggests something entirely different at work than natural selection. The competition of cultures and empires rarely leads to advance, which comes from a different

source. The competition in history that we see too often degrades the outcome. Compare Axial Age Greece and Imperial Rome. The later is a clear winner of competition. The former shows a state of higher realization that declines very quickly as it enters a stage of empire.

2.2.1 The Limits of Observation

The debate over natural selection has gone on too long. Darwinists should have long since confessed the metaphysical speculation and methodological abuse of right science latent in Darwin's theory. We need to be finished with the matter by demanding proper proof. It is an issue of science, not religion. Where did Darwin go wrong? Darwin's theory is a provocative generalization applied to immense vistas of time that are unobserved. Those unobserved intervals in deep time can fool us badly. We can exit the chronic debate by simply demanding proper evidence. The demand for evidence of the fact of evolution is far less stringent than that for natural selection. Demonstration that the latter is the key to all forms of higher complex structure has never been demonstrated scientifically. The task is exceedingly difficult, for starters. The difficulty may preempt easy hopes for a theory of evolution. One way to see the problem with claims for natural selection is to look at history, and we will proceed to an examination of non-random evolution in the dynamics of historical emergence.

> **The Hurricane Argument** Consider a hurricane, a very brief event by comparison, as a global 'system evolution' on the surface of a planet. We know a hurricane when we see one, but its dynamics, mechanism, and full progression require incremental 'closing' on degrees of evidence and observation, a task not fully accomplished until the advent of satellites able to map global coordinates. In the same way we know evolution when we see it, roughly speaking, given the fossil evidence, but its dynamics, mechanism and full progression require incremental 'closing' on degrees of evidence and observation, a task not fully accomplished. Note the analogy suggests global positioning satellites over the entire planet over millions of years, to observe drifting species and their changes. Suppose an observer in outer space only had loosely sampled data on pre-Neolithic man, and post-twentieth century man, and then conjectured that some mutation caused this dramatic change.

This analogy shows at once where Darwinism departs from scientific practice. Historians routinely assume they must close on the facts in such an analysis, yet Darwinists wish to claim exemption. We have no fully observed datasets in Darwinian deep time. It is an insidious trap.

In all the noise of the Darwin debate, this judgment is final, and it is important therefore to grasp that no one is under any evidentiary *obligation* to take Darwinian *selectionism* as established scientifically, surprising as some may find that. We put it that way because we can't refute Darwinists in their provocative claims that routinely ignore the basic objection. The question is very simple: were there any witnesses to the facts

claimed? No. We are done. If we find evidence of 'evolution' in history, Darwinian claims are void as counterevidence.

> **Wallace and Darwin in wild or jungle scenes** We should note that Darwin and Wallace observed 'evolution' as they worked in scenes of teeming jungle life or natural environments in the wild. That can be misleading because the (micro-) evolutionary processes visible (and which seem to explain speciation, especially in special cases such as insect populations) to the naked eye neglects the larger dimension stretching over tens of millennia which alone might throw light on 'how (macro-) evolution happens'. In any case, this selectionist frenzy visible in nature fails at many points, such as the evolution of man, to provide a satisfying set of answers.

2.2.2 Random Evolution: Climbing Mount Improbable?

One of the most confused claims made by Darwinists concerns the randomness of evolution by natural selection. It is obvious that Darwin's theory is about evolution by accident, but since the improbability of this begins to demand some account we are given a revision in the works of Richard Dawkins where it is said that while mutation is random, natural selection is non-random. This odd way of restating Darwinian assumptions about chance is a suspiciously convenient change in the original meaning of the terms used, and seems little more than a rhetorical finesse designed to throw critics off guard. As Dawkins notes in *Climbing Mount Improbable*, "It is grindingly, creakingly, crashingly obvious that if Darwinism were really a theory of chance, it couldn't work. You don't need to be a mathematician or physicist to that an eye or a haemoglobin molecule would take from here to infinity to self-assemble by sheer higgledy-piggledy luck." But it is quite as obvious that Darwin's theory is one of chance, so we are done.[xviii]

> **Non-random Evolution** We should consider that 'non-random evolution' means, although not exclusively and open to further definition, and requiring an exemplar instance, a driving process, associated with a force or determinate principle of sufficient reason, operating, perhaps like a feedback or other device, externally, and possibly acting to transcend continuity in space and time (geographically or in discontinuous succession). Redefinition as an internal or immanent process is also possible, but invokes something unknown and unintuitive. References to 'macroevolution' often invoke a variant of this thinking.
>
> **The Eonic Effect** gives us a stunning example of non-random evolution in a series of beats or waves stretching over many millennia.

Dawkins proposes that the problem is resolved by the accumulation of small steps, then bets his argument on a completely incorrect analogy to computer programming. Again, as Hoyle observes, chance wouldn't even get a single polypeptide straight, and nothing in genetic programming has ever solved this problem. Beyond the hype, it would cause a feeding frenzy in the stock market if any computer program was found to do what is claimed. It would revolutionize industry. We would certainly know that this was the

case! Instead we see a sheepishly heuristic wishfulfilment at work in the Darwinian mythological fantasy world.

The simple fact is that Darwinism really is a theory about chance! Dawkins proposes to embrace the theory's fatal flaw by changing the terms of discussion. The term 'random' has changed its meaning. The problem is that while natural selection might be non-random in the sense of its equivalence to the process of adaptation, it is still random in the sense that there are no macroevolutionary or directional processes over and above the incidents of random mutation and, yes, random, directionless, natural selection. Detecting a teleological process behind evolution would immediately force us to reconsider the whole question. The problem is that teleology is an abstraction. We need to observe, or attempt to detect, the representation of teleology in nature. But the very examples claimed, incremental small changes, might show a directional representation of teleology.

2.2.3 Punctuated Equilibrium

The Darwin controversy frequently breaks down into a debate over continuous or discontinuous evolution. Proponents of discontinuous evolution tend to be their own worst enemies, and we will tend to avoid the terms 'continuous/discontinuous' except as *façon de parler*. The action of a feedback device is discontinuous, but not grounds for supernatural explanation. The foundation for all claims about evolution lies in the fossil record. But the question of the fossil record is not so simple. One of the most persistent criticisms of Darwin has always been that of the so-called 'gaps' in this record. There can be no doubt that the record is incomplete, and that something suspicious lurks in the data Darwinists give for the theory of natural selection. Over and over we see the phenomenon of rapid emergence followed by relative stasis. The record of human evolution itself is ambiguous here. The fossil record isn't really homogenous, in the sense that random evolution should not show sudden changes in direction. Nonetheless considerable progress has been made here by paleontologists. And many of these supposed gaps have been filled, or, if not filled, given some inkling of a transitional something (e.g. dinosaurs with feathers, or the basilosaurus), so at least to a some degree the record is filling out, although this does not prove anything about the claims for natural selection.[xix]

Here critics of Darwin have too often fallen into confusion themselves, because the whole idea of a 'gap' in the record suffers from misdefinition, if not incoherence. Fatal theological temptations induce hallucination here in many otherwise sincere minds aware of the problems of the fossil accounts. Although it is certainly true that the fossil record is very sparse, too sparse to maintain Darwinian certainties, it is not likely that one will find 'gaps' in the record. Some form of macromutation (i.e. a sudden change in developmental genes), for example, might well produce what looks like a gap. What is a gap? It is highly likely that there is a continuous sequence of organisms showing an unbroken lineage of bodily forms. That is not the same as saying that natural selection alone is at work. But these critics have a point, and a refinement of the 'gaps' argument is easy to provide, hence the challenge to Darwin's theory remains in some form. Taken over all, without claiming

gaps in the record, we should suspect that something is speeding up the process of evolution beyond the rate entailed by natural selection.

Indeed, conventional Darwinians such as S. J. Gould upgraded this argument with the various claims for so-called 'punctuated equilibrium', which amounts to seeing that emergence is often very sudden, followed by a period of stasis where the rate of change is small, or nonexistent. Granting that such data is hard to interpret, the basic issue simply won't go away. These theories suffered from the inability to disassociate themselves from the fallacies of natural selection, as they attempted to have their cake and eat it too, by proposing various 'levels of selection'. But real evolution is altogether likely to be something different. And it might well 'punctuate', this being followed by some sort of 'equilibrium'. The issue is bound up in distinctions of microevolution and so-called macroevolution, or speciation. The existence of microevolutionary processes is not in doubt, but the elusive factor of macroevolution remains unclear.

Those who propose this issue of 'gaps' in the record, then, are onto something, but need to consider that the fossil record is always going to be continuous in some sense. This does not preempt the possibility, not of 'gaps', but of some other evolutionary process that creates a real discontinuity in some definable sense *on top* of that continuity. Think in terms of acceleration, as artificial as physics logic might be applied to evolution. Acceleration is not a 'gaps' argument, and its discontinuous action is not in contradiction with continuous motion. To propose discontinuity as antithetical to continuity is logical in the abstract, but in this case leads to the hopeless quagmire of miraculous interventions of one kind or another in the creationist vein. We cannot say in advance what that kind of process it would be that generates this sense of discontinuity, but its existence is something that we must suspect based on the evidence that we have. The discovery of complex genetic components such as the developmental genes suggests one way of resolving the seeming paradox. But that is not enough.

Remarkably, the perfect example of the discontinuity factor, and its elusive basis, lies in the attempt to resolve the mystery of the descent of man. There the (not very adequate) evidence of the so-called Great Explosion stands out as a question about the basic Darwinian claims. Something very sudden occurred in the emergence of man, or so it seems from the evidence. The descent of man is beset with the issue of continuity/discontinuity dead center in its dataset.

Consider again the analogy of acceleration, and beyond that the definition of science in the case of biology. On the one hand, biologists wish to make evolutionary theory compatible with physics, and yet to do so they must fail to do what physicists do: build a science around a type of 'force'. This question was very clear in the eighteenth century, but the result was the emergence of vitalism, which was not up to the job of explanation. It is this search for the missing process that Darwinists find unacceptable, because there are no candidates for this in the thinking of reductionist science.

> **Mystery Force or Process X** Part of the problem with Darwinian theory is that we are unable to detect the real 'force' of evolution, all we see being the processes of natural selection. Science gives us the fundamental forces, then demands that everything be reduced to this. This may the source of the problem, for 'natural selection' is taken as the 'force that isn't a force' that does evolution, a role it cannot play. This unknown factor requires a new scale of observational detail. As

we move to examine history, with its relatively rich dataset, we should be on the look-out for this 'mystery force'. The term 'force' might turn out to be the wrong one, but by a principle of sufficient reason a 'something that does evolution' is what we are after.

Formalism of Evolutionary 'Force' The context of punctuated equilibrium gives us an opportunity to write out the correct formal apparatus of evolutionary dynamics, which is absent in the collapsed oversimplification of Darwin, but which is present in Lamarck (despite the infelicities of his work, and his incorrect theory of adaptation). This may or may not have anything to do with 'punctuated equilibrium' as defined by S. J. Gould. But the idea is clear from the dictionary senses of the words: a force, process, or 'punctuation' on one level acts discontinuously or intermittently or via short action impetus on another continuous level of steady state temporal streaming. Note the *a priori* resemblance to the distinction of force and equilibrium (or even Newton's first and second laws). These two levels are appropriately referred to as macroevolution (generally taken to produce speciation) and microevolution (which is the regime of natural selection). This basic set of concepts is actually quite general, and we will show how it applies to historical situations quite divergent from those of the evolution of organisms! But this is a transformed situation, and the powerful formalism, which is really a generalized metaphor of Newton's second law, of macro and micro allows us to consider the dynamics of evolutionary directionality.

System Action, Free Action We have already broached the issue of science of history and we will later try to adopt our formalism to the 'evolution of freedom', applying the macro to the eonic effect and the micro to the emergence of historical freedom (from the passivity of causal evolution).

There is something peculiar about this one-dimensional limitation in the Darwin scheme where macro and micro are collapsed together, in the sense that any science is going to have a 'force' or process argument, indeed the 'vera causa' often referred to by Huxley, and this force is going to show itself in terms of its own action, archetypically 'acceleration', and this action will seemingly be short acting (in some ambiguity between 'machine' and 'engine', perhaps). Such language is heuristic and must be set aside as at best metaphor once we have real data to examine, but the point is that Darwinists constantly remind us of the right way to do science, even as they propose a science with no substance to it. This example of the missing 'force' uses the language of physics, but the basic issue must remain. Various candidates from population genetics are sometimes metaphorically pressed into service here, but the void remains.

Continuity and Discontinuity The evolution debate constantly unravels in a confusion over continuity and discontinuity. This is due to the imprecision of terms and/or the desire to fulfill a 'god of the gaps' argument, or sneak attack. Physics, which could be attacked on similar grounds, has escaped this fate, in part because the absurdity of a 'god in the gaps' argument is clear. But the 'discontinuity' of an accelerated motion is real and yet at no point a contradiction to basic physical continuity.

Of course, we have already criticized the physicalism that created reductionist thinking, and there is no reason why biological evolution should conform to a force

argument. But there is likely to be an analogue, in a principle of sufficient reason, to a force argument, and here natural selection seems instead to be the analogue to Newton's First Law. The dynamic factor is entirely absent. This is the oddity of Darwinism. The surrogate substitute of natural selection for a true 'explanation' of what drives evolution leaves it with a strange void at its core. The point is that Darwinism is quite anomalous as a 'science' in the sense that this process that actually 'does evolution' is missing, and the strong suspicion is always there that natural selection, however real in the survival struggles of organisms, is simply the microevolution we see in the absence of 'real evolution'. Darwinists become adamant here, or change the subject, but the sword of Damocles has always stood over Darwin's claims for this reason. It is like confusing Newton's first and second laws. We begin to suspect that the regime of natural selection too often perpetuates continuity, and is really the opposite of 'evolution'! The geneticist Theodosius Dobzhansky remarked, "Nothing in biology makes sense except in the light of evolution." There is a corollary to this, "Evolution makes little sense in the light of natural selection."

Theories of the evidence The Darwin debate constantly scrambles the issues of the 'fact' of evolution and the 'theory'. There is a complication here, which is that we can distinguish a 'theory of the evidence' from a 'theory to explain that evidence', should that theory of the evidence graduate to stable data. Darwinism has yet to produce a proper theory of the evidence, that is, it has not actually observed in full 'how evolution happens'. And this itself might require a theory, e.g. that 'evolution' shows a macro pattern. This subtle difference constantly confuses all discussion. In economics, for example, a theory of evidence would be, as a theory, that economies show cyclical behavior. A second theory to explain the first, i.e. explaining cyclical behavior, is quite another task. Note that without a detailed record we would be likely to think in the abstract about economic systems. This example shows the dilemma of Darwinian theory. We have no detailed record of the way evolution actually happened, and tend deal only in abstractions based on Malthusian or other misleading examples. This is clearly the trap into which Darwin and Wallace fell, because they were struck by the teeming behavior of jungle populations with its clear profusion of speciation processes. They thought the full evolution of forms was explained by its surface aspect, the competitive struggle in biogeographical regions.

Lamarck's two-factor theory We are starting to see the need for two levels of explanation in the discussion of evolution. It is significant, and forgotten, that Lamarck, his more well known theory of adapatation apart, proposed a double aspect to evolution, progress and deviation. Rightly or wrongly, the idea of evolutionary progress is rejected now, but the more basic point about two levels to evolution remains on the table. We are left wondering how the more 'scientific' Darwinism took off with a one-dimensional oversimplification. Because pure random evolution is implausible, at least to some, one tends naturally to find two levels to evolution. If we try to eliminate one level, we always end in difficulty. The problem is the extreme difficulty of observing the higher level, and the confusion over ideologies of evolutionary progress applied to one level. But it is interesting that with a one-level theory Darwinists end up bickering over levels of selection, punctuated equilibria, and are forced to confront stasis and rapid change in alternation with no means to stuff both in the same box. Don't confuse this with Lamarck's idiosyncratic and controversial views on adaptation.[xx]

Economic vs. cultural evolution Later we will see the distinction of eonic sequence and econostream in our eonic model. We see the cultural evolution of modern economic thought, visible quite before its climactic Adam Smith, bound up in general 'idea innovation' and distinct from the evolution of economies, ancient or modern. We will see that the cultural innovations and economic transformations follow different logics, even as they braid together.

Self-organization A cousin ideology of theory, with the most obvious agenda, is the claim for 'spontaneous social order' as a legitimation of conservative agendas: cultural evolution occurs in the same fashion as market optimization. Examining the eonic pattern we can see that the long-range drift of history wouldn't self-organize anything whatever, but go into decline and empire, or worse.

Many systems theorists are well aware of the limits of Darwin's theory and have attempted various theories of 'self-organization', which are not without interest as speculation, to move past Darwinian selectionism. No such theory for cultural evolution exists, whatsoever. Sometimes these theories are in fact variants of Darwinian thinking, or based on assumptions of 'spontaneous' order, e.g. from a figure such as Hayek, in other cases genuinely post-Darwinian constructs based on variants or extensions to thermodynamical arguments. As we will see these do not work for history, where idea-innovation is not always random, or spontaneous, and where the 'self-organization strategy with or without a theory' of a free agent ('let's get organized') is distinct from that claimed for some speculative mechanized process of rising order or complexity. Looking at the eonic data, or more simply the Axial Age, we see the *ens explicandum* is more than rising order, it is the clustering of individual innovators that is significant.[xxi]

2.2.4 Natural Selection and the Oedipus Paradox

Science in its current form claims an objectivity of social theory that is illusory. Theories are clumsy instruments in the social sciences. We are so conditioned to the triumphs of physics, and the claims for its extension into all fields that we fail to realize what a muddle the whole thing is. A theory as potentially violent as Darwin's should demand care in its handling. A theory is taken, in the manner of physics, as a set of universal generalizations, physical laws, and, by and large, these are true *throughout space and at all times*, including the future of the observer, who makes the generalization. In the transition to evolutionary 'science' in the period of Darwin, this mindset passed into a series of tacit assumptions about the application of science to other fields, including the biological and social sciences. Darwin's theory of natural selection was highly desirable because it seemed to cast biological evolution in terms of a 'law' universally valid throughout space and at all times, including that of the observer, here, of evolution. But is such an extension valid? T. H. Huxley was one of the first to get suspicious here. Why is it that we feel compelled, he thought, to contradict the 'law of evolution' in practice?

We confront one of the paradoxes of evolutionary theory, one in which the observer is himself immersed in evolution, where he is constructing theories that might cause his own behavior to change in the present. This paradox is relatively unimportant with respect

to the vistas of deep time, but assumes greater and greater importance as 'evolution', albeit transforming into history by our definition, closes on the present. This results in the 'non-linear' self-interaction of agent and theory in the present. Consider the difference in your behavior if you believe, or disbelieve, in Darwin's theory. Popper also indicated one aspect of this in what he called the Oedipus paradox:

> The idea that a prediction may have influence upon the predicted event is a very old one. Oedipus, in the legend, killed his father whom he had never seen before; and this was the direct result of the prophecy, which had caused his father to abandon him. This is why I suggest the name 'Oedipus effect' for the influence of the prediction upon the predicted event.[xxii]

Our beliefs about natural selection contain a subtle prediction about what will happen if we 'act out the theory'. We can see from the eonic effect that no higher culture will be the result! Quite the contrary. If the rules of the game were survival of the fittest the long term trend toward empire would go unchecked, and democracy and equalization, connected with freedom induction, would be superfluous.

If we assume that natural selection is 'how things are', the source of all higher complexity, we put a premium on its 'mechanism', e.g. competition, and the 'acting out' of selectionist presumption as a curiously inverted ethic. We should be wary that something is missing in our understanding! Clearly the *generalization* about selection must be false, somewhere. We can see this if we consider this paradox: if survival of the fittest produces altruism, then won't more competition produce greater altruism? Shouldn't we disregard ethics and altruistic action long enough to produce more ethically altruistic men? This contradiction takes many forms, and strongly suggests, independently of the evidence (which isn't provided in any case) that natural selection is a false generalization, and that a 'boundary present' issue must be taken into consideration in theories of evolution, as opposed to theories of physics.

Physical laws are statements about carefully defined massive objects. Evolutionary generalizations are about organisms, and the character of these entities is never systematically defined, or observed, and their character changes over time. The generalization by natural selection, apparently, stretches from the beginning of life, to the emergence of man, and therefore to man's present, and, evidently his future, since, by definition, that is the nature of a 'law'.

Let us note the flood of fallacies that emerge here. All of these organisms show a distinct increase in their degrees of freedom (which may mean no more than the evolution of locomotion) with time, and with man this seems to cross a threshold where an 'active will' (which need not be 'free will') can select a set of options, no doubt still within the grip of physical law, that will alter or simply create the future. The extraordinary question arises here: what if he adopts a 'theory about natural selection' as the basis of his action?! Or even the option to negate this theory! Note the contradiction. A 'law' should operate at all times without choice from an observer. But man, having evolved a higher degree of freedom, could choose to consciously mimic what he thought the 'law' of natural selection, taking this as grounds for the abandonment of other factors in his decision, including ethical restraints. Since natural selection naturally suggests competition and conflict, he puts a premium on such conflict, with, to make matters worse, a spurious teleological expectation about the 'future value' of such conflict, as opposed to ethical restraint.

What has gone wrong here? Clearly in a passive organism without an active will, an 'evolutionary law' might apply, but in an organism with an active will, and mind, the idea of the theory becomes a thinkable idea that can influence action, and this will turn into a possibly confused bogus form of mental software: I should act according to 'law'. The obvious answer is that 'evolutionary laws' don't exist in the sense of 'physical laws'! We need a new kind of 'theory' for evolution, one that can define its domain of application, the type of organism it refers to, specify the temporal coordinates of the observer and creator of a theory, and be so specified that it *will apply only to the observer's past*, and never his present or future, since he always has option to 'do otherwise', contradict, or falsify that 'law'. For this and many other reasons, we must suspect that Darwin's generalization is simply false, a subtle fallacy of reductionism misapplied.

Some new kind of evolution has appeared long ago to produce mind, an active will, and, indeed, science itself. Man has, all along, passed through an 'evolutionary process' of some other kind that 'evolves' his potential to act, and act ethically. It is hard to see how natural selection could ever foot the bill here. And any generalization must take into account the 'turning point' after which future of prediction by 'law' is voided. Theories with temporal domains, and referring only to the past of the theorist/observer are not contradictory, and we will attempt to produce one for the so-called eonic effect, and its distinct species of 'evolution'. We must produce a theory about the 'evolution of freedom'.

We will use the term 'Oedipus Paradox' for this phenomenon of theories. This 'Oedipus Paradox', a term from Karl Popper, is a sign of an improperly constructed theory, and will be discussed further in Chapter Four. It arises from the failure to define the boundary of history (the chronicle of the 'will to act'), and evolution (the emergence of passive organisms). In some embarrassment we wake up to the way in which the visible surface of 'jungle life' and the spectacle of natural selection has hoodwinked us into a false generalization about evolution.

As we discover the eonic effect, we will see this problem resolved by creating a new kind of historical model that unites in tandem the definitions of 'evolution and history', the one emerging from the other. 'Evolution' is always seen looking backwards, and never applies directly to the free potential of the present, and the agent acting out history. In the interaction of these two we see the direct appearance of ethical evolution/behavior, induced and 'free', or on the way to being free, its evolution and self-evolution (i.e. history) connected yet separate. It's pretty obvious, with this new model, an ethical override arrives to induce a 'should' about murder and botched theories with their inducements of mayhem.

The Oedipus Paradox: Emergence of Social Darwinism As we examine the implications of the Oedipus paradox, and consider the ethics involved in the assertion of evolutionary, and indeed, ethical theories, we see the way Social Darwinism arises as a consequence of ill-conceived theories. The option to 'act according to the law of evolution', survival of the fittest, natural selection (death of the competitor) informs the agent, who proceeds to violent means, sure in his rejection of ethics of the grounding in science of biological law. Unscrupulous warmongers are handed a gift of legitimation by Darwin's shortsighted theory. To inject the theory of natural selection into the culture of his time without any specification of the domains of its application was the source of the hopeless confusion that arose in Darwin's wake, leading to the entanglements of Social Darwinism.

Herbert Spencer is partly to blame here, but he never proposed the *facts* of social competition as a universal explanation for evolution.

Consider, then, the non-linear self-interaction of theory and history, a possibility current science never examines, assuming an objective observer, able to formulate laws, although he is actually time-bound, with an ambiguous present. How will a theory taken as true by induced belief alter present behavior in the agent of theory? Apply that to the idea of conflict for survival. Notice the difference between what is observed in the past among unconscious organisms and what is taken as a theory about that, in the present, given the conscious subjectivity of the observer. Here theory is suddenly an historical variable. The record speaks for itself here. The *belief* in natural selection tends toward a *de facto* revision of ethical assumptions. Its promotion can become a Machiavellian strategy.

The metaphor of a trial, hence a crime, is ironically appropriate for a subject as ridden with dangerous potential for criminal suggestion as Darwin's theory, with its legacy of Social Darwinism, from which Darwin himself is forever being exempted, even as the subtitle of his book gives the game away, and all blame is foisted on Spencer. Lest that be gainsaid, the innuendo in that subtitle is clear. Atrocious potential contradictions lurk in all improperly defined historical theories.

With dangerous theories the result of the Oedipus paradox can be a calamity. The assumption, without verification, that survival of the fittest, hence conflict, leads to biological innovations, then applied to social evolution, induces 'theory realization' in the expectation of a future good. We should define the 'coefficient of murder' in units of 'casualties per paradigm shift' as the measure of the downfield consequences as mayhem in the action of those who 'thought the theory correct' in its paradigm span, and took the theory into their own hands as scientific law voiding considerations of ethics. Darwinism has a very high coefficient here in the emergence of Social Darwinism.

Theories of evolution are historically embedded, observations looking backward toward the past, and scramble the time domain of the theory's application, as they assume a universal generalization that overflows into the present and future. Thus ill-conceived they might induce 'acting out the theory' as a paradoxical 'should'. We could then study the historical course of the theory and measure its casualty rate.

The point is that we should always take theories provisionally, if this self-interaction of theory and agent is based on speculative interpretations of the never closely observed evolutionary record. The confusion arises, no doubt, from the analogue of economic behavior.

Darwin on trial. Let the virtual theory trial proceed on a philosophical basis. Given its record Darwinism is certainly on trial, and we need not gush with scientific enthusiasm confronted with the real legacy of the potential 'repeat offender'. Since Darwinists are often more ethical than the violent religionists supposed the upholders of the sacred, we may be forced to dismiss the case on the grounds of 'theoretical idiocy'. We can proceed with Darwingate, what they knew and when they knew it, to sort the dupes from the hypocrites, and many texts here are transparently deceptive, especially once we see how peer review and the Darwin book market influence veracity. So the record speaks for itself. And the supine accessories in the social sciences bludgeoned into bad jargon by the 'Two Cultures' debate won't get off lightly either. Given the legacy of eugenics and the

Holocaust, we must be at all points vigilant promotion of this theory means what its adherents say it means, which means 'genocide' in the pursuit of population tampering in some conspiracy of evolution. The legacy of eugenics warns us these are not idle speculations. Darwin's theory is an accident waiting to happen.

Notes

2.3 Visions of a Ghostseer

The labyrinth of modern thought is a difficult one in which the unforgiving complexities of parallel dialectical movement, seen in the divergence of idealism and materialism, can leave understanding stranded in the restricted movement of divorced specializations, and paradigms. Issues of 'materialism' and 'idealism' can vitiate thought, and deserve to be relegated temporarily to the sidelines, so that a practical study can get underway. We can construct our model of the eonic effect on the basis of limited foundations without deciding on key metaphysical issues. The philosophy of materialism is very ancient, for example the Indian *Samkhya*, and its modern reductionist form can confuse us, and often ceases to serve contemporary thought where the ideas of physical force fields, computer software, infinitesimals, and of information, move to bridge, better replace, the ancient distinctions of material and spiritual. Methodological naturalism, as current in the conduct of science, often muddles the question of 'naturalism' in its stances toward mind, consciousness and values, sometimes making them seem 'spiritual' unless subjected to reductionist revisionism. It is important to consider the often neglected potential of so-called 'transcendental idealism', in its Kantian version. Neither transcendental, nor quite an idealism, it is the perfect complement to Newton. This crude but effective kludge is, at the least, the perfect way to state our problem, whatever its solution.

Whatever the case, the stance of science is appropriate, and a rough and ready 'materialistic phenomenology' can be our starting point. But let's declare the 'material/spiritual' distinction bad terminology. The 'mind' is not a 'spiritual' entity, but it doesn't follow we can reduce it to simple mechanics. We can make no assumptions about the limits of naturalism, the nature of consciousness or self, based on reductionist preconceptions or extensions of physics. To make natural selection the *de facto* principle of demarcation was and is a recipe for confusion. One problem is that Western thought is stuck in Cartesianism. And this becomes worse as the attempt is made to transcend this dualism via reductionist materialism. However harebrained, Cartesianism is not worse! Kant's transcendental idealism and the hybrid dual system of *Samkhya* are two ways to examine, and bypass, the frequently sterile 'idealism versus materialism' dialectic.

Extending the religion-science debate, we can consider various New Age perspectives inherited from antiquity and resurfacing in modern times. We can examine later the materialism, or generalized naturalism, of the classic *Samkhya* with its freedom from Cartesian duality. This non-theistic tradition, predating the rise of monotheism, shows

how ‘spirituality’ can be cast without the material/spiritual terminology that is the source of chronic confusions and exploitations. Such literature, as it is translated into such terms, often ceases to make sense.

But the best guide here is the philosopher Kant, given also those he tacitly debates, such as Spinoza. The Cartesian self is seen as a metaphysical totality veiled from our self-representations. Agree or not, Kant is unmatched as a mediator of religious and scientific metaphysics, although he is still too theistic for our Darwinian atheist obsessive, and his system is complex, and often charged with inconsistencies. Kant, at least, does not suppress the issues in one-sided claims. His thinking bursts asunder his own rational theology lurking in the background. In an age where science education systematically avoids philosophy, it is strangely forgotten that Kant, issues of his idealism apart, with Newton at his fingertips, pronounced skeptical judgment over assumptions, material or otherwise, arbitrarily made about the ‘Big Three’, divinity, soul, and free will. We might consider them semantic quagmires one, two, and three, Q1, 2, 3. Kant came close to showing the subtle mechanization of this triad of concepts whose mastery will prove the true foundation for some future theory of evolution. His early essay, *Visions of a Ghostseer*, with its critique of mysticism, prefigured this classic treatment of metaphysics later addressed in his famous *Critique of Pure Reason*. The *Preface* to that Critique opens with the famous statement,

> Human reason has the peculiar fate in one species of its cognitions that it is burdened with questions that it cannot dismiss, since they are given to it as problems by the nature of reason itself, but which it also cannot answer, since they transcend every capacity of human reason.[xxiii]

The Darwin debate can be taken as fully in the grip of this peculiar fate. This passage has suffered a strange fate itself. It was a challenge to metaphysics. Yet now science denounces Kant as metaphysical even as it makes the mistake indicated in Kant’s *Preface*. Reductionist evolution based on natural selection is as metaphysical as it gets. If Kant is seen to be wrong somewhere, we default back to this paragraph, with no science of metaphysics, and hence no science of evolution, physics generally managing to fend for itself.

The problem arises because Kant proceeded to a seemingly inconsistent viewpoint in his also famous Second Critique, dealing with ethics. Sometimes Kant is accused of being a foundationalist, and pragmatist or Nietzchean diatribes attempt to dismantle Kantian deductions or systematics. Neo-pragmatist denunciations of Kantian dualism are a current fashion, although this began with figures such as Hegel. But analytic philosophy is thrown off-track by Darwin. A seminal text here is Dewey’s book on Darwinism and philosophy. If we reject natural selection it is back to square one. We might have to proceed here without foundational deductions. And then such strictures apply to science as well.

There could be nothing more outrageous than accusing Kant of foundationalism, only to make Darwin’s theory of natural selection the single and sole foundation for universal and cosmic conclusions. The world of modern physics has led to another, perhaps in the future a better, version of all this, despite the massive denials of most physicists. One might conjecture that Kantian distinctions of the noumenal and phenomenal are early anticipations of current physical dilemmas. It is not true that realist Quantum Mechanics, for example, renders these issues obsolete. Current physics sails straight into these waters

both at the quantum level, and in the issues of relativity and the speed of light. Science has a way to proceed here, but it is never used.[xxiv]

One approach to this confusion is to bypass the methodology of the first Critique and simply look at the real starting point, the antinomies explored in the section on Dialectic. In Kant's first Critique, the section of the Dialectic addresses the Ideas of Reason, and the antinomies that arise in the context of the metaphysics of divinity, soul, and free will. Kant's double-edged critique of 'rationalism' and 'empiricism' finds the Darwinists disguised metaphysicians. Despite the fury of the Darwin debate, it is not Q1 (unless they adopt a reverse argument by design to claim disproof of the existence of divinity) but Q2 that is the nemesis of Darwinism. They have failed to consider the boundaries of the 'self'. We would like very much to avoid the quagmire of 'soul' discussions. But we cannot, and we cannot claim selectionist theories provide proof for us here. This is a question of epistemology. There may be other approaches to the issues that don't adopt the standards of knowledge discourse. But even a polite view of much 'soul discourse' shows that while soul beliefs may be justified the discourse of such is hopelessly confused. It is significant that even Buddhists speak of reaching 'Enlightenment', yet no discourse of such has truly resolved the question of self in closed form. We should take Kant's warnings about divinity, soul, and free will to heart without presumptions, and be wary of any fixed assumptions in these three areas, even at the price of a fuzzy or incomplete theory.

In terms of the first Critique, Kant is a transcendental idealist, and empirical realist. This terminology tends to throw people off-track, and is in many ways unfortunate. The usage of the term 'transcendental' is not the same as 'transcendent'. Although endlessly criticized now, and despite problems, this approach has never been bettered. It is one of the most classic treatments of the 'spiritual/material' quagmire shared by religionists and reductionists both. It is not our intent to promote Kantianism, but it is good to aware of this classic discourse. Darwinism simply proceeds into this swamp and sinks. Despite its evasions, science cannot make a place for the formal idea of freedom, and enters an infinite loop of causal theory. Kant is taboo, and endless research is devoted to methodologies making the same mistakes. Darwinian claims for the evolution of ethics are displaced into deep time, and inferred without evidence, a novel metaphysical finesse. Kant thus remains a player here. Sorry, but it's cash at the point of sale. It's no use saying Darwin solved this problem if the proof is deferred to the next paradigm shift or the expectation of some future discovery of fossil bones.

At the price of a two-domain theory, Kant's approach is unmatched for its treatment of the idea of freedom, becoming problematical for some in his stance on 'practical reason': to which domain belongs 'will', if any? It is useful to displace discourse to the idea of freedom, bypassing the theological deadlock of Q1. It is really Hegel who is the idealist, and who, in collating Q1 and Q3 attempted to counter Kant's two-domain theory with a Spinozistic metaphysical fugue. Schopenhauer tries to restore a streamlined Kantian two-domain theory. The value, or flaw, of the Kantian approach is its self-limitation: the two-domain theory produces the noumenal and phenomenal distinction, careful to deal only with what it knows.

Many will attempt to recast this as the spiritual/material divide, and many dissenting critiques exist of this in current analytic philosophy, or the philosopher

Nietzsche, but it remains a benchmark, against which we can measure most other theories. The issue of dualism and its debates distract attention. Like the tip of an iceberg, we see a dualism, supposedly, of the visible tip and the invisible part. There is a dualism, yes, between tip and whole, or, no, there is no dualism, only one iceberg. Although our approach diverges from this formulation, being about history, and certainly doesn't intend to be fooled by the rational theology that Kant almost too fairly withdraws into a systematic skepticism next to the demand for autonomy, that theology of reason should be a caution to the fanaticism of monotheists entangled in the legitimation strategies of theistic mythologies of domination. Since it would be a five-minute exercise to unscrew the Kantian formulation from its sockets and recast it in the fashion of someone like Schopenhauer, we might simply pause in respect for a potential contribution to the crisis of religion that never survived its birth in the press of propagandas.

Darwinism, we can see already, because of its concealed metaphysical ambition, and claims for 'universal science', is thrashing about miserably in Q1, 2, 3, claiming that natural selection resolves them. And nothing can relieve this confusion with the theory in its current form. Its claims about divinity (if any) are challenged by monotheists, its claims about 'self' by yogis (among others), and its claims about 'freedom' (if any) resolve, as we will see, to a particular ideology of social action. Actually, Darwinists are not so unreasonable as near Kantians, and take intelligent stances here in many cases, and it is only the misuse of selectionist theory that is a problem.

The problem is the implied resolution of Q2, using natural selection. The floodgates of scientism open and we have ethics derived from population genetics, next to implied 'proof' of the *non-existence* of soul. This is pure metaphysics in disguise. The point is that the implied negative affirmations on these issues are often taken as established, when they can be no more than disguised metaphysical assumptions. To construct a science of history we would need a science of metaphysics. But we do not have decision procedures on our three key questions. If Kant's science of metaphysics fails, these issues will stand unresolved. The point is that natural selection is not a decision procedure on these issues. The reason is that we have not properly correlated the emergence of self with actual data of natural selection. The clear projection of a metaphysical thesis onto an unseen totality triggers the Kantian alarm bell.

Notice then that Darwinists tend to make fixed assumptions on all three of our questions, small wonder the tenacity of the Darwin debate. Darwinism is really a ship that has taken three direct hits, but always stays afloat due to the artificial respiration of sophistry or assumptions about what science will discover in the future, based on assumptions about what reductionism or natural selection ought to be able to explain, if science is to explain everything. We will construct an 'evolution of freedom' argument to try and trap the Darwinist in a discrepancy, if not contradiction, over freedom and necessity.

In summary, we should note that the questions of metaphysics forever haunt any form of macrohistorical reasoning, and this applies to the descent of man, and we need to stay clear of the 'dialectic of illusion', by using sage concepts that do not precipitate contradictions. In fact, we will embrace one such contradiction explicitly, that of freedom and necessity, and use the two ideas in tandem in a generalized empirical model.

Schopenhauer and Death In the wake of Kant the philosopher Schopenhauer produced a brilliant, streamlined version of transcendental idealism. We might cite a passage from Dale Jacquette's *The Philosophy of Schopenhauer*, remarkable for revealing the latent potential of 'transcendental idealism'.

> Schopenhauer's philosophy often gives the impression of having been composed expressly for the purpose of reconciling the phenomenal will to the inevitability of death. All the apparatus of his main treatise, the fundamental distinction between the world as Will and representation, the concept of thing-in-itself as beyond the *principium individuationis*, and fourfold root of the principle of sufficient reason, can be understood as contributing to a moral, metaphysical and mystical religious recognition that death is nothing real and hence nothing to fear. If Schopenhauer is correct, he proves that death is not an event, and hence altogether unreal. Death is not an event in the world as representation, but is rather an endpoint or limit of the world as representation, and in particular in the first-person formulation as my representation. The world as representation begins and ends with the consciousness of the individual representing subject. At the moment of death, all representation comes to an immediate abrupt end, after which there remains only thing-in-itself. An individual's death is not something that occurs in or as any part of the world as representation. Nor can death possibly be in or a part of the world as thing-in-itself or Will. There are no events or individuated occurrences, nothing happening in space or time, for thing-in-itself, and in particular there is no progressive transition from life to death or from consciousness to unconsciousness. If with Schopenhauer we assume that there exists only the world as representation and as thing-in-itself interpreted as Will, then there is no place on either side of the great divide for death, no possibility for the existence or reality of death.[xxv]

The connection between science, transcendental idealism, and the issues of the nature of the organism stand out in an especial clarity in this passage, which shows the key to an evolutionary psychology that reconciles the hopeless confusions of degenerated mysticism in the context of a philosophy tailored to the context of science.

2.3.1 Wallace's Second Opinion

One of the strangest aspects of the emergence of Darwinism is the sudden appearance of Alfred Wallace on the scene, triggering the publication of Darwin's *Origin*. A closer look leaves us with the suspicion that Wallace's letters suddenly cured Darwin of his 'evolution' writer's block, and ignited the cribbed notes of his *Origin*. The long delay in Darwin's work here has always been something of a mystery, as if he remained unsure of the basis of his claims. This story of the rigged priority upon receipt of the famous Ternate letter leaves an ambiguity at the threshold of Darwinism. Any evaluation of Darwin and his theory should consider the motives of personal ambition at the onset. And any testimony to evolution should consider Wallace's 'second opinion' on the subject of evolution, for he quite intelligently saw the problems arising with the question of human evolution.[xxvi]

Wallace is notorious for his later interest in spiritualism, in the tide of interest in the question, that is also evident in the work of Henry James. The attempts to proceed scientifically in this area seem ludicrous to us now, and yet the question will not die in so far as Darwinian thinking cannot produce a viable definition of the organism, certainly not of man. Is the organismic totality a purely space-time entity? Even such a simple question eludes easy answer. It founders at the limits of metaphysics.[xxvii]

> **Just So (Ghost) Stories** It is ironic that the onset of one of the greatest critiques of metaphysics began with Kant's *Visions of A Ghostseer*, sounding the caution that questions divinity, soul, and free will would prove intractable to scientific analysis. Darwinism gets itself in trouble on all three of these classic issues. We might smile at Wallace the table-rapper, but sound science can provide no proof against the reality of ghosts, a dismal circumstance. At least we can be sure that if such exist, Darwinism is falsified on the spot, the difficulty of ghostly forms adapting to their environment by natural selection being evident.

Wallace is an important, but neglected, figure in the emergence of evolutionary theory, and his views, whatever our perspective, are not refuted by anything in the spurious abuse of Darwin's theory of natural selection. Let us note, then, that one of the co-discoverers of selectionist theory later dissented on the question, as far as the descent of man is concerned. Wallace (who started as a super-selectionist) saw something that becomes obvious in light of the eonic effect, that is, the appearance not of adaptive traits, but of potential that emerges through *self-realization* (making the term 'evolution' ambiguous). His classic observation was that

> ...in creating the human brain, evolution has wildly overshot the mark. An instrument has been developed in advance of the needs of its possessor...Natural selection could only have endowed the savage with a brain a little superior to that of the ape, whereas he possesses one very little inferior to that of the average member of our learned societies.... [xxviii]

This sentiment springs to life once we see the way Wallace's dilemma reflects on history. We are confronted with questions about the meaning of evolution, if history shows yogis exploring consciousness in traditions as old as the emergence of civilization. It is entirely possible man came into being as he is in times unseen in the Paleolithic, and that what we sense as 'evolution' is another process entirely, a kind of self-realization of potential. It is still evolution in our sense.

The Buddha Phenomenon That close observation of historical facts might uncover some surprising indications of what is left out of Darwinism can be seen in the history of Indian religion. That Wallace was righter than he knew is obvious to any student of world religion. Man in his ordinary state is unaware of the potential of his 'self-consciousness', let alone able to produce a theory of its evolution.

> **The Shiva seal** History shows the extreme antiquity of explorations of self-consciousness in the discovery of the famous cylinder seal possibly showing a meditating yogi from the period ca. -2000. That what we find in later Buddhism should be discovered much earlier was to be expected, and makes us suspect still earlier forms of such explorations stretching backwards into the Neolithic.[xxix]

A simple question haunts the Darwinian account. At what point do we first see the Buddha phenomenon and what evolutionary process can account for it?

Four States Our spontaneous usage of the term 'self-consciousness' fits easily into the classic sutra maps of the 'four states of consciousness', sleep, consciousness, self-consciousness, and an unnamed 'fourth' (turiya), variously referred to as 'enlightenment' (a much abused term). The organism, conceived as a temporal entity subject to recurrent manifestations or lives in time, is subject to 'historical termination' in the fourth state.

One problem is Wallace's intent to introduce some spiritual explanation into a naturalistic context. There are better approaches to this than Cartesianism, from Spinoza, to Kant, to the Indian *Samkhya*. Another is the claimed 'exceptionalism' implied by applying his objection to man only. That, again, is not the point. If chimpanzees show elements of mind then the argument could be easily backdated, no doubt, to restate the point. We should be glad that Darwinism shows us a sense of kinship with earlier primates. Man is, is not, exceptional. These are dialectical issues that tend to seesaw as we discover new evidence. But in the final analysis we should not be deprived by current efforts to find the unity of organisms from possibly claiming man crosses, or is crossing, a definite threshold into a new evolutionary stage.

The tougher question revolves around the demarcation of the spiritual. Since the crux seen in the Shiva seal is the mastery of the power of attention, we can dispense with the material/spiritual distinction. It is worth noting that one of the most ancient of the strains of the yogis in question was even more 'materialistic' than current science, finding this 'higher potential' of man to be an issue of 'material consciousness' in an evolutionary psychology not quite like the current version. We will examine a later redaction of this called '*Samkhya*' whose demarcation, itself still dualistic, is 'material top to bottom', including consciousness as 'spirit', and something beyond consciousness.

One problem here is that a great deal of current New Age thinking is now using the term 'evolution' to refer to the realization by an individual of his potential, by various methods, whatever their status, but many of them descendants of those of our figure in the Shiva seal. The use of this terminology is misleading, although if spontaneous usage gains a footing, it is a *fait accompli*. We should at least be careful to note that this is not 'evolution' in the historical sense we will explore, and that this is clearly operating at a different level than even the creation of religions, for we can see the Axial dependency and transformations of Indian religion in historical times, on a far greater scale that such exemplars as Buddhism, or Hinduism, which become temporal streams with their own character. Beware of gurus attempting to co-opt the idea of evolution with claims that some spiritual development under their control represents 'evolution'. This is not historical evolution in our sense. Nonetheless, Jainism and early Buddhism give us one way to see a purely 'evolutionary psychology' emerging prior to the immense cultural politics, mixed with monotheism, that came later.

2.3.2 Theism/Atheism: The 'God' Debates

The confusion of Darwin debate springs in part the attempt to use the evolutionary question as a battleground for beliefs in theism or atheism. Our brief discussion of Kant warns us of the intractable character of such debate, and the futility of this strategy on both sides. This polarization has become explicit in the crystallization of the so-called Intelligent Design movement next to the so-called New Atheists attempting, it seems, to make fundamentalist Darwinism a metaphysical foundationalism. In general, the context of the obsessive Western theism/atheism dialectic makes real evolutionary discourse almost impossible. The world has been held hostage to this closed debate long enough.

Richard Dawkins in his *The God Delusion*, along with Daniel Dennett in *Breaking the Spell*, have produced the symmetrical antithesis to the exploitation of the design argument in what comes close to claims for the legitimation of atheism in the assumptions of Darwinian natural selection. We can suggest that this is a mood, more than a philosophy, as the derailed freight-train of mechanized religion proceeds with dead momentum past all the implications of Enlightenment critique, threatening the attempted cultural renewal of modernity. But Darwinism is a poor candidate for meeting this trend. Religionists should take note of the inexorable dialectical reaction to stale theologisms in the ferocity of 'New Age' passages beyond the religions of antiquity, and the Axial Age. These 'New Atheists' are fighting the suffocation of stale theologisms.[xxx]

In fairness to Darwinian thinking, it must be said that it was crippled at the start by the social context of secularization and traditionalism, and the inability of human thought to find plausible understandings of complexity in fields rendered over dogmatically to the transcendental. A secular view of man and history was actually developing more cogently prior to Darwin, whose theory handed resurgent fundamentalists an obvious way to challenge the scientific worldview.

Modern thought, even if secular, tends to assume that, in the ambiguity of the term 'design', the non-random is evidence of a 'designer', in the concealed anthropomorphism of divinized projections of the 'human will'. But there can be no such assumption of anything, for the term 'will' is another creature betwixt the one and the two. The sense of design is ancient, and one whose context, and primordial beauty, has been lost, because its impulse is that of wonder and its real form that of a question, now turned into a hidden assumption, that the nouns of divinity are already defined. In fact they swiftly became historical dogmas bound in dangerous social or political contexts, and mean desperately different things to different people using rival nouns, all assumed to share a common denominator. The question is, if there is evidence of natural or historical design, what does it mean? The Israelites were remarkable for seeing the evidence for Big History in their 'little history', a sense of design. We must move to recast their insights as 'eonic data', bound up in the 'general sequence' effect of 'eonic evolution'.

The real issue is not so much divinity but 'will', the intangible issue of agency, both human—or other. This term leads to its own confusions and is perhaps even more problematical than 'design', but its consideration can be more illuminating. Having cited Kant, we may note that the cousin philosopher Schopenhauer was an 'intellectually fulfilled atheist', to use the phrase of Richard Dawkins, who saw what would amount to clear 'design' as will in historical and evolutionary terms. Schopenhauer's views are idiosyncratic and crypto-metaphysical in their own way, with a view of 'will' we won't use (nor any others), but his streamlined Kantianism gives an implicit idea of evolution

that is non-theistic. Coming a generation after Kant, newly cognizant of the emerging thinking on evolution in such a figure as Lamarck, he seems to have sensed at once the arising dilemma, despite the problems with his unhistorical viewpoint.[xxxi]

We should note that the term 'will' is acutely ambiguous. Man is confronted with the inability to observe his own 'self', yet the idea of will is part of his nature. To formulate a theory of natural selection for this latent aspect of man requires explaining how something latent that does not normally interact with the environment can arise at all. But the point here is simply that we can proceed, not on the basis of what we think we know, but on the basis of what we do not. May we suspect that theories of evolution default on the mysteries of the noumenal and attempt the unknowable as phenomenal illusion? We must, yet cannot, extrapolate, or even define, an element of 'will'. It is possibly the case that complete theories of evolution are not possible for the human mind, the successes of physics being a special case. The problem is that man is a tadpole on a shore, still evolving as a passive organism to a creature worthy of the title *homo sapiens sapiens*. Thus, it would seem, there is as yet no such species as 'man'.

The terms 'God, soul, mind, life, will, design, providence, consciousness, sacred, spiritual, transcendence' prowl like semantic wild beasts near any discussion of history. The term 'secular' might soon join them. If you detect historical directionality the bingo button of 'providence' is pushed, and discourse effectively terminated. But terms of divinity especially create a great confusion in the study of history and evolution, because they are never defined, and are close matches by verbal association for a spectrum of unconscious archetypes and doctrines enjoined as a duty to believe, mixed with rituals of prayer whose assumptions are legitimated by histories known to be bogus. The term 'god' is a dangerous instrument, the more so as it is given the license of the 'sacred'. Its exploitation is rife. If we specify a noun of divinity, we must demand the same constructivist demonstration as that asked of any other historical generalization. This stance is itself traditional, pointing to the quest for 'real god' beyond 'god talk', or the search for the ninety-ninth name of 'god'.

The abuse of the terms of divinity by monotheists is so slovenly that their use becomes impossible, full stop, and we must simply terminate the use of a term like 'god' for our discussion. Human culture is essentially deprived of the honest use of such terms as 'god'. We should be wary of any negation of such an incoherent discourse as 'atheism'. Spiritual empires claim exclusive rights over the usage of such terms, and manipulate credulity for purposes of social domination.

We cannot arbitrarily exclude arguments by design, but we can demand new terminology, and precise definitions. We will make this our one inviolable rule. Thus, it is almost impossible to use the term 'god' without prejudice in relation to differing religions and *our* study will completely disallow it in any (theoretical) context. This is not an atheistic stance since the discussion is mostly meaningless, and it does allow fresh terms and definitions. Our position here is neither theistic, atheistic, or agnostic. These terms buttonhole all discussion.

In general, the demonstration of periodized patterns in the data emerging from the development of historical knowledge presumes the access and vivid presentation of accurate, up-to-date, non-mythological, information in a large number of fields, a difficult requirement requiring new ways to organize historical knowledge and awareness. The

terms of discussion must be 'historical cash', facts. On these terms the immense complexities of Biblical Criticism block our easy understanding of the historicity of the whole of the Old and New Testaments, and are a warning that no inference of cosmological design can be transferred to an historical one. And yet, ironically the era of the Prophets is of great interest in terms of our historical structure, and takes on new life in its naturalistic eonic context. We will see that this era fits better into quite a different sort of eonic design! But the first difficulty here is once again, what are the facts? [xxxii]

If we suspect a macrohistorical aspect to cultural evolution, then we suspect at once the perceptions of religion confused with perceptions of evolution by primitive men. This fact goes a long way toward explaining the religious conflicts surrounding evolutionary thinking. The first principles of religion were, perhaps, the tenets of the jungle theologian, as a response to auditory input in the silence of a great forest, 'If it moves, it's alive, whether creature, wind or spirit'. The rest follows from the differentiations of 'winds' and 'spirits', abutting in the reductions of science, as the mass and the force, beside the philosopher, with his first Idea. The forest philosopher, the wild man of India, is the bridge of this past and future, alert in the jungle of thought to No Idea.

Confusions of Nietzsche One of the pitfalls of twentieth century thought is the confusing influence of Nietzsche. With Lange's *History of Materialism* and in a play on the noumenal in Schopenhauer, Nietzsche proceeds to a Kantian decadence in an externalization of the will that is a poor continuation of a basic breakthrough. We can see already that Nietzsche's views on history are wildly off the mark. If there is no direction to history, that is one thing. If we find there is, Nietzsche is plainly wrong, and might simply be a reactionary, the onset of the Rightist Terror, quite terrifying indeed, wherein he is a bit player, rapidly changing gears as his suspicions arise. Nietzsche is the first Darwin casualty, and strangely blind in his failure to see the place of equalization in world history. Nietzsche's views are, of course, very complex, and it is also true he was a cogent critic of Darwinian natural selection. His challenge to Kantian foundationalism is ambiguous, and he triggers an immense subsequent confusion.

There is ample place in our account for the descant of this philosopher, but we should note his late appearance in a counter-revolutionary dialectic. But Nietzsche is so mesmerizing that we fail to see he is simply misleading on some very basic points. Is this the naïve myth of Romantic genius who will penetrate the ultimate? Why should we replace the Kantian thing-in-itself with the spurious 'will to power'? It's a bad deal, and quite vulgar. Perhaps the 'will to power' is an exoteric booby trap for his fans among the last men.

What a pity a man of such talents could not have registered eonic data and not gone off in a wrong direction. Nietzsche seems to suffer the strange vanity of thinking our downtrodden Mass Man, the bourgeois atomic individual, heretofore *sans-culottes*, should lament the aristocratic derelicts of the Hyperborean age, or the *arrivistes* of capital accumulation. Are these really expected to be our cosmic esthetes? As to the latter, Marxists should feel pity at this degraded homo-morph, as a 'working class type', plying his investments unwittingly for the common good.

To oppose the trend toward equality seems like a Darwinian secret vice, and is contradicted by the clear *evolutionary* significance of equalization and integration as *evolutionary* trends. Disequalization, by and large, is simply 'counter-evolutionary',

although we see the full dynamic in the dilemma of local transformation of the global whole in the part. To indict the hayseeds of the Neolithic Revolution flooding into industrial societies is a pointless gesture. In a few generations they are transformed.

In any case, the fiction that aristocratic societies have some monopoly on the noble and the artistic is contradicted by the facts, among them the appearance of the very greatest art among the discoverers of the idea of freedom, the Classical Greeks, just as democracy was struggling to be born, in concert with the all-too-brief appearance of the genre of Greek tragedy. The sudden waning of tragedy, cogently spotted by Nietzsche, has another better explanation in the eonic effect. This era of the greatest art is associated with an historical transition in the center of our eonic pattern and contrasts directly with the later derivative Roman literature in the breakdown of the Republic. This Rightist nonsense was always surprising from a man like Nietzsche. Modern democratic society, even so-called, has outperformed every aristocratic society that ever existed. It is the latter that are the deadweight of history, not the energized masses of modernism.[xxxiii]

2.3.3 Critique of Evolutionary Economy

Darwinism is often charged with ideology. Our design critics of Darwin are well-placed conservatives with a sudden silence on the queer cohabitation of theory and economic thinking. We should wonder if their interest is in evolution at all if their culture wars are so closely associated with market ideology. If you can get away with calling Darwinism science, then you have a solid basis (it seems) for defining 'human nature' and legitimating class divisions. But where was the classic left in all of this? One reason the Darwin debate endures lies in the tendency of progressive, liberal, or leftist thinkers to embrace scientism to promote secularism, thus making them Darwinians, where they might have exposed Darwinism. The debates of these groups with the promoters of sociobiology always exempt the basic theory of Darwin from their criticism. It is altogether appropriate to embrace the facts of evolution, but the problem lies in the failure to see that it is natural selection that is the core of the ideology. Marx, to his credit, spotted the problem at a glance, as a matter of first impressions, but ended caught up in the tide of Marxist confusion here.

For Darwin the Whig to be reissuing a one-factor version of the original two-factor theory of Lamarck the Radical (see note below) should alert a Martian in outer space ideology is at play. Sure enough, a close look shows the confusions of revolution and evolution in the generation of young Darwin. The legacy of Marx and Engels as critics of ideology is clear, but the critique of social ideology turned instead into an embrace of Darwin. The botched materialism of Marx and Engels became a defining obsession in the critique of Hegel, who, ironically, uses an early and altogether clever version of something like the Intelligent Design tactics in a different context.[xxxiv]

As to ideology, we have already noted the way Darwin's theory delivers a constant unconscious suggestion that selection in the past, theoretically established, must surely endorse, so unconscious thinking often goes, the same cunning behavior in the present in a confusion of domains of theory. If natural selection produced bigger brains in the past,

then competition is at a premium, and a second helping of theory for future bigger brains is a new silly 'should', and not bad for the economy also. Since the best defense is a good offense, let's strike first, to the greater glory of evolution.

In practice, Darwinists forever confuse evolution with economic analogs and then seem, by a twist on historical materialism, to see economic explanation thus Darwinized as fundamental, and made into a universal history. This can hardly be called science. There is a further irony here, in the concealed use of a 'design' argument. An economy, apart from anything else, is a field rich in 'designers', economic agents. Since Darwinism is so often compared to economics, shall we assume as a tool of explanation all the designs of economic agents? As with the proofs of the circle-squarer, we are assuming that which is to be proven.

We are so used to the conventional picture of Darwinian explanation that, even when pointed out, it doesn't sink in that Darwinism is simply an economic ideology in disguise. In fact, the tenacity of Darwin's theory is such that this is often pointed out without anyone realizing that it is an indication the theory is wrong. The attempt is made to critique Social Darwinism, leaving the core theory alone. Consider how little we actually observe about things that evolve in deep time. The attempts to produce a theory are unwittingly revealing of the worldview of those attempting this, casting about for some analog to get their bearings.

S. J. Gould in the recent *The Structure of Evolutionary Theory* states the unwitting confusion with especial clarity, "I would advance the even stronger claim that the theory of natural selection is, in essence, Adam Smith's economics transferred to nature". Is Gould, a stalwart critic of ideology, disagreeing with this, or is he, in fact, stating his own agreement with this, as a stalwart defender of Darwin? The point is clear in the echoes of Smith, but how do we know this is the process that produced 'evolution' as a whole, the descent of man? Was anyone there? This contradictory behavior in the supposed critics of ideology is a curious inversion of the process of legitimation, and has proven more effective in keeping Darwin safe than anything from conservatives.

As the author himself points out in a passage worth reading for its dogmatic assertions and self-enforced stiff upper lip about nature's amorality in pursuit of its self-optimizing 'hecatomb' (more dethronement rhetoric), the factor of laws and regulation is built into the evolution of complex economies, which only arise in their modern form under very special conditions, and which are set up by the deliberate tactics of 'free market' policy makers. To take this artificial example as an exemplar of nature is a gross confusion, the more especially if it is taken as a refutation of Paley. Free markets are enforced, and quite carefully designed, usually to favor a select few! Nor does the mechanics of markets constitute a set of 'laws of nature' taken as grounds for the abrogation of ethical interactions. We should consider the moralist Adam Smith near the 'initial conditions' of a particular *type* of economy. Where did we get this designer from? And the suspicion this is ideological ulterior motive as theory drove the left to attempt a change of rules![xxxv]

This breakthrough in modern economy was a cultural as much as an economic 'evolution', and quite apart from anything else, needed help from Adam Smith, the Scottish Enlightenment, and much else. The economic agents needed a philosophy to design and direct their action. What about the evolution of such philosophy itself? Did all this also happen at random? This is one of the most difficult of questions and requires a complete

change in our methods. In fact, the answer is no! Unfortunately, Marxist thinking on base and superstructure confused the issue here. Certainly in the case of Darwinism we see this concordance. The superstructure of Darwin's theory in the social context of new rising means of production, the base, is clearly an ideological reflection. But is it generally true? Consider carefully the nonrandom distribution of social thought emerging in world history, and the fallacy of standard sociological thinking will come as a shock. It shows an evolution of quite another kind. Culture and economy are not evolving in the same way. That should falsify Darwinian economics at once.

Economies are subsets of social wholes, and we have no grounds for assuming that the cultures that include these 'self-optimize' via the same economic or other factors. Quite the contrary, the evidence points against it. Unlimited social competition can produce mayhem and degrade culture. And these 'designed' market economies have often failed to function properly, produce a constant dialectic over the methods of tinkering redesign, what to say of revolutionary action. The absurdity of this kind of muddle is chronic. What real grounds do we have to apply this to earlier evolution in a grossly speculative conclusion that nature left 'unregulated' will produce the man we find in history? Who is the 'Unregulator', heretofore our grand Designer?

Again, one might note that questions about *economy* and questions about the *evolution of economy* might be quite different if that evolution shows different 'economies' created by the 'initial conditions' of policy makers. Free market economies are constructs from a universe of economies. The rules change as the agents change their demands on economic function. Economies could evolve from one type to another by one law, and evolve as themselves by another, in between transitions to different types. At what period of history is the analog 'economy' referred to, there being quite a list of such, pressed into Darwinian service? And what caused the sudden crystallization of the modern style economy near the close of the eighteenth century? Was this chance 'evolution'? And what then of the clear factor of design, 'designed *laissez-faire*'?

As one author notes, "Classical political economy presents an imposing façade. For more than two centuries, its professed adherents have been grinding out texts to demonstrate how a market generates forces that provide the most efficient method for organizing production. The concept of primitive accumulation—that is, the process of depriving people of their means of producing for themselves—seems far removed from the literature of classical political economy." Are we to suppose that Darwin mistakenly borrowed an ideological cover story, yet succeeded in producing a science? The author also cites the often-quoted comment of a Francis Horner, a Captain of Industry if there ever was one, from 1803, declining to review a reissue of Smith's text,

> I should be reluctant to expose S's errors before his work had operated its full effect. We owe much at present to the superstitious worship of S's name; and we must not impair that feeling, till the victory is more complete….[U]ntil we can give a correct and precise theory of the origin of wealth, his popular and plausible and loose hypothesis is as good for the vulgar as any others.[xxxvi]

I think we should do well to suspect the equally complete cynicism in some quarters in the social promotion of Darwin's theory. Perhaps we have cut and paste 'S.'s errors' for D's. Is the whole game a hack? How utterly convenient. Economic agents with legitimate

selfishness in theory are blessed as the breaking front of evolution and the champions of economy both.

This theoretical stupidity is a rife in a field where its adherents show strong resistance to insight because they consider all this brilliant science. It is odd that the left was unable to debrief this confusion, in a spectacle of guard dogs that didn't bark. Marx's initial skepticism was entirely on target, yet the radical left was soon taken in. We end with the Darwinized left of the Marxist Bourgeoisie, enforcers of last resort of the capitalist-Darwinist dynamical fantasy. None of this gainsays the possibility that Smithian economic arrangements might constitute an efficient tactic of economic management. Subjective impressions suggest this is the case. But it still leaves the question of ethical interaction in a field now routinely justifying its operations with innuendoes about survival of the fittest as scientific law.

2.3.4 The Evolution of Evolution

Much of the controversy over evolution predates the work of Darwin and it was Darwin's achievement to create an almost packaged formulation of gestating ideas of evolution, one that the public was prepared to accept. In many ways, the real founder of evolutionary science was Lamarck whose more cogently intelligible, but still inchoate perspective never survived the radical associations of evolution in the wake of the French Revolution. Accounts of the history of biology tend to put the central focus on Darwin, even to the point of suggesting indirectly that the idea of evolution was his achievement. But in fact all of the main ideas, even that of natural selection, preceded Darwin, and the real source of the new biology was in the period of the Enlightenment at the end of the eighteenth century, a period replete with a host of innovations in all fields. As we shall see there is an irony to this fact, and we will discover a different side to the idea of evolution in the development of evolutionism itself.[xxxvii]

In fact, the birth of conceptions of evolution was a rebirth and we see the emergence of the first inchoate forms of evolutionary thought in the ancient Greeks at the time of the birth of philosophy itself among the Pre-Socratics.

> **An Eonic Observation** The idea of evolution shows, not a birth, but a rebirth in the period of the Enlightenment. Appearing among the Greeks and Indians during the Axial period, it suffered eclipse, as did science itself, in the medieval period. We will soon discover that the idea of evolution itself undergoes a distinct process of its own evolution, and this is not Darwinian, in correlation with the eonic effect.[xxxviii]

There is something almost mysterious in the creative career of the Enlightenment, especially in the last half of the eighteenth century. The period, which should include the Romantic reaction, and much else, creates a sort of great divide in which a whole new culture comes into being. We see the Industrial Revolution, and the birth of modern capitalism, the triumph of liberalism in the era of the French and American Revolutions, a cascade of technical innovations, and the crystallization of the secular society struggling to be born since the equally seminal period of the Protestant Reformation. We have a tendency

to produce univalent descriptions of this rich and many-sided period of bursting change. But its multifaceted character shows something far more complex, a constellation of dialectical contradictions. The Romantic movement tends to be filtered out of our sense of the historical inevitability of the Enlightenment breakthroughs, narrowly defined in terms of a reductionist program. We often fail to see the real cultural evolution of conflicting oppositions. And in this context we find the strange phenomenon and timing of the classic era of German philosophy beginning with the figure of Kant. The legacy of the so-called Teleomechanists and *Naturphilosophen* is categorically rejected by modern biologists, but the result is equally problematical, the collapse into scientism. As we proceed to examine the question of non-random evolution we will find that this period is itself one key to the overall periodization of world history in terms of its historical evolution! We encounter the irony in the *non-random evolution of evolutionism*.

> **Kant and Teleology** As biological science in the Newtonian legacy emerges in the era of positivism the denaturing of teleological components in the organism induces instant failure for the proposed science, leaving Darwinists stranded with no definition of an 'organism'. This situation was virtually prophesied by Kant whose work suggests an 'antinomy of teleological judgment'. There *cannot*, yet there *must* be, a teleological aspect to organisms, indeed to evolution. Mastering these contraries remains a task unaccomplished by biological 'science'. The data of the eonic effect, proceeding empirically, gives us an actual example: a intermittent oscillator that expresses directionality, i.e. a hybrid of mechanical and teleological components, both and neither.[xxxix]

It is significant that the idea of evolution appeared in concert with the era of the French and Industrial Revolutions. After the groundwork of figures such as Linnaeus and Buffon we find the foundations of evolutionary thought in Lamarck and Erasmus Darwin, the ancestor of Charles Darwin, first formulating explicitly the idea of transmutation or development. To see the inherent ideological character lurking in the idea of evolution, we can look at the birth of the idea under the specter of Jacobinism in the wake of the generation of revolution. The conservatizing Darwin all too obviously fixed the idea of 'slow evolution' from its association with 'revolution', in the match with emergent ideologies of classical liberalism, managing to pass this off as 'science'.[xl]

Significantly the work of Erasmus Darwin was braided with notions of progressive social change and his participation in the work of the famous Lunar Society at the dawn of industrial production hardly seems accidental in retrospect. The impact of the idea of progress was built into the take-off of new forms of social production. Herbert Spencer continued this vein of thinking, and the confusion over social and biological evolution began to make its appearance, and this inability to keep the two straight has persisted to this day. The question is insidious for it persists even as Darwinists try to correct it, or offer disclaimers that they are exempt from these fallacies. But it is the clumsiness of the application of the idea of evolution that is at fault, and Darwin is by no means exempt. [xli]

> **Evolutionary Progress** The idea of evolution was justly born under the star of the idea of progress, itself an expression of the modern transition, in the Battle of the Ancients and Moderns. While the ideological abuse of this concept of progress appears to be corrected by Darwin's neutral foundation in random evolution, the result leaves the idea of evolution stranded in one-sided reductionism. In fact, any

> true theory of evolution must give expression to some dynamic of evolutionary progression. The disappearance of macroevolution, a concept still present in Lamarck, into microevolution is the tale of Darwinism gone awry in the dialectical overshoot and undershoot of opposite mistakes. Evolutionary progress, or bare 'progression', in deep time is notoriously invisible and undetectable, and yet appears at once in historical intervals as soon as we subject the data to careful periodization, and a division into different levels. We should note the entanglement of ideologies in the phases of eonic history: the idea of progress is born in the modern transition, then suffers reversal, as we will see, in the postmodern period, in exact concert with the 'eonic stages' of macro-action and micro-action![xliii]

And then suddenly the period of reaction set in created by the turmoil of the revolutionary generation. It is interesting to consider Erasmus Darwin and Adam Smith in this regard. They share the brief moment of the birth of classic liberal thought, before the tide of revolution completely recast the terms of discourse. A new progressive philosophy of economics enjoyed a brief period of radical notoriety, followed almost within a decade by its ideological rendition as a more conservative liberal ideology. We hardly think of Adam Smith as a radical thinker! We need not agree with the views of Karl Marx to see that by the year 1848 the idea of what constituted radical thinking had undergone a change indeed, and that his depiction of the triumph of a new type of economic civilization, with its attendant ideologies.

The period of the Restoration indirectly conditioned the confusions over evolution, and the association of the idea with revolution made the idea highly controversial, even politicized. The dilemma over slow and fast evolution arises here. The very idea of progress or revolution was subject to concerted attacks by the forces of reaction, and this seems almost to have delayed the acceptance of evolutionary thought for a full generation. In fact, it was in many ways Lamarck who first formulated a theory of evolution, and yet by the end of his life he was almost a forgotten figure. In the background the new biology of the embryologists, such as Von Baer and Geoffrey St. Hilaire, was creating the foundation for a new conception of evolutionary development.

Then came the famous *Vestiges of Creation* by Robert Chambers whose immensely popular but anonymous bestseller paved the way for the work of Darwin twenty years later. In this context we have a better sense of how Darwin managed to succeed where these earlier figures had failed, and the conservatizing of evolution was one of the keys to his success. We can thus see that Darwin's theory was successful as an unconscious reaction to this political background, and the attempt to fix the idea in association with a triumph of liberalism in its classical version made for an easy passage at the right time. This association of the issues with ideology and the development of modern politics would seem to be irrelevant to the question of science. And yet it can help us to uncover the chronic confusion of cultural and biological evolution that has always been a notable feature of Darwinian thinking.[xliii]

The explosive generation of industrialization, emergent liberalism, and revolution is the hidden context of Darwin's theory. Darwin's social position and genealogy, scion of the family of Wedgewoods so prominent at the birth of the industrial revolution in England, colors his thinking, and his strategy proved to be brilliant in the way he packaged his theory

and timed its publication. In fact, the curious phenomenon of the delay in the presentation of a theory that was essentially tabled in the 1840's has many different aspects. It was sudden appearance of the famous Ternate letter of Alfred Wallace that forced the issue and drove Darwin to make public the nexus of ideas that he had long kept private, even from many of his friends and colleagues.

But the idea of evolution was in the air, always with the built-in ambiguity between social and biological development. One of the transparent influences on Darwin's thinking can be seen in the work of Herbert Spencer whose views on cultural evolution produced the classic phrase 'survival of the fittest', beginning the career of 'traveling concepts' between evolutionary and cultural categories of development. The crystallizing classical liberalism was a natural companion of Darwinian theory, and the still more vexatious Social Darwinism arising in the wake of Darwin's work springs from this incestuous constellation of mismatched conceptual themes claiming the title of evolution. The work of Herbert Spencer, now a very dated figure, is often made to take the blame for the Social Darwinist implications of evolutionary ideology, but these deflections of the essence of the problem away from Darwin tend to make us fail to see the ideological core of Darwin's theory.[xliv]

The point should be clear from the direct influence of Malthus on Darwin's formulation of his theory. Malthus was the founder of the science of demography, but he was also a highly contentious conservative figure, one of the most blatant in his propensity to use theory for social legitimation. The polarized and acrimonious debate over Malthus' work went on for an entire generation, and in many ways prefigured the more complex and subtle Darwin debate, still colored with underground strains of class struggle, revolution, and the reform bill. It is easy to lose sight of a simple fact: the mechanism adopted by Darwin under the influence of Malthusian thinking is open to severe challenge on its own terms. The struggle of populations, and the incidence of natural disasters or sudden population fluctuations, is seldom seen as a very weak candidate for an evolutionary theory. It constitutes one of the first examples of the tendency to conceal the crisis of observation that stalks all claims of evolution. The scale and duration of deep time are an unknown. It is therefore a temptation for a theorist to cast about for what he can observe as a clue to what he cannot. But it is very doubtful if what we mean by evolution is really caused by anything like a Malthusian scenario. Certainly the factor of natural selection is a given, but there is no inherent reason to assume that this generates the emergence of complex forms that we see in the fossil record.[xlv]

The Triumph of Positivism The nineteenth century produced an immense proliferation of the methods of scientific reductionism in the biological and social sciences, as the onset of positivism led the way to a monolithic consolidation of scientific viewpoints. A symbolic influence is seen in the figure of Comte, and his somewhat idiosyncratic Positivism, which influenced Darwin at the early stage of his career. One of the problems here is that Comte's work exhibited its own metaphysical tendency, and the historicist philosophy of history in which the Age of Positivism was to succeed those of theology and metaphysics induced a sense of an irreversible progression of thought, with the methodology of science in the starring role.[xlvi]

It is significant that the formulation of Darwinism and the so-called Age of Positivism followed directly in the wake of the collapse of the great era of German philosophy. The end of the reign of Hegelianism, which began with Kant, was very sudden and the history of the 1840's shows us the drama of Feuerbach and Marx challenging the legacy of idealism and championing the need for sciences of society. This period produced a clear delineation of the human and natural sciences, with a challenge to the reductionist implications of the expanding scientific revolution. A kind of amnesia has overtaken science in the stubborn regression, fueled by spectacular, but misleading, technological wonders, to reductionist obsessions dressed up in scientific methodological jargon. It is nonetheless true that Darwinism thrived on this sense of the epochal transition of modernity attempting to establish the foundations of a new age of secularism. This is not an unreasonable view, once its tacit assumptions are brought out. The problem is Darwin's selectionist metaphysics, which cannot sustain the task of defining secularism. A strong case can be made for the 'new age of science', but this is not something fixed or defined by a passing phase of evolutionary theory.

The earlier context of the idea of evolution in the generation before Darwin shows a broader spectrum of views gestating on the threshold of a science of biology. The focus on positivism makes us forget the immense era of philosophical flowering in the German Enlightenment, whose conclusion in the generation of Marx and Feuerbach foretells the downshifting character of the next generation of scientific methodologies. The moment of the birth of the idea of evolution produced a rich field of thinkers. Kant and the teleomechanists, Erasmus Darwin, Lamarck, the school of Hegelian *Naturphilosophie*, Schopenhauer, the embryologists, these and other figures are grappling with the implications of the new evolutionary perspective, and the question remains whether Darwin's theory did not diminish this complex field of his predecessors. The dialectic of materialists and idealists, mediated between such figures as Kant and the renewed Spinozism of the Hegelians, produced a universe of thought more solid than the watered down collision of naturalism and spiritualism characteristic of the current Darwin debate.

2.3.5 The Science of Freedom

From Newton to the period of Kant we see a full cycle of a dialectic that resulted in the distinction of human and natural sciences. This period seems lost to us and we live in the secondary downfield arising in the emergence of scientism as a universal discourse. The Science Wars, and the Two Cultures debate, are really echoes of this period near the climax of the Enlightenment when a deeper dimension to rationality was explored against the backdrop of the Romantic movement, and much else. The point for us will be in something like Kant's distinction of theoretical and practical reason. Whatever we think of his formulation something like it is always present, as a challenge to the reductionist monism ambitious to mechanize all explanation. This distinction is not hard to find in current science. That said, the original formulation of the eonic model consisted of studying systems theory, quantum formalism, artificial life and computer concepts, with Newtonian mechanics in the background. The transition to Kantian ideas and the philosophy of

history is a subsequent stage. To complete the project of science would require a science of freedom.

We should acknowledge a certain irony in the use of this phrase. This 'science' is, of course, the great storm-tossed vessel of Romantic *Naturphilosophie*, visible in the metaphysical continuations to Kant seen in a figure such as Hegel, with his classic thematic of an 'evolution of freedom', 'evolution' a term he did not use. We might think this vessel was lost at sea, and the collapse of Hegelianism in the period of Comte signals the onset of a positivistic era that swings to an opposite extreme, a reduced methodological naturalism deaf to its inherent dilemma. We might be counseled to bypass Hegelian mysteries, but take with us a preposterous question. If one were so Hegelian as to rewrite foundations armed with Spinoza, then does not the grand opera of Idealism constitute a form of methodological naturalism? Like the smile of the Cheshire Cat this joker in the deck lurks in the reshuffled tarot of modern science, if that be a transient episode of scientism, with its recurrent, muffled cries of 'Back to Kant', maybe even Newton, the real one.

Modern science is an attempt to derive the unity of nature in the context of fundamental laws, working upward in a kind of 'bootstrap' that is itself reminiscent of the evolutionary. This attitude is as essential as it is misleading. Bootstrap is an historical 'subhistory' interacting with general history. We are left with a haunting question. Does physics really apply to reality, to human reality? Reductionism is an essential part of our own argument. And yet we are left to wonder. Look at the desert of theory left behind by the whole initiative of science in the cultural realm.

From Newton to Quantum Mechanics, theoretical bootstrap proceeds on the majestic subtleties of the differential equation, and then, at the threshold of life, squawks like a radio moving between stations. Are we really sure reductionism can do evolution? In general, the means of explanation is both evolving inside a larger system and being used to explain that system. Should culture adapt to each paradigm change or wait until the end times of theory to draw its conclusions? One trap is that a teleological system might evolve anti-teleological sciences teleologically and then find the result wrongly applied to the whole. The deficit between the latest upgrade to the definition of reductionism, and out of date explanations, is already a force to be reckoned with in the consideration of any kind of theory at all. Social science is out of sync with the evolution of physics, and ended up negating the surer insights of our transitional figures, and their careful groundwork for the human sciences, to coexist with the natural sciences.

It is important to remember the history of this reductionism in physics, where, for example, the phenomena of electro-magnetism were 'reduced' only after they were first discovered as independent empirical realities. Therefore, our first search is in the field of phenomena. Further, each 'small' step sees a tailor-made addition of mathematical methods, with an exotic change of character in the fundamentals as the mathematics of Quantum Mechanics is discovered, at a deeper level of 'reduction', voiding the previous set. The issue of reduction is then quite unclear, and does not preempt the nature of phenomena very 'distant' from these sources. Finally, one should wonder if the new world of mathematical logic discovered by Kurt Gödel, with its issues of consistency and incompleteness do not impinge directly on the issues of evolution as it 'stretches' to encompass the vast domain of separate things. We can detect the failure of bootstrap in the sudden decompression as substandard mathematical foundations in population genetics

(despite the great interest in this subject). The plug-in 'force' argument is absent, and *ad hoc* substitution of randomness is all we see. Sight unseen we suspect the failure to observe deep time is misleading theory.

Although the attitude of modern 'bootstrap reductionism' in the best sense of seeking the unity of nature on the bedrock of physical laws should be our starting point, or at least a reference point, in practice, issues of evolution are doomed to be empirical mapmaking before they can aspire to being theoretical derivations of first principles. It is often assumed that the application of the causal determinism implied by the use of differential equations in such fields as population genetics or the macro-economic model are 'scientific' whilst all other approaches are subjective. The truth is probably very far, if not the reverse, from this. In a nutshell, we will discover that science can as yet claim no generally viable theory of evolution. The confusion over history and the descent of man is but one gray area where the assumptions of reductionism produce pseudo-evolutionary theory.

It is the distinction of facts and values that returns to haunt all theories of evolution, as does the so-called 'naturalistic fallacy', whereby the 'is' and the 'ought' are to endure mutual quarantine. The charge of metaphysics is laid against the claims of all violators of these protocols. But then no theory is possible, for the elimination of values may fail to account for the phenomena observed, here the association of religious evolution and periodicity, and the parallel exploration of a spectrum of values.

Systems, Selves, Self-organizations The category beyond Darwin needed has been found, self-organization. But the actual use of this category never seems to succeed. The resemblance of the eonic data, our turning points, to patterns considered in theories of self-organizing systems is too close (and yet too hopelessly fuzzy) to reject and one is drawn into an immediate inspection of their content. We cannot adapt current theories of 'self-organization' to the eonic effect in any rigorous fashion, and yet at the same time this category, taken if necessary as a mere metaphor, is the only one open to us. There is also a pronounced tendency to confuse or collate these theories of self-organization with the 'self-organization' of economic systems. That is not at all our usage. Culture does not self-organize in the fashion of economic systems.

Indeed it is at the point of seeing the limits here that we can retreat and devise a new type of model, but as a form of bare periodization. It is possible, in a pinch, to produce a block diagram of a refrigerator or an automobile without understanding the foundations of mechanism. In the same way we can devise an 'eonic model' to see 'how history works' in the sense of what it does, at a high level.

> **Computer Mice** The realm of computer science shows us the most obvious example of something like our coming distinction of mixture histories, 'system' and 'free action'. Thus science is already tackling this question in its hybrid systems of computer mechanics, and the code for a computer mouse is most provocative in this sense.

Something like the functionality of a computer mouse must be involved in any genuine statement of historical law in the sense that one system idles while another acts, and must match coordinates, on the computer screen, with events to receive input 'geographically'. It is interesting that the programming tactic for a computer mouse is a

'do…while', or 'wait until input' statement that does not execute except in relation to free activity. The computer mouse is clearly evident in the macroeconomic study of the economic cycle, as data from 'just before' is recycled into 'free action' modification of a system in motion. This system of agent and machine is worthy of reflection, because it contains the seeds of a new approach to science.

There is a symbolic significance to this humble situation. Two circumstances, the physical and the human, are given at the start of a session of interaction, without the derivation of one from the other. In the same way, human psychology is an historical given. We cannot safely derive it in advance from a theory of evolution on the basis of selectionist theory. In general, we wish to derive consciousness from some prior system in a scheme of absolute reduction. But is that possible? We are better off taking two independent realities, as given, at the beginning of our discussion. In the process we look at the history of man's attempt at self-understanding, and that includes the 'present of theory'.

> **System Action/Free Action** This is but one of many examples where we deal with tandem systems uniting the operation of that system, and a field of options in the context of that system. Such a system may or may not be deterministic, at a higher level, but the point is that within the system context, optionality is a given. This 'freedom' factor requires us to examine the field of realized choice against the backdrop of the system operation. As we examine the eonic effect, this kind of analysis is our best strategy of explanation.

The Newton Riddle We should note that modern scientists would not find Newton, strictly speaking, one of their number, given his interest in the argument by design, and his realization of the limits of his subject. As one historian of eighteenth century biology notes, the foundational Newton at the threshold of modern physics exempted the human will from the laws of momentum, and found divinity implicit as the sensorium of space as a necessary adjunct to cosmic function.[xlvii]

And it was the philosopher Kant, among others, who moved to bring a theory of stellar evolution into this void where the argument by design was, as in the era of Darwin, still entangled in the deliberations of the new science. A similar resolution of the question of human will has never been successful. We should note at least that the real Newton is almost a foreigner in the era of successful scientific worldviews, and concerned himself with the full spectrum of questions from the theological to the occult and alchemical later discarded as irrational in the coming worldview.

The *scientist* Kant is forgotten, and the philosopher Kant (next to Rousseau) is little appreciated for his effort to 'model' the aspects of the 'will' that Newton found intractable. Newton at least knew his business and grasped the nature of the limits of his subject. The complexity of the Kantian response is thus seldom seen in its clear echoes of mechanical explanation in the context of the rising physics. We should note the fact that Newton is almost out of character as a founder of his own subject, while we will rapidly discover that he makes better sense as the hero of our own enquiry. Thus we may proceed, since the scientist has so little use for this inspirational figure seen as better suited to our own. Thus the main chance must a foundation in science, thence to proceed, if we may, to a science of freedom.

CONCLUSION

Our short critique of darwinism has everything needed to arrive at an understanding of the confusions over evolutionary theory. We have kept the selections to a minimum to demonstrate the simple issue involved. We have not produced an alternate theory. None is so far available. The basic perspective of development cited at the start is most probably the key. Biologists study development (e.g. embryology) at length yet baulk if it is applied to evolution, because it suggests teleology. But teleology is probably inevitable in biological systems, as the teleomechanists suggested.

One of the strange aspects of the history of biology is the way that Lamarck got it right, more or less, at the start with his view of two level evolution. In many ways darwinism is regressive and stalled in the fallacies of natural selection.

The question of evolution is not easily solved because it does not fit into the standard rubric of science as currently known. It requires a theory of directionality, and perhaps the fine-tuning argument is one hint from physicists (some, but not all) of cosmic imperative behind the emergence of evolutionary processes.

The reader is ready to consider the larger argument in World History and the Eonic Effect where the connection between history and evolution is explored.

The question of human evolution has not been solved by biologists, and it is important to strike down much of the confusion created by evolutionary psychology. We cannot reduce consciousness, language, religion, and ethics to natural selection.

There is a considerable ferment, finally, in the discussion of the need for a paradigm shift. A Royal Society conference on the question is scheduled for November of 2016 and our focus on a simple critique of basic darwinian is timely resource in that regard.

It is good, however, to operate defensively. It is highly unlikely that science will produce a science of evolution anytime soon. The reason is that scientific methodology is not designed to explicate teleology in nature. To toss off an outlandish idea, to make the point, consider the strange fact that there is no contradiction to systems that generate causality from the future. The mathematics allows it, but they are not realizable in nature. Perhaps we have missed the fact that they are. After all, simple feedback devices come close to such systems. So we sense roughly what we need. Evidently the answer is very ‘simple’, thus, but science cannot yet handle it.

The construction of complex machines in biological systems is the transparent evidence of this, and of the technological ‘primitiveness’ of science (sic!) so far, and its inability to create such machines, i.e. machines that self-construct machines with functional directionality. There could hardly be a theory of evolution until this issue is solved. Given the progress in research it is hard to think that this could not be solved, but the larger question of evolution is not so simple. The question of life and consciousness, remarkably, remain unsolved by science. The issue is to acknowledge what we know, and what we don’t know so that a younger generation of students can approach the basic issues with a new mind set.

APPENDIX 1: BIG HISTORIES, UNIVERSAL HISTORIES

Our account proceeds from causal Big History to Universal History, the evolution of freedom, and we can set up the starting point of 'Big History' as a backdrop to our search for a 'Universal History'. The idea of Big History, history since the Big Bang, is developed, for example, by David Christian in his *Maps of Time*, and this is also appropriate for our tale. Ironically this absolute beginning may in fact turn out to be another relative start, since Big Bang theories may or may not establish absolute starting points, and in any case this forces on us the question of evolution in its most general cosmic context. The connection between the two, self-evident in the eonic effect, is indicated by Christian de Duve in his *Vital Dust*, where the emergence or evolution of the human will in relation to values becomes a challenge to purely reductionist views. Reductionist science simply disregards the demand for any account of this aspect of evolution.[xlviii]

> **The Goldilocks Enigma** Paul Davies in *The Goldilocks Enigma* asks, Why does the universe seem so well-suited to life? Is this not really the answer to its own question: the transition from Big History to Universal History is effected by this 'fine-tuning' emerging in the Big Bang itself. Physics itself, although physicists are reluctant to admit it, gives us a hint of the mechanism beyond natural selection. This insight has been confused by metaphysical design arguments. But the empirical basis for a consideration of evolutionary directionality, beyond random evolution, is there.[xlix]

Because of its double aspect, the idea of Big History stages a dramatic, almost drastic contrast of scales, the unimaginable vistas of deep time, next to the evanescent moment of man's emergence into Civilization, and our detectable 'evolutionary moments' at the level of centuries. We should peg our depiction of the latest with the earliest.

The perspective of Big History can be misleading, recall our discussion of 'evidence density': we need two standards of evidence: the long term, and the short term. Big History has thus two meanings. The first can encompass the extent of time since the Big Bang. The other, which we might call 'macro-history', shows us the fine-grain at the level of centuries or less. We have seen that evolutionary generalizations require both standards. We might not detect the existence of non-random evolution if we confine our perceptions to the large-scale. This second standard only arises with world history, the only source of data for 'big history' in the second sense.

APPENDIX 2: CLIMBING MT. IMPROBABLE

We include a selection demonstrating the real meaning of ‘climbing Mt. Improbable’ with an example in historical terms via what we call the ‘eonic’ or macro effect.

Looking backward, world history shows the unexpected evidence of a non-random pattern, one that we should naturally call ‘evolution’. We simply assume the flow of world history follows random logic, conditioned as we are by Darwinism. Yet the rapid growth of archaeological knowledge since the nineteenth century is moving to falsify this assumption and has greatly expanded our views of the emergence of civilization and, significantly, crossed a threshold of five thousand years, the bare minimum interval, we are about to see, for grasping the logic of historical evolution. Such a non-random process is the clue to something going on at a deeper level. The pattern itself suggests a developmental sequence of self-organization at work, something that is ‘climbing Mt. Improbable’. Indeed, we should call this ‘evolution’. This ‘evolution’, on reflection, must be connected in some fashion to earlier stages of human evolution. A non-random pattern on this scale shows us something missing in Darwinian thinking and falls into the category of ‘evolution’, ‘evolution of some kind’, with a question, What is the meaning of evolution?

We can easily prove the point by simply laying out a careful timeline. World history since the invention of writing shows an exact systematics, often down to the decade, an unnerving warning about earlier periods with less data. If we examine this pattern of developmental emergence and connect its timeline with man’s earlier evolution, we realize that they must be connected. We are suddenly suspicious that a process like what we see in world history is present, but invisible in the earlier phases of human evolution. We begin to suspect that we need a ‘centuries-level standard’, evidence at very close range to detect what is really driving evolution.

> **Paleolithic** Current evidence distinguishes anatomically and behaviorally ‘modern’ man, the first appearing ca. 200,000 years ago, the second in the period after -100,000, with the remarkable threshold, often called the Great Explosion, somewhere between -100,000 to -50,000, associated we are to suppose with various ‘Out of Africa’ scenarios. Darwinists are determined to ignore this phenomenon, but the evidence makes no sense as slow evolution.
>
> > **Was there a ‘Great Explosion’?** The evidence points to a sudden crossing of a threshold. Once we see our historical pattern in action this sudden passage begins to make sense, because we can see that something more than natural selection is operating in a relatively short period of time, possibly in intervals of five to ten thousand years. We see, in any case, that world history is an instance of a ‘great explosion’, the rapid emergence of civilization over ten millennia. We strongly suspect this ‘evolution of civilization’ is related to the earlier evolution of man.
>
> At the very least in the debates over fast and slow evolution, we seem forced to conclude that many of the behavioral characteristics of a new species appear

quickly. Both slow and fast evolution are occurring overlaid, please note. But these periods of rapid emergence are completely beyond the range of our emerging historical standard, the 'centuries level', and we can only wait for further research to confirm or falsify this emerging but fuzzy picture of the suspiciously sudden appearance of *homo sapiens.* The obvious resemblance of the phenomenon of the so-called Great Explosion to the eonic effect leaves an immediate question mark for Darwinian claims, or plaintive hopes, that some lucky mutation suddenly appears to accompany the seeming *fait accompli* of a hominid so accomplished in language, art, religion, and the elements of 'technical ingenuity' that will transform the nature of cultural evolution. As we study the eonic effect, we will begin to see what we are probably missing. We suddenly realize we have a demonstration of how the earlier rapid evolution might have occurred!

The Neolithic A relatively static period ensues until, in the interstices of the various Ice Age rhythms, human cultural evolution begins to take off with the discovery of agriculture. Man emerges from the Paleolithic and by sometime around -8000 we see the Neolithic underway. Our non-random process probably begins, or restarts here, but even this early Neolithic still fails our 'centuries level' test. This is the true beginning of 'civilization', in the progression, village, town, city, and we arrive at the emergence of complex states, often called the 'rise of civilization'. It is probably in this era, incidentally, that we are to find the birth of 'religion' in the later sense of what we see as the 'world religions'. Five thousand years separate the onset of the Neolithic and the rise of higher civilization. We are drawn to a distinction between the 'discovery of agriculture', a technological advance, one that may or may not have happened independently several times, and the crystallizing cultural formations that transform Paleolithic man as he enters into an entirely new stage of social evolution. And this is related to the fact that the prime focus of the Neolithic lies in the Fertile Crescent of the Middle East. In fact, the remarkable technological complexity of irrigation societies that we see in the coming world of the Sumerians is already an advanced descendant of these earlier advances.

> **A Non-random Pattern** Now we come to the remarkable pattern that we will call the eonic effect, visible since the invention of writing: three periods in a row of rapid transition, equally spaced, inside the slower current of world history, relatively static by comparison. We can see world civilization divide into three epochs driven at the start by rapid advance. Three complex transitions ca. 2400 years apart fret the whole of world history. This pattern is a complete giveaway: it shows an exact developmental sequence of a special kind in a series of selected regions that demonstrate 'transitions' to a new stage of civilization. These areas then advance the whole by diffusion.
>
> **Mystery 'Force X'** We commented before on the necessity to consider the 'force of evolution', in any sense, and our pattern betrays such a 'force' (we may not use that word) very directly.

> Careful accounting of time-periods shows us almost by definition the mysterious 'evolutionary driver' operating behind the scenes, visible in the clear sequence of sudden surges of advance. It is probable we are missing the earlier stages of this in the Neolithic.

Rise of higher civilization Suddenly around the end of the third millennium we see what is conventionally called the 'rise of (higher) civilization' in the dramatic, and synchronous emergence of the Sumerian and Egyptian complexes. Note the confusing way that two mainlines appear in parallel, a phenomenon we will see frequently, especially in the next so-called Axial Age. These two civilizations cross a threshold into a stage of higher social complexity, indicated by the scale of their social and political formation. They will prove the dynamic sources for millennia in the oikoumenes or diffusion fields that they generate. We had thought that this was an *ad hoc* advance based on contingent factors as described in the various unsuccessful theories attempting to explain the phenomenon (e.g. Toynbean 'challenge and response'). But in fact we detect an element of timing in a process that has a mysterious 'scheduling' or cyclical period, the clue to some kind of developmental sequence in the large. Notable among a host of innovations is the invention of writing, the beginning of the historical record, and here we detect the beginnings of our non-random pattern. Three times in a row we will see this phenomenon of three or so centuries of sudden advance, the achievement of a plateau that is never matched by its immediate successors which are relatively static or even moving into 'medieval' decline. Nothing in this gainsays prior slow development. Slow and fast evolution are both the case, overlaid. But the sudden jump to a new social formation has always been a puzzle, and we will see that to our surprise the timing is non-random. Here is where we find the resolution of the Axial paradox. The Axial Age is simply the next in our series of such sudden jumps, transitions, or turning points. But it adds a new twist: sudden development is a series of parallel transitions across Eurasia (a close look shows a similar effect in the previous case, Sumer and Egypt).

Transition 1 We are really talking about the emergence of complex forms of the State. This occurs in the centuries before and around -3000, and we have the invention of writing, and the sudden onset of two classic advanced civilizations, Dynastic Egypt and the world of Sumer. Two (relative) starts in parallel. This period is conventionally described as the 'rise of civilization', although the slow transition, village, town, city that defines the Neolithic is all too obviously an earlier stage of gestating 'civilization'. But a new threshold of human social complexity clearly comes into existence very rapidly at the end of the third millennium BCE. This could be seen as 'state formation'. This initial burst of advances rapidly becomes fixed in place until the next phase. Nothing can quite match the creative phase of early Sumerian city-states, and the large oikoumenes generated show the drift into empire formation that characterizes the coming centuries. The world of Egypt produces its theocratic state and then remains almost frozen in place for two millennia. This transitional period generates an immense diffusion field across Eurasia, and we can clock the rise of complex states almost in proportion to distance and time in the wake of this phase: the Indic and Chinese systems are underway within a millennium. This period is still a bit

murky, just on the threshold of our centuries-level test. We can see that slow and fast evolution are reconciled in practice. Both are true. And we realize why we are unclear how to refer to the 'rise of civilization'. It has been rising since the Neolithic. We are referring to the sudden transition that takes place in our eonic series. This point becomes clearer as we examine the next phase, the Axial Age.

Transition 2 The next rapid burst is the so-called Axial Age, from around -900 to -400, the period from -900 to -600 being the real generative period. Around a center of gravity ca. -600 we have the beginnings of our classical traditions, the world of the Greeks, the core Old Testament and its Prophets, the world of Buddha and Confucius. We see independent sourcing areas suddenly undergoing transformation in synchronous timing. From this period springs the constellation of great traditions that lay the foundations not only for 'western' civilization, but the civilizations of India, China. The Axial Age can be confusing because of its wide dispersion of effects from Rome to China. But this is because we think in terms of 'civilizations' while our pattern respects and acts only in relation to short intervals of action, and their subsequent diffusion fields. The areas that respond in Axial phenomenon already lie in the wake of the diffusion field from the first transition.

The phenomenon of the Axial Age is so spectacular and occurs at such high speed, within ca. three centuries, that our confidence in earlier theories about human or other evolution plummets. The Axial Age shows a series of independently parallel emerging zones of advance.

The diversity of the Axial Age is remarkable and we see not only the birth of two world religions, but of the world's first democracy, and the first Scientific Revolution in Greece. We cannot ascribe this phenomenon to slow evolution. There are no sociological antecedents that can explain this phenomenon, the more so as it is independently emerging in unconnected regions simultaneously.

Note that the Israelites had a sense of this phenomenon, but localized to their own cultural world. The confusion of emergent theism and historical transformation has made it difficult for us to discuss the question of the Axial Age, since it is (not surprisingly) confused with an 'age of Revelation'. We should note that the Israelites were reluctant to speak of divinity, preferring abstractions such as IHVH. We must confront the fact that a sense of design arises in relation to the phenomenon of the Axial Age. But on reflection and close examination we begin to see that the sense of design yields to the sense of a complex system at work, one of evolutionary potential.

This period reaches a plateau, as innovation becomes less intense, and in fact many of the innovations die out as this period wanes rapidly and we enter period of the Occidental Roman Empire and its long decline, followed by what we call the Middle Ages.

We could almost guess the next step in the series. The only period that resembles the Axial transition is the sudden rise of the modern.

Transition 3 It is the realization that modernity is connected to all this that is the surprising fitting together of the last piece of the puzzle of world history. Thus, once again quite suddenly we see the remarkable rise, with uncanny timing, of the modern world, a great take-off about 1500. This is not the same as the so-called Renaissance, nor is it slow evolution from the Middle Ages (which is present in any case). In three centuries starting in the sixteenth century the world system is transformed and reaches a new level of civilization and cultural organization. It seems as if many of the processes of the Axial period suddenly revive and echo in the modern transition: another rise of science, another democratic revolution. All at once we realize that the progression from the Axial period into a protracted medievalism, followed by the sudden rise of the modern world, is no accident. It is part of the precise timing of our mysterious pattern. We have become hopelessly confused by the question of Eurocentrism and so-called 'Western Civilization' in discussions of the modern world. But as we study the eonic effect as a whole we will discover its various properties, among them a kind of 'frontier effect', whereby each of our transitions moves to the exterior frontier of its prior diffusion. The confusions of Eurocentrism are a distraction. We see that our pattern exploits a transition region for its renewal, and always from the fringes of its previous action, the obvious explanation for the Euro-centered transition area. The emergence of modernity at the fringes of Eurasia is thus a side effect of the overall pattern. The period from 1500 to 1800 is the crucial transitional interval, a claim that clarifies at one stroke the confusions of historical dynamics mixed with modern/postmodern distractions. We should note that each of our transitions occurs in a staging area, whence its effect spreads by diffusion in a process of globalization. The Euro-centered staging area of modernity is thus explained by its place in our eonic series, along with the remarkable insight that historical evolution is occurring on two levels, in a global process that acts on the whole via a series of local parts.

This mysterious drumbeat hides an unsuspected dynamism and answers directly to the enigma of the evolution of human civil existence in a series of discrete periods. We have used the term 'punctuation' for a reason: the phenomenon gives us an almost perfect representation of 'punctuated equilibrium', and shows us a genuine instance of some form of 'macroevolution', if we can understand the relationship of history and evolution. In fact, 'punctuated disequilibrization' might also describe the phenomenon, since the effect is to rouse a steady state into a dynamic one. This usage of the term 'punctuated equilibrium' has little to do with prior definitions, so we could take the term as if coined from scratch. It shows what a real 'punctuated equilibrium' process is like in an actual instance seen at close range.

A closer look, in the arduous inquiries at deeper zoom levels, reveals the need to revise assumptions of historical continuity with a balanced conception of discontinuity. These discontinuities are unmistakable and are especially clear in the period ca. -900 to -600 of the extraordinary synchronous emergence of the classical traditions. Suddenly, in China, India, the Middle East and Greece, the forms of culture undergo a cultural acceleration in a synchronous parallelism that is quite mysterious. Everything seems done in a flash. The world of Classical Greece flowers, and, like an apparition, the moment is gone. Israel sees its age of the Prophets, the Exile, and the emergence of a new religious

matrix. In India and China, we find the same, in a period that produces the seminal foundations for a whole era. For centuries to come men look back at this era. The monuments of the earlier age of Egypt and Mesopotamia fall into oblivion and disappear in sand. The discontinuity is not a gap, far from it, it is a clustering of innovations, a packed field of sudden creative advances over a brief interval of history.

> **A Strategy of Globalization** Our pattern can be confusing at first, but on reflection makes complete sense: it moves in parallel and redundant failsafe streams, which become multiple in the Axial Age, to embrace diversity, then the process contracts at the end in the modern transition, obviously because imminent globalization requires a single focus. This pattern shows a clear strategic element.

This synchronism began to be observed in the nineteenth century, but has failed to become well known, for the nature of its dynamic is difficult to pinpoint, and it controversially forces us to revise our views of the Great Religions. This reluctance to see the Axial effects is not surprising, since we are talking about fields of free activity that show structure over a period of centuries, a seeming contradiction. But the evidence can't be denied. This synchronism implies the *discontinuous temporal phase* is the crucial determinant, independently of any continuous runway leading to the sudden flowerings of individual areas. Causal continuity is clearly violated. It is hard to reconstruct, let alone visualize, the correct sequence of emergence. We see the peaks stand out, great religious founders, art, philosophers, new political forms, then a distinct fall-off. But the overall picture is clear. Its implications indicate that cultural evolution is, so to speak, hyper-cultural in a generalized system of evolutionary emergence, an extraordinary fact, and the one great clue to evolution in action.

> **The modern transition: a model** It is useful to consider the modern example, which is fully visible in detail, as a model for the earlier transitions. We see that a statistical region of three centuries expresses an intermittent action that ratchets to a new level of culture. This three-centuries interval has a conclusion, or 'divide' point, clearly visible in the modern case. This modern example can help us to understand what is happening in the previous cases.

It has often been noticed, as in this instance, that the record of human history shows a strange patchwork of fast advances, and slower periods that are relatively static. This fact alone should alert us to the existence of historical dynamism. Our use of the term 'medieval' is quite revealing in this regard. We call the period from the fall of the Roman Empire until modern times a 'middle age'. This 'middleness' is a clue to how we in fact take our own history, not quite sure why, although we can see that the source of this earlier world lies in the onset of the classical age, many centuries before. This era rose to a height that was never matched until after 1500. The same relationship is now visible in the era prior to this, at the birth of complex civilization. The obvious suggestion is that discrete and continuous processes are blended in the context of a macrohistorical system, if we can define it. We will use the term 'mideonic' to refer to the intervals in full between our turning points.

The rise of civilization from the Neolithic takes place quickly around the end of the fourth millennium, in Egypt and Sumer. This is followed by the long eras that characterize these distinct forms of culture, more or less set in their pattern. Then, in the centuries just before -600 we find civilization on the move again, this time, as noted, in a

broad field of rapid parallel advance. Another period of take-off this time in widely separated areas, suddenly transforms the whole basis of civilization. Then finally the rise of the modern shows its hand as the next descendant in this suddenly obvious series. But the spottiness of the pattern is not at first amenable to any simple explanation, in part because we have no prior grounds of explanation at all.

The worlds of Archaic Greece, the Hebrew Prophets, the Upanishadic era of India, and the centuries before Confucius in China suddenly emerge simultaneously. From this we can infer the presence of a larger system doing cross-sections, one on a scale greater than its manifestations as individual civilizations. It is hard to imagine how this could be until suddenly we notice the coordination of this system over millennia. It defies all odds of being random, and finds its oddities from the inherent nature of large-scale culture evolving on the surface of a planet.

We are confronted with a strange pattern, obviously incomplete, and no doubt sourcing in the Neolithic or before, whose real symptoms are clearest at the sources of our traditions. Thus, if we consider this classical era in detail, it becomes evident that it represents a phase in a greater sequence. The birth of civilization, and the rise of the modern world, for three centuries after the Reformation, show the same absolute high-speed emergentist structure in phase, and are clearly related in an overall dynamic of such transitional phases. These three periods, and only these, show this 'order of magnitude' explosion, although the genesis of Islam comes close. This does *not* include the period after 1800, or license any ideological conclusion some might derive from our purely theoretical argument. Beside this parallelism, then, the long sequence of civilization begins to reveal as a whole this overall hyper-cultural generative structure. Thus we can see, in addition, the inner coherence of all of these periods as a unified system whose realizations we call 'civilizations'.

In summary, world history since the invention of writing suddenly stands in contradiction to all basic assumptions about random evolution. This pattern can be seen from two aspects:

1. The first is of the so-called Axial Age, the enigmatic synchronous emergence of cultural innovations and advances across Eurasia in the period of the Classical Greeks and early Romans, the Prophets of Israel, the era of the Upanishads and Buddhism in India, and Confucius in China. This data shows us that an 'evolutionary something' stands behind the emergence of complex forms of culture, is global in scale, and operates over an interval of several centuries to redirect the course of civilization.

2. The second, related to the first, is of a drumbeat sequence of punctuations or transitions proceeding down a mainline of the diversity of civilizations. Looking at the Axial phenomenon we are forced to consider that it is part of a larger pattern, and is a step in a sequence. Moving backwards and forwards we suddenly discover the full pattern. These punctuation points are, remarkably, equally spaced, with an interval of about 2400 years, evidence of a cyclical phenomenon. We thus have three turning points or transitions several centuries in length which we can call 'turning points or transitions 1, 2, 3', or **TP1, TP2, TP3.**

Transition 1 The birth of the state, appearance of writing, onset of Dynastic Egypt, and Sumer, first higher civilizations,…

Transition 2 The Axial Age, from China to Greece/Rome. Onset of two or more world religions in India and Israel, multiple sources of philosophy, birth of science, Greek democracy,…

Transition 3 Rise of modernity, onset of Reformation, secularism, English, French, American Revolutions, Enlightenment, another scientific revolution, another birth of democracy, Industrial Revolution,…

Suddenly, we have a clear holistic interpretation of world history in the form of a non-random pattern behind us in the chronicle of known history. It is non-random in the way it demonstrates an intermittent clustering of creative action over long periods beyond the scope of individual will. It is a pattern that explicitly defies the logic of chance, as it generates a sense of coherence. We can even see 'system return' processes, like feedback, attempting to restore direction or elements that have died out.

That's it. With nothing more than a short outline of world history we have stumbled into the detection of a non-random pattern, one that is the essence of simplicity, and yet at the same time showing evidence of a very deep and profound kind of complex system operating as a unity over thousands of years. We need a generalized kind of systems analysis to deal with this and can proceed to create a new kind of model that will help us to see what is going on. But the point is clear that as our data for world history crosses a five thousand year mark the larger dynamic behind it suddenly stands out. The main task is to follow this pattern with an outline of world history.

APPENDIX 3: FROM LIFE'S ORIGIN TO THE DAWN OF HUMAN CULTURE

The mystery of the origin of life, and the so far intractable character of the enigma, remains an invariant of discussions of evolution, and should caution us that without an understanding of the beginning, excessive confidence in the now standard explanation of evolution after its beginning, the Darwinian scenario of natural selection, is misplaced. Our eonic perspective suggests immediately what is wrong, as a red warning light goes on, but we cannot use it to solve a problem for which it wasn't designed.

A Noumenal/Phenomenal Mystery Our brief consideration of Kant's Challenge uncovered the way in which the dynamic of our 'eonic evolution' was not visible while the phenomenal aspect was visible as the eonic effect. We suspect immediately what is wrong with the origin of life debate, beset by the egregious claims of design theories. The dynamics of life emergence, whatever the

biochemical details, may well have a noumenal aspect. That is very different from confusing the issue with supernaturalism.

There is something entirely odd about the beginning of life. It arises relatively quickly in the wake of planetary formation, in seeming defiance of probability. Within a relatively short period of time the passage to the RNA world, and then the DNA world of the cell is accomplished. In fact, the era of unicellular life is much longer, and the onset of the 'animal' in the era of multicellular life leaves us the clue, one we still do not understand, the sudden and rapid emergence in the Cambrian era of all the standard body plans that will fret the era of life to come.[1]

4.5 billion years ago: formation of the Sun, planets, and earth

3.7-3.8 billion years ago: origin of life

1.5 billion years ago: appearance of eukaryotes, sexual reproduction

550 million years ago: Cambrian era, multicellular organisms

500 million years ago: vertebrates appear

250-150 million years ago: first dinosaurs, mammals, birds, flowering plants

55 million years ago: first apes

From the Cambrian to the era of Primates seems a short progression compared to the far longer period of one-celled organisms since the dawn of life. We seem to confront precisely the kind of pattern, expanded to a larger scale, that we have seen with the eonic effect, a basic directionality on two levels in the course of development. It is the collation of the two levels that confuses us. This is the great heresy of evolutionary progress, but we suspect the obvious, an evolutionary ratchet effect, and our perspective suggests 'stepping progression' would be a better word, in the sense of an effect reaching new successive plateaus where microevolution takes over. This approach preempts the fallacies of teleology by keeping the different levels of action distinct, although directionality in the final analysis is a brand of teleology, save only that we make no statements about a telos, instead looking at the relative motions of successive steps. S. J. Gould, always so critical of the idea of progress, suggested nonetheless the right framework, that of punctuated equilibrium. That idea, however, is not the same as that of natural selection, and should be taken in a generalized and minimal sense, as a descriptive patterning of evidence.

In fact this stepping progression is visible at all stages of evolution, from the first step of the origin of life, to the Cambrian, and the emergence of man. We should consider one further such stage, on a tentative basis:

The Origins of Mind Although the exercise of seeing the unity of man and nature, man the third chimpanzee, is one of the great insights of biology, one we should embrace, at one and the same time the suspicion arises that the stage of man crosses a threshold in the origins of mind as significant as the origin of life itself. The physical realm, the realm of life, and the realm of the cosmic, for lack of a better word, a realm that transcends life, yet mixes with it, stand together in a

complex unity that we so far fail to understand. The stage of mind is a threshold to a stage that brings history to evolution.

Ethical Action The evolution of man is more than a question of 'mind'. It is also a question of 'will', and the ability to make choices in a contemplation of potential action. No account of a naturalistic ethics has ever produced an adequate depiction of this aspect of man, let alone of its evolution. In our formulation the distinction of consciousness and self-consciousness is one avenue toward reconciling the contradiction, and mediating the transition, whatever it was, to man as we know him, in principle capable of freely chosen acts, and liable as such in courts of judgment. This is always coexisting with the slovenly and disorganized fluctuations of self-consciousness between willful action and mechanical reaction that are so characteristic of man.[li]

It is possible that the 'evolution' we see in the eonic effect is giving us a record of this transition. However, we should be wary of using the data of the eonic effect, to jump to conclusions about a problem it is not designed to solve, but we suffer a sense of *déjà vu*, and a frustrating realization that the standard accounts are probably backwards because they don't take into account the interplay of two levels we see in the eonic sequence.

Surely the emergence of a basic 'evolutionary toolkit', the world of evo-devo, in the realization of the potential of developmental sequences, should be a hint that the basic regime of natural selection is at best a secondary process. And yet we are led to believe that this tool-kit arises by chance, when many of the generated sequences themselves were once incorrectly ascribed to random evolution. Clearly the complex interplay of the two is precisely the kind of macro/micro level action that we have begun to suspect for historical development.

We can make such statements now without the dialectical intractability between directionality and randomness that tends to overtake all discussion as it founders at the limits of reductionism in the antinomies of teleology. Scientists are rightly bunkered down in purely causal analysis, but as the Kantian perspective reminds us this reductionist regime will nonetheless prove insufficient. This is seen in the 'symptom' of teleological action, namely, the unsettling discovery at so many points of so-called 'fine-tuning'. As to teleology, the mode of its realization is unseen, but we can at least see that ratchet directionality is not incompatible with the facts, for we see the evidence is open to the same two-level analysis we have discovered. Such discussions are so distracted by theological sideshows of theists and atheists that the probably obvious cannot be considered, the cosmic imperative, in the phrase of Christian de Duve.

Scientific wariness at this is more than understandable, but the plain fact of the matter is that the development of life falls as well into a pattern of directional evolution overlayed on the random. Once we grasp the pattern of two levels at work, the typical confusions of Darwinian analysis are seen for what they are. We can see that there can be an intermediate set of alternatives, such as the alternating or on-off directionality we see in the eonic effect. We need to consider that, just as with history, the greater evolution of life is operating on different levels, as this produces both differentiation and the relatively random play of forms via the microevolutionary processes such as natural selection, and a larger direction setting process that always selects on strain of its multiple outcomes.

This perspective, taken with great caution as a range of hypotheses, without metaphysical extras, might help us to see that the evolution of primates into man is probably two kinds of evolution overlaid, a 'stream and sequence' effect, just as in world history. The branching outwards, the failed lineages, the plateaus of stasis, should not blind us to the way that, most improbably, a clear set of stages is visible in the record, leading to the final appearance of modern man.

The recent discovery of so-called Ardipithecus suggests the earliest stage before the emergence in parallel of man and chimpanzee. By five million years ago we see the separation of man from these ancestors of the chimpanzee, and in this strain of the bipedal ape visible in Australopithecus we see the beginnings of a series of relatively brisk steps up a ladder to the final crossing of a threshold to the first man-ape, homo, from *homo habilis*, thence to *homo erectus* 1.7 million years ago. With *homo erectus* we have first true 'man', a bipedal tool-making hominid who stages the first exodus from the African continent into Eurasia, differentiating into the Neanderthal in Europe. No coherent theory has emerged along Darwinian lines to account for this.

5-7 million years ago: separation of chimpanzees and first hominids

4 million years ago: first australopithecines

2.4 million years ago: *homo habilis*

1.7-1.9 million years ago: *homo ergaster/homo erectus*, first exodus from Africa

300, 000 years ago: ?Neanderthals branch off

200 to 100,000 years ago: anatomically modern man appears in Africa

100 to 50,000 years ago: appearance of behaviorally modern man, second exodus

A stream and sequence argument would fit this data handily. The 'streams' of continuous evolution producing several side branches from Australopithecus to Neanderthal cross a threshold in the period ca. 200,000 years ago, and then somewhere in the period from 100 to 50,000 years ago a ratchet transition occurs that produces the finishing touches on behaviorally modern man, who then proceeds to migrate across the whole planet. This action must produce a creature that can use language, has a characteristic human consciousness, and the ability to innovate and create art. To say this has resulted from Darwinian evolution is a speculative claim. We can see the clear resemblance to the kind of evolutionary macro process in disguise that we are familiar with already.

It is once again from Africa that we see the next stage of man, and the final crossing of the threshold to *homo sapiens*. Around two hundred thousand years ago, or less, the first anatomically modern man appears. It is important to consider the distinction that arises at this point between the anatomical threshold and the subsequent, and still mysterious, threshold of behaviorally modern man who does not appear until after fifty thousand years ago. That leaves the period from around a hundred thousand years ago for us to find the explanation for a remarkably sudden appearance of the species 'man' in the sense that we now see him. The various multiregional hypotheses have yielded to a basic 'out of Africa' scenario, in which the new species, dramatically ahead of his ancestor *homo erectus* emerges from Africa in small bands and proceeds within a very short period of time to what is the first of several great globalizations of man.

This new man, it would now seem, is quite distinct from the Neanderthal, with whom he seems not to have interbred. And within a relatively short period of time we see the rise to sole dominance of the 'out of Africa' man who has achieved the passage to all of the characteristics of the human species, from language, to art, to conceptual thought. We have already broached our speculative suggestion that in the eonic effect we can see how this development of behaviorally modern man can occur via a macroevolutionary sequence that is more than genetic and that can operate on entire populations as whole units.

We can draw no final conclusions on this point, save to feel a little more comfortable with the facts that we have, clearly outlined, for example, by Richard Klein and Blake Edgar in *The Dawn of Human Culture*, suggesting that as of fifty thousand years ago a 'great leap forward' had occurred. Klein notes the clear application of the idea of punctuated equilibrium to the evolution of man and points to four such events in the descent of man:

1. 2.5 million years ago when flaked tools appeared
2. 1.7 million years, human versus ape-like body, more advanced tools
3. 600,000 years ago, the rapid expansion of the human brain
4. 50,000 years ago, the 'great leap forward', producing modern man

These stages roughly correspond to *homo habilis*, a somewhat questionable transitional figure, but one showing the first advance toward man the toolmaker in the so-called Olduwan phase, then *homo ergaster*, initiating the new phase of tool making the Achelean, and his immediate successor *homo erectus* who stages the first exodus 'out of Africa'. Next, we have *homo heidelbergensis*, and the accelerating transition to *homo sapiens a*s a body type in the period after 200,000.

This perspective on the last stage of human transition has been challenged by findings that show a more gradual emergence of the traits we now ascribe to man in the period from ca. 300,000 onward, but the two perspectives are not necessarily contradictory. In other words, still another continuity/discontinuity dilemma, grist for our mill. The stream and sequence metaphor is being confirmed here by the obvious pattern of double facts.

And the idea of the 'Great Leap Forward', or the 'Big Bang' of human evolution could have a slightly different meaning from the purely genetic evolution considered by biologists.

> **Out of Africa** Klein and Edgar begin their account with the Twilight Cave. This cave in the East African Great Rift Valley shows artifacts of 40,000 years ago of advanced tool making, but more tellingly ostrich eggshell beads, whose symbolic significance is suggested by their persistence to contemporary !Kung who have maintained this technology as an exchange or reciprocity medium with neighboring tribes. This would constitute a token of the dawn of modern humans.

Our perspective on the eonic effect warns us that even with genetic innovations in place a larger transformation is required to effect the realization of the new potential. This is exactly what the facts suggest. And the question of language evolution simply will not go away. Our perception of the eonic effect should remind us that even at the most advanced level of human development a mysterious evolutionary macro process is

detectable. How much more likely it is that this would this be needed at the earliest stage of human emergence! And let us note that our statements here are not (necessarily) about genetic evolution. Jumpstarting an already present potential requires explicit action from a macro process.[lii]

Let us recall the clear evidence of the Axial Age, in which we can see rapid emergentist development across the whole spectrum of culture in relatively isolated regions, and this in short bursts on the level of centuries. Our feeling about what we see from the evidence of a 'Great Leap Forward' is that the religious, linguistic, artistic, and other, evolutions of man occurred likewise in some kind of concentrated evolutionary sequence, relatively but no absolutely isolated geographically, undoubtedly in Africa, and then that a small contingent of this new man became the basis for a new globalization of the result.

The beginning of our tale, then, is appropriately the second of the 'Out of Africa' sagas, beginning somewhere between 80,000 to 50,000 years ago. Out of the blue, modern genetics has given us in the analysis of mtDNA and the Y chromosome a complete set of histories that can locate and map the migrations of early man out of his African home. There are a considerable number of variant hypotheses here, some considering a migration through Northern Egypt to the Levant, and beyond. But the genetic data now suggests a single exodus, and the likeliest candidate is the crossing of the Red Sea at its southern end, the so-called *Gate of Grief*, from Africa to Yemen in a period when that still relatively easy to cross, most probably island hopping with boats or rafts. The evidence suggests one unique migration, by a small number of people, perhaps only several hundred. The great migration then proceeded along the coastal highway of the Arabian coast all the way to India, and then all the way to Australia. There are a number of timelines for this great migration, depending on just when man reached Australia, but the basic scenario is clear from the genetic record.

This shows that the first migrants followed the 'beachcomber' route all the way to India and East Asia. Significantly, a branch of this migration headed north in the vicinity of Pakistan and finally reached Europe, often known as the peoples of the Aurignacian period. Our basic framework is set for the transition to human settlement, then agriculture and the forms of higher civilization in the period after the Last Glacial Maximum.

50, 000 years ago: the passage 'out of Africa' toward India, the beachcomber trail

46, 000 years ago: first evidence of modern man in Australia

45,000-35,000 years ago: exodus branches in India takes over Eurasia, and enters Europe

45,000-10,000 years ago: Upper Paleolithic, Aurignacian, Gravettian

10,000 years ago: onset of Neolithic

This period is the first great flowering of modern man, despite the challenge of climate in the worsening fluctuations of the Ice Age until the Last Glacial Maximum around 20,000 years ago. This period of man the hunter-gatherer shows the capacity for general innovation, art, proto-religion, and the full capacity for language. It also shows the devastating impact of man's advancing technology on the environmental balance of species, in the multiple extinctions of man animals confronted by the human diaspora.

There is something remarkably convenient, and mysterious, about all of this. Man is repeatedly 'evolved' in Africa, and small subsets of the result commence their global migrations. Although we see microevolutionary effects in the Eurasian sphere, for example the emergence of Neanderthal in the European Ice Age environment, we see no real large-scale effects, with true speciation occurring only in Africa. Say what you will, but this is quite suspicious.

The hothouse evolutions of man in the African Eden, accomplishing all the major transitions, set the stage for all the rest. We can at least see this as confirmation of the basic spatio-temporal architecture of punctuated equilibria. We should consider the image arising spontaneously of a period in Africa, perhaps in some Ethiopian Eden, not far from the jumping off point, 'out of Africa', where man consolidated his linguistic evolution in a period not unlike that of our eonic series, in the emergence of his characteristic cultural forms, perhaps riding on the realized potential of music, song, and choral association. The man who will emerge is a story teller, a musician and singer, a creature whose emerging self-consciousness will leave him at the threshold of what he will hallucinate as the 'spirit world'. It is very difficult for us even as modern men to correctly evaluate this side of man, since we are that man, and subject to the same limitations of consciousness. The data of the eonic effect can give us at least a suggestion of how this could be.

And 'after Eden' there comes into existence a hominid who begins to destabilize the global environment that he begins to discover in his movement across Eurasia, and then into the Americas. For the first time, unlike *homo erectus,* who seems to remain in relative equilibrium with is outer world, man has the edge in his dealings with that world, and this increasing mastery shows a want of his own self-mastery as he begins the long cycles of species extermination across Europe, Asia, and the Americas. This upset equilibrium impinges, of course, into our own time, as the species character of man provokes a crisis of his future evolution.[liii]

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[i] Ernst Mayr, *One Long Argument: Charles Darwin and the Genesis of Modern Evolutionary Thought* (Cambridge: Harvard University Press, 1991), F. Hoyle & N. Wickramasinghe, *Evolution From Space* (London: Dent, 1981), Robert Reid, *Evolutionary Theory, The Unfinished Synthesis* (New York: Cornell, 1985), Robert Wesson, *Beyond Natural Selection* (Cambridge: MIT, 1991), Michael Denton, *Evolution: A Theory in Crisis* (New York: Adler & Adler, 1985), William Dembski, *No Free Lunch* (New York: Rowman & Littlefield, 2002), Lee Spetner, *Not By Chance* (New York: Judaica Press, 1998), Robert Behe, *Darwin's Black Box* (New York: Free Press, 1996). Stuart Kauffman, *At Home in the Universe* (New York: Oxford University Press, 1995), Johnjoe McFadden, *Quantum Evolution* (New York: Norton, 2002).

A useful critical history of Darwinism can be found in Soren Lovtrup, *Darwinism: Refutation of a Myth* (New York: Croom Helm, 1987). Lovtrup notes, "I believe that one day the Darwinian myth will be ranked the greatest deceit in the history of science. When

this happens many people will pose the question: How did this ever happen?" Soren Lovtrup, *Darwinism: Refutation of a Myth*, p. 422.

[ii] Sean Carroll et al., *From DNA to Diversity* (New York: Blackwell, 2001), Rudolf Raff, *The Shape of Life* (Chicago: University of Chicago, 1996), J. Gerhart & M. Kirschner, *Cells, Embryos, and Evolution* (New York: Blackwell, 1997), Jeffrey Schwarz, *Sudden Origins* (New York: Wiley, 1999), G. Miller & S. Newman, *Origination of Organismic Form* (Cambridge: MIT Press, 2002).

[iii] Arnold Brackman, *A Delicate Arrangement* (New York: Times Books, 1980), Michael Shermer, *Darwin's Shadow: The Life and Science of Alfred Russell Wallace* (Oxford: Oxford University Press, 2002). In *The Darwin Conspiracy*, Roy Davies corrects the critique of Brackman and presents strong case for the plagiarism of Wallace by Darwin from the set of letters he received from the unsuspecting naturalist. Roy Davies, *The Darwin Conspiracy: Origins Of A Scientific Crime* (London: Golden Square Books, 2008).

[iv] Peter Bowler, *The Eclipse of Darwinism* (Baltimore: John Hopkins University Press, 1983). John Endler, *Natural Selection in the Wild* (Princeton: Princeton University Press, 1986), p. 31, D. Hartl & A. Clark, *Principles of Population Genetics* (Sunderland, Mass.: Sinauer Associates, 1997).

[v] W. S. Körner, *Kant* (London: Penguin, 1955), p. 197. Immanuel Kant, *Critique of Judgment*, trans. J. H. Bernhard (New York: Macmillan, 1951), p. 258. For the teleomechanists, see Timothy Lenoir, *The Strategy of Life* (Dordrecht: Reidel, 1982).

[vi] Philip Johnson, *Darwin on Trial* (Downers Grove, Ill.: InterVarsity, 1993), *Reason in the Balance* (Downers Grove, Ill.: InterVarsity, 1995), Norman Macbeth, *Darwin Retried* (Boston: Gambit, 1971). Larry Witham, *Where Darwin Meets the Bible* (Oxford: Oxford University Press, 2002). William Dembski, *Intelligent Design* (Downers Grove, Illinois: InterVarsity Press, 1999). Robert Pennock, *Intelligent Design Creationism and Its Critics* (Cambridge, Mass.: MIT Press, 2001), William Dembski (ed.), *Uncommon Dissent* (Wilmington: ISI, 2004), Mark Perakh, *Unintelligent Design* (Amherst, New York: Prometheus, 2004), Thomas Woodward, *Doubts About Darwin* (Grand Rapids, MI: Baker, 2003).

[vii] I. Prigogine & I. Stengers, *Order Out of Chaos* (New York: Bantam, 1984), p. 79.

[viii] Daniel Dennett, *Darwin's Dangerous Idea* (New York: Simon & Schuster, 1995), Michael Shermer, *The Science of Good and Evil* (New York: Henry Holt, 2004).

[ix] Daniel Dennett, *Freedom Evolves* (New York: Viking, 2003).

[x] David Stove, *Darwinian Fairytales* (Aldershot: Avebury, 1995).

[xi] Immanuel Kant, *Critique of Pure Reason* (New York: Cambridge University Press, 1998), Stephen Körner, *Kant* (New York: Penguin, 1960).

[xii] Terry Pinkard, *Hegel* (New York: Oxford University Press, 2000), p. 122.

[xiii] Sherrie Lyons, *Thomas Henry Huxley* (New York: Prometheus, 1999), p. 231. Soren Lovtrup, *Darwinism: Refutation of a Myth* (New York: Croom Helm, 1987), Robert Reid, *Evolutionary Theory, The Unfinished Synthesis* (New York: Cornell, 1985), Robert Wesson, *Beyond Natural Selection* (Cambridge: MIT, 1991), Michael Denton, *Evolution: A Theory in Crisis* (New York: Adler & Adler, 1985), Kevin Kelly, *Out of Control* (New

York: Addison-Wesley, 1994), Stephen J. Gould, *The Structure of Evolutionary Theory*, (Cambridge: Harvard University Press, 2002), Mark Kirschner & John Gerhart, *The Plausibility of Life* (New Haven: Yale University Press, 2005). Popper's essay, "Darwinism as a Metaphysical Research Program", can be found in his intellectual biography, *Unended Quest*, (New York: Open Court, 1976). A new wave of critics is emerging, Suzan Mazur, *The Altenberg 16: An Exposé of the Evolution Industry* (Wellington, New Zealand: Scoop Media, 2009). Jerry Fodor & Massimo Piatelli-Palmarini, *What Darwin Got Wrong* (New York: Farrar, Strauss and Giroux, 2010).

[xiv] Stuart Kauffman, *At Home in the Universe* (New York: Oxford University Press, 1995), p. 9.

[xv] Cf. F. Hoyle & N. Wickrmasinghe, *Evolution From Space* (London: Dent, 1981), p. 148.

[xvi] Robert Wesson, *Beyond Natural Selection* (Cambridge: MIT, 1994), p. xii.

[xvii] Stuart Kauffman, *At Home in the Universe* (New York: Oxford: Oxford University Press, 1995), p. 8.

[xviii] Richard Dawkins, *Climbing Mount Improbable* (New York: Norton, 1996).

[xix] Stephen J. Gould, *The Structure of Evolutionary Theory*, (Cambridge: Harvard University Press, 2002).

[xx] Gould, *op. cit.*, p.186.

[xxi] Stuart Kauffman, *At Home in the Universe* (New York: Oxford University Press, 1995), p. 9.

[xxii] Karl Popper, *The Poverty of Historicism*, (New York: Routledge, 1991), p. 13.

[xxiii] Immanuel Kant, *Critique of Pure Reason* (New York: Cambridge University Press, 1998), Stephen Körner, *Kant* (New York: Penguin, 1960), Susan Shell, *The Embodiment of Reason* (Chicago: University of Chicago Press, 1996). Yirmiyahu Yovel, *Spinoza and Other Heretics* (Princeton: Princeton University Press, 1992).

[xxiv] David Hildebrand, *Beyond Realism and Antirealism* (Nashville: Vanderbilt University Press, 2003).

[xxv] Dale Jacquette, *The Philosophy of Schopenhaur* (Kingston: Ontario: McGill-Queen's University Press, 2005).

[xxvi] David Qammen, *The Reluctant Mr. Darwin* (New York: Norton, 2006), Deborah Blum, *Ghosthunters* (New York: Penguin, 2006), Roy Davies, *The Darwin Conspiracy: Origins Of A Scientific Crime* (London: Golden Square Books, 2008), Loren Eiseley, *Darwin and the Mysterious Mr. X* (New York: Dutton, 1979).

[xxvii] Deborah Blum, *Ghost Hunters* (New York: Penguin, 2006).

[xxviii] Arthur Koestler, *Janus*, (New York: Hutchinson, 1978), p. 174.

[xxix] Joseph Campbell, *Oriental Mythology* (New York: Penguin, 1976), p. 170.

[xxx] Richard Dawkins, *The God Delusion* (New York: Houghton-Mifflin, 2006).

[xxxi] Arthur Schopenhauer, *World as Will and Representation* (New York: Dover, 1969).

[xxxii] R. L. Fox, *The Unauthorized Version* (New York: Knopf, 1992), Burton Mack, *Who Wrote the New Testament* (NY: Harper Collins, 1995), Richard Friedman, *Who Wrote the Bible?* (New York: Summit Books, 1987), Robert Price, *Deconstructing Jesus* (Amherst, New York: Prometheus, 2000).

[xxxiii] *Nietzsche and Modern German Thought* (New York: Routledge: 1991), Keith Ansell-Pearson (ed.), George Stack, "Kant, Lange, and Nietzsche: critique of knowledge", Steven E. Aschheim, *The Nietzsche Legacy in Germany 1890-1990* (Berkeley: University of California Press, 1994), Michael Gillespie, *Nihilism Before Nietzsche* (Chicago: University of Chicago Press, 1995), Jean-Marie Schaeffer, *Art of the Modern Age* (Princeton: Princeton University Press, 2000), James Porter, *The Invention of Dionysus* (Standford: Standford University Press, 2000), Gregory Moore, *Nietzsche, Biology and Metaphor* (New York: Cambridge University Press, 2002), Peter Levine, *Nietzsche and the Modern Crisis of the Humanities* (Albany, New York: State University of New York Press, 1995), Keith Ansell-Pearson, *An Introduction to Nietzsche as Political Thinker* (New York: Cambridge University Press, 1994), Abir Taha, *Nietzsche, The Prophet of Nazism: The Cult Of The Superman* (Bloomington, Indiana: Authorhouse, 2005).

[xxxiv] Adrian Desmond and James Moore, *Darwin, Life of a Tormented Evolutionist* (New York: Warner, 1991). For Marx on Darwinism, cf. John Bellamy, *Marx's Ecology* (New York: Monthly Review Press, 2000).

[xxxv] Stephen J. Gould, *The Structure of Evolutionary Theory* (Cambridge: Harvard University Press, 2002).

[xxxvi] Michael Perelman, *Classical Political Economy* (London: Rowman and Allanheld, 1983), p. vii, and p. 171.

[xxxvii] Pietro Corsi, *The Age of Lamarck: Evolutionary Theories in France, 1790-1830*, (Berkeley: University of California Press, 1988). Loren Eiseley, *Darwin's Century* (New York: Doubleday, 1958), Edward Larson, *Evolution* (New York: The Modern Library, 2004), Michael Ruse, *The Darwinian Revolution* (Chicago: University of Chicago Press, 1999), Peter Bowler, *Evolution: History of an Idea* (Berkeley: University of California Press, 2003).

[xxxviii] Leon Harris, *Evolution: Genesis and Revelations, With Readings from Empedocles to Wilson*, C. (Albany: State University of New York Press, 1981).

[xxxix] Peter McLaughlin, *Kant's Critique of Teleology in Biological Explanation* (Lewisten, New York: Edwin Mellen, 1990). As Timothy Lenoir notes in *The Strategy of Life* (Chicago: University of Chicago Press, 1989), "Teleological thinking has been steadfastly resisted by modern biology. And yet, in nearly every area of research biologists are hard pressed to find language that does not impute purposiveness to living forms. The life of the individual organism—if not life itself, seems to make use of a variety of stratagems in achieving its purposes. But in an age when physical models dominate our imagination and when physics itself has become accustomed to uncertainty relations and complementarity, biologists have learned to live with a kind of schizophrenic language, employing terms like 'selfish genes' and 'survival machines' to describe the behavior of organisms as if they were somehow purposive yet all the while intending that they are highly complicated mechanisms. The present study treats a period in the history of the life sciences when the imputation of purposiveness to biological organization was not regarded as an

embarrassment but rather an accepted fact, and when the principal goal was to reap the benefits of mechanistic explanations by finding a means of incorporating them within the guidelines of a teleological framework. Whereas the history of German biology in the early nineteenth century is usually dismissed as an unfortunate era dominated by arid speculation, the present study aims to reverse that judgment by showing that a consistent, workable program of research was elaborated by a well-connected group of German biologists and that it was based squarely on the unification of teleological and mechanistic models of explanation." For another view, cf. Frederick Beiser, Chapter 9, "Kant and the Naturphilosophen", *The Romantic Imperative* (Cambridge: Harvard University Press, 2003). Also, Ernst Cassirer, *The Problem of Knowledge* (New Haven: Yale University Press, 1950).

[xl] A. Desmond & J. Moore, *Darwin: Life of a Tormented Evolutionist* (New York: Warner, 1991), p. 295, "The Atheists had already founded an illegal penny paper, the uncompromising *Oracle of Reason*, a year old and still selling in its thousands. It vilified rich priests and armed infidel missionaries with geological tidbits to use against them. One of the cadre, the working class printer William Chilton, fashioned a revolutionary Lamarckism, driven from below, pushing nature towards a higher, brighter, co-operative future (a meaningless concept to the port-swilling nobility). The hard-bitten editors were fitting evolution into their militant credo. Materialism was given revolutionary class overtones."

[xli] Desmond King-Hele, *Erasmus Darwin: Grandfather of Charles Darwin* (New York: Scribners, 1963).

[xlii] For a standard Darwinian view, see Michael Ruse, *The Evolution-Creation Struggle* (Cambridge: Harvard University Press, 2005).

[xliii] James Secord, *Victorian Sensation* (Chicago: University of Chicago Press, 2003).

[xliv] J. D. Peel, *Herbert Spencer: The Evolution of a Sociologist* (New York: Basic Books, 1971).

[xlv] Harold Boner, *Hungry Generations, The Nineteenth-Century Case Against Malthusianism*, (King's Crown Press, New York, 1955).

[xlvi] Neal C. Gillespie, *Charles Darwin and the Problem of Creation* (Chicago: The University of Chicago Press, 1979).

[xlvii] Peter McLaughlin, *Kant's Critique of Teleology in Biological Explanation* (Lewisten, New York: Edwin Mellen, 1990).

[xlviii] David Christian, *Maps Of Time: An Introduction to Big History* (Berkely: University Of California Press, 2005), Brown, Cynthia Stokes, *Big History: From the Big Bang to the Present* (New York: The New Press, 2007). Christian de Duve, *Vital Dust: Life As A Cosmic Imperative* (New York: Basic Books, 1995)

[xlix] Paul Davies, *The Goldilocks Enigma: Why Is the Universe Just Right for Life?* (New York: Houghton Mifflin, 2006).

[l] Christian de Duve, op. cit., p.7.

[li] Christian de Duve, op. cit., "The Biology of Ethical Values", p. 264.

[lii] Richard Klein & Blake Edgar, *The Dawn Of Human Culture: A Bold New Theory On What Sparked The "Big Bang" Of Human Consciousness* (New York: Wiley, 2002), Nicholas Wade, *Before The Dawn: Recovering The Lost History Of Our Ancestors* (New York: Penguin, 2006), Stephen Oppenheimer, *The Real Eve: Modern Man's Journey Out of Africa* (New York: Carroll and Graf, 2007), Steve Olson, *Mapping Human History* (New York: Houghton Mifflin, 2002).

[liii] Kirkpatrick Sale, *After Eden: The Evolution of Human Domination* (Durham: Duke University Press, 2006).