

## History: La Grande Illusion

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The earth has journeyed in its orbit around the sun, literally from time immemorial, and the planetary revolutions, like earth's seasons, have followed one another. Large and small cycles were smeared out by the monotony of the planet's never-disturbed progressions. For billions of years neither the earth nor its motions could be described as having any history or any evolution. The multitudes of life forms succeeded one another, sometimes with very minor morphological variations and changes, but mostly generations were indistinguishable from one another. Neither the planet, its life, nor its rocks appeared to have aged, only one form of life or one kind of rocks followed the change, or disappearance, of another. Neither history nor evolution were born yet, and neither do our models allow life without evolution, or history without humans.

When humans began to think of the past, they began simultaneously to object to it, and to superimpose on it the endless cycles of eternal returns. The past was sacred, heroic and always returning, and history was a word whose meaning has long eluded man. The past became prophets' foreknowledge of the future, and thus the necessity of history was born. Written history started when man began to write, to fit past events into calendars, and to break up calendars into periods. Once the Bible was written it became a document of history. Events in the Judeo-Christian tradition were arranged in linear form rather than being interpreted as cyclic as in the Mayan calendar. And ever since its birth, history continues to be of paramount importance to us all: to each individual, to each profession, to each decade, and to each century history presents its own picture of the past. This is so because each time and each culture paints or distorts the pictures of history differently. Through historical imagery each epoch apprehends and defines its own life.

Astronomers today (just like ancient, scholastic and Middle Ages

astronomers) tell us that before the Big Bang (creation) there was no time and no history, and that the future will be either cyclic or history will cease in the red-heat death of the universe (or the realm of the netherworld). These cosmological initial and terminal events mark the symbolic life-span of earth history as interpreted by mankind, and since history is human invention, there was no history before us, nor will there be any after us. I believe this to be fundamentally correct. Yet I see something basically wrong, or to put it mildly, something religious in this science which attempts to lead us to the pre-time, pre-space, pre-beginning, even pre-here, pre-there and pre-nothing. Surely this is either the great error, or the great myth – but a myth that, perhaps as the Russians say, is a fragment of former truth!

There are many interpretations of evolutionary history and human history. To some the entire history of life or of man is a steady consequence of organismal relationships embedded in variation and competition; others interpret history as periods of stasis interrupted by catastrophes or events of unusual significance. The data to support the paleontological interpretations of history as either gradual or catastrophic are still controversial, and the genetic data are just emerging. History attempts to explain by means of models. Unfortunately making models simplifies and narrows the field of vision. And here is the problem of how to enlarge our understanding while making models. But this is the fate of all treatments of ideas including those in science. Events narrated in history and in evolution do not necessarily correspond to the real events occurring in history or in nature. Instead, both are based on models.

Our models about evolution reflect our politico-social milieu, and may be rooted in what appear to be just slogans, advertising jargons claiming, perhaps, more than they can prove. It is unreasonable to claim that natural science is "objective" while the "mental sciences" such as history are not. Some might claim that historians must reflect their own cultures in their narratives, while scientists tell completely objective tales. But no intellectual discipline escapes the impact and delusions of its own time. For example, any North American geologist promulgating continental drift would have been denied tenure before World War II, the time of skepticism about continental drift; neither would Lamarckian evolutionary biologists be more

successful today. Both evolutionary biology and history are equally subjective activities because both are influenced by the training and social standing of their respective practitioners; yet both claim to reach beyond their immediate circumstances. But the biggest danger with models is that the ideas of a selected few individuals stand for the knowledge at large, and make these selected ideas and selected people represent the status quo of the profession. Those are really only symptoms of a larger universe, in which ad hoc theories, when they materialize, alter our science. All of us will go on defending our models irrespective of how correct they are. We must beware of not confusing the model with the reality.

What we are doing when teaching Darwin's biotic history to our biology students is pure history. It is possible that the biggest difference between evolutionary biology (at least its historical aspects) and history is linguistic, and not a cosmic battle between science and nonscience. If we substitute the English word *science* with the German *Wissenschaft*, or Russian *nauka*, then the differences between these disciplines become less significant. To a German or a Russian both history and biology are *Wissenschaften* or *nauki*, and thus both disciplines have an equal claim to the place in their respective Academies of "Sciences." In this light the differences and similarities between evolution and history are simply the differences between the *Naturwissenschaft* and *Geisteswissenschaft*. The *Naturwissenschaft* appears to depend less on narrative than does the *Geisteswissenschaft*, although paleontology, geography, or cosmology certainly tell stories. This is not to say that there are no differences; history (like such sciences as sociology and anthropology) deals with human actions and events within social and institutional frameworks, with ideas, thoughts and emotions, and, above all, with human problems. Change, however, has an additional meaning to the evolutionary biologist. The stability of life is maintained by the continuous cybernetic changes, or adjustments of organisms to the environment. And this homeostasis consists of stability and novelty, which, in order for an organism to survive, must always tend to equilibrium. However, few intellectual disciplines (e.g., Freudianism, relativity theory, etc.) are associated with a single theory more than the study of evolution. But the study of history is a discipline seemingly in search of, so far, very elusive theories or law.

### Methodologies of Historical Explanations

The common element of evolutionary biology and history is the concept of *change* through time. Historians and evolutionary biologists seek to picture changing and dynamic processes, as they desire to reconstruct life from the remains of death. The historian gathers the extant fragments of past events, and imaginatively rebuilds those events from a few documents, some old letters, or from the pieces of cracked pottery. The evolutionist, such as the paleontologist, does precisely the same. From rock splinters bearing the dull imprint of once vivid organisms, one brings back to conceptual life whole populations – teeming hordes of strange creatures. Out of historical evidence the past is made present, whether the past is Caesar crossing the Rubicon or a trilobite crawling across the bed of a Paleozoic sea. In both cases historical explanations are similar and either none is, or both are, equally "good science," and the methodologies of general history and evolutionary biology are homologous. Although it could be considered that history and evolutionary biology are conceptually different (as evolution as a natural process occurred regardless of whether humans arose to interpret it, whereas human history is processionally and conceptually dependent on the existence of humans), nevertheless, both seem to be involved in the construction of narratives based on historical artefacts, necessitating the interpretation of their significance and the synthesis of these into an explanatory narrative which might appeal to single or multiple causes. The primary difference in most general methodology would seem to lie in the kinds of "documents" utilized and the different character of the causes; the first often deal with such issues as human intentionality, political events, and economics and sociology, and the other appeals to genetics, interaction of species, geological changes and so on. In this aspect we are concerned with the communality of methods in spite of the split of disciplines into departments of science and humanities, and hence a dialogue across normal disciplines results.

Robert Richards is one of the philosophers, scientists and historians mutually concerned to explore the common problems and methodologies involved in standard historical disciplines and the historical sciences. In this volume, he is primarily interested in the structure of historical narrative and explanations, which he finds not only explanatory, but the most fundamental

sort of explanation to be found in science. He argues against Hempel's interpretations (for a different view on Hempel see Hull, this volume). To Richards history is scientific because it explains, and thus history is "explanation science." Richards dissects Darwin's narrative, and shows how various devices of the narrative provide an explanation.

This aspect of the numerous parallels in the issues confronted by the historian and natural scientist engaged in historical reconstruction of the past is emphasized by Rachel Laudan. To her the great similarity among all historical sciences is that they have a common goal of seeking a reliable knowledge of the world. She assesses the problems of historical sciences, and notes that evolutionary biology and history are similar in these aims. Although we cannot experiment on the past, the differences between the historical and nonhistorical sciences have been exaggerated. Although she demonstrates that not all historical sciences are the same, and that the lessons from the philosophy of history are limited, nevertheless, by examining chronology and interpretive history she declares that "from an epistemic point of view there is absolutely nothing special about the past."

David Hull is not satisfied with the Covering-Law Model of Scientific Explanations, and feels a need for a unique historical form of explanation, one concerned with particular events. Basing his conclusion on analysis of historical reconstructions and explanations and on historical entities (which he argues are particulars), Hull proposes the Particular-Circumstance Model of Scientific Explanations.

Marc Ereshefsky argues that the distinction between evolutionary biology and such nonhistorical sciences as physics and chemistry are not clear, and that in both evolutionary biology and experimental sciences there is a temporal ordering of events, the use of how-possibly explanations, the uniqueness of events, and the reliance on particular-circumstance explanations. However, evolutionary biology differs from all other sciences, since it deals with biological taxa, which as historical entities, transmit information from one generation to another. In this aspect evolutionary biology is similar to human history, which is concerned with social groups that also transmit information. The differences between the disciplines may be of degree only. While taxa faithfully transmit information via the physical transfer of hereditary material, in history information is transmitted much less predictably or

"faithfully" via culture/society. Ereshefsky sees evolutionary theory as a methodologically, but not ontologically, distinct historical discipline. Both are sciences without laws, whether or not they are actually attempting the discoveries of laws, and whether or not the natures of the underlying processes are comparable. The aim of both is not the judgment, but the understanding of the past.

Richards, Laudan, Hull and Ereshefsky lay the most general issues at stake before the reader, and they also raise some immediate cautions about overly ambitious use of analogies and the possible pitfalls awaiting those who see easy parallels between the enterprise of the historian and that of the natural scientist.

### Historical Explanations and Evolutionary Biology

*History*, meaning either "written history" or "past events," surely must have been developing prior to Darwin. No one, absolutely no one, can visualize the hominid history otherwise than evolving – not emerging or progressive, but evolving. Most evolutionary biologists, including paleontologists and paleoanthropologists, assume that this evolving process is controlled by natural selection. Historians, irrespective of any claims to the contrary, are equally constrained by evolutionary theory.

Darwin's evolution asserts that the biological world is discontinuous, changing and dynamic, that is, discontinuous morphologically at any time but continuously and gradually changing in (pre-punctuated equilibria) uniformitarian time. Human history must also be discontinuous, changing and dynamic if it is not to become continuous, unchanging and static. This is of great significance, for if Darwin's claim is right then history must be fundamentally related to evolutionary biology, and historical events cannot be different from other universal events in nature, and must be subject to the same considerations.

A common wisdom claims that no two things are ever identical, hence it seems unnecessary to show the difference between entities to demonstrate their individuality. However, we need to classify things, to arrange them in some orderly fashion, if possible, to set their hierarchical relationship. His-

tory and evolutionary biology are not identical, there are differences between them. Indeed, they are separate and well-developed disciplines. However, they are retrospective, closely related and similar sciences; they are the maps of past life (however incomplete), telling us where we came from. Perhaps the very nature of the topic makes us in some way critics of the received view of history.

In history and in evolutionary biology time is lumped into "periods": Medieval, Elizabethan, Tertiary or Burgess Shale. The visions that historians and paleontologists have about their systems are similar. Gibbon's unified temporal period of the Roman Empire is comparable to Murchison's Great Silurian System. A striking difference between history and evolutionary biology, of course, is in the time scales used. While physicists usually deal with ahistorical events, (or rather with the laws governing these events), evolutionary biologists are concerned (in addition to the biological "laws") with the nonhuman living world of millions of years, and historians with the human world of shorter duration. However, even historical time is sufficiently long for recognition of long term evolutionary phenomena such as natural selections, extinctions, etc.

Douglas Futuyma, in his discussion of issues in reconstruction of phylogenies, argues that our historical thinking influences our evolutionary thinking, and that the history learned from paleontological and phylogenetic analyses influences history at the population level. Thus, learned history further influences the interpretation of functional characters and our understanding of rates and directions of evolution. Gene flow may also explain the hypothesis of punctuated equilibria of certain characters. To Futuyma, historical evolutionary biology explains major macroevolutionary phenomena, and thus evolutionary studies are basically studies of history. History of population distributions and movements is needed to understand evolutionary development more precisely.

David Kitts wants to confirm evolutionary theories by paleontological data. He first considers historical inferences, and then turns to geology and paleontology for particular events to test the general evolutionary hypotheses. He warns us to be careful "that the hypotheses to be tested [have] not been presupposed in inferring the event to be employed in its test." He also pleads that the theory to be tested and procedures used to infer the events

be very clearly formulated to determine which features of the fossil record are to be counted as positive, and which as negative. He also requires that it be clear whether the hypothesis will be tested or presupposed. He scrutinizes the success of theoretical paleontologists in their attempts to overcome these difficulties.

Futuyma and Kitts specifically address the most general issues from the standpoint of historical science proper. They display the relevance of general issues in historical explanation to the questions of historical science, and they display in more detail the way in which there are meaningful connections between disciplinary approaches.

### **Historical Science and the Philosophy of History**

The analogy of history and evolutionary biology is united by a more general concern with the unity of processes found in human and natural science. The chapters by Ruse, Boyd and Richerson, Allen, and Slobodkin deal variously with the philosophy of history, and are concerned with understanding the process of historical development itself. They successfully ask whether history progresses and what are the criteria of scientific progress. They also show that there are parallels between the dialectic of Marx and Darwin's natural selection; that there are historical laws which also govern the development of the sciences; that such laws govern human history and evolutionary biology; that there are similar processes at work in society and the natural world.

Michael Ruse in his chapter on progress in science analyzes the parallel between the history of society, history of science, and phylogeny. All three, he maintains, assume progressive development, passing from a primitive to a more advanced stage. Though progressiveness is now routinely rejected in evolutionary biology, general history and history of science, Ruse argues that the assumption covertly quickens all of these disciplines.

Whether there is direction to human history depends on whether there is a purpose, or meaning, in history, because it is purpose that gives direction to history. Nonhuman history may have a direction – that is, increase of entropy in cosmological change – however, that does not mean that it has a



purpose. There is a general consensus among historians and evolutionary biologists that neither history nor evolutionary biology claims to foretell the future. However, are we really unable to predict the future? It seems that on the one hand we loudly deny any ability to tell the future (and laugh at Marxists, utopias, and dreams), and on the other we are deftly doing just that. The most recent paleontological arguments about periodicities of mass extinctions, are very strong statements proclaiming knowledge of the future. Likewise, the rise and fall of Great Powers, and the demise of Republican exuberances are equally strongly, and often wrongly, predicted by historians.

The reason why past events and evolutionary events had, and still are considered by some to have, a direction is because history was once interpreted as nonscientific and controlled by divine providence which became its law. All biologists believe that nature is explainable without recourse to explanation via divine intervention. Without such belief there would be little merit in doing science. If nature is explainable, so must be man, since man is also part of nature. Thus, human history must also be explainable. This, however, does not imply existence (or absence) of laws. Definitely, no universal laws have been found in history or in evolutionary biology. There are, however, plenty of theories.

The predictions of the future, except those based on testable and verified natural laws, are possible candidates of failure, for example, the population bomb, the greenhouse effects, the predictions of the School of Rome, the fall of the Great Powers, the nuclear winter scenarios, etc. However, the new temper in biology away from the pure descriptive studies, and in history from descriptions of battles and lives of rulers demands us to quantify processes and patterns. These "philosophical" departures from traditional studies and our new abilities to accumulate great amounts of data may allow us to predict future events. However, if evolution teaches us anything it is that we are ignorant of effects that will or could wipe out the human species. Of course this does not mean that there are no reasons for optimism about the human fate and thus the fate of "history."

Robert Boyd and Peter Richerson try to understand the relation of cultural evolution to microevolutionary dynamics. In other words can we explain macroscopic behavior by microscopic effects? They argue that we can. The behavior of a population is the sum of behavior of individuals of

this population, and thus by explaining the behavior of individuals (in the evolutionary or historical sense) we can explain the characteristics of the population. Boyd and Richerson utilize statistical mechanics and thermodynamics as sources of theoretical analogies. Thus, organic evolution and analogous cultural evolution result from microevolutionary processes in the course of historical events.

Garland Allen compares Darwin's evolutionary theory with Marx's ideas on the development of society. According to Allen both organic evolution and socioeconomic processes are historical transactions subject to laws. The laws in evolutionary biology and in history are similar, but are different from laws in physics. I fully agree with Allen that history can be as scientific as evolutionary biology, and that although historical development does not share the same mechanisms, the two disciplines are nevertheless very similar. Whether Allen is right that dialectical materialism was implicit in Darwinism and explicit in Marxism, is in a way irrelevant – what is of great interest is that Marxism, however now discredited, can be of value in studies of modern evolutionary theory.

Marx sees the Golden Age, and, therefore, the meaning and direction in history. Darwin sees similarly that "forms even more perfect will evolve." Both men reflect deep feelings of seeing the benevolence and beauty in the universe. Both wonder at the marvels of nature. The opposite of this view is the pessimism manifested in the objection to the idea of progress, in the desire to shut the eyes, to the *axis mundis*, or *axis vitae*, or to become anti-historical, or at least ahistorical.

Lawrence Slobodkin is interested in the nature of science, and more specifically the features of its evolution, and particularly the evolution of natural laws. He sees laws evolving, in that scientists apply new laws to newly observed phenomena, and broaden their application. In other words science and the laws that science describes, as well as the universe, are subject to change with time. Thus the laws evolve! He shows how evolution can be used to explain the ontogeny of science (its birth, maturity and extinction), and this to him constitutes the historical sequence of development. Thus, evolutionary biology itself is a historical phenomenon.

Dawkins claims that evolution itself evolves. I agree, and I add that natural laws must also evolve. But this is correct *only when we accept that*

*history and the study of evolution are cultural phenomena that follow the principle of the hermeneutic circle.* It is then that Darwin will be given greater credit; when his theories are correctly expanded to the nonbiological realm, as is continuously done, and when it is accepted that the universe indeed evolves then the very properties of the universe must also evolve. Therefore, although our concept of laws may require them to be fixed, I believe that laws cannot be fixed forever. And if laws change why not time itself? If it is true that in our model the universe as a whole evolves, then the temporal and spatial parts of the universe must also evolve. Hence history evolves. Or to be more exact, if life evolves, there is absolutely no reason to assume that man does not; hence human history cannot be different from histories of other organisms.

This specialization (or fragmentation) of the field – this niche partitioning – a necessary by-product of the increase of knowledge (or its classifications), requires the synthesis (or unification) of these various disciplines, particularly the synthesis of history and evolutionary biology – in effect, an opposite to the fashionable specialization so prevalent now in history and in evolutionary biology. This is not to say that there is anything wrong with specialization per se. Specialization results from the increasing complexity of life itself; for example, the modern army's tank driver is as much a soldier as the nineteenth-century Hussar. In the same way a specialist in ideas of antiquity and one specializing in World War II are as much historians as the student of trilobites. *All are specialists of history.*

### Sense of Meaning

History as a discipline and as a popular subject is blossoming as never before; witness Paul Kennedy's *The Rise and Fall of the Great Powers* on the best seller's list, and the popularities of the history book clubs. The field is alive, and even new subdisciplines are born (e.g., history of geology), but above all there is a great understanding among historians that history must be related to the general process of extant human life. It is in this sense that history acquires a practical aspect. History, and for that matter all science, is not an activity unconnected with the present. On the contrary it lives,

grows and serves today's life, and is at the same time nourished by it, it is dependent on it and draws the inspiration from today's activities. Evolutionary theories and explanations may come and go, and historical fashions may change. Most of our actions are independent of our intellect, however "thoughtful, premeditated" actions are clearly tied to our present conditions. Thus it is the dictates of our present life that are central to all our sciences. This is the reason why the interpretation of the past, and thus the past itself, is continuously changing. History and evolutionary biology change continuously and reconstruct the past according to the demands of the present. *Autre temps autre mœurs*. In this sense these activities have a life of their own. Thus we continuously manufacture a new history of human life and of the organic world. In a very profound sense both human and biological histories create their own subject matter.

It seems that there is plenty of history to go around; everyone speaks history. We even have a return to roots, to individual histories of one's own families. Books on history and histories abound and yet we live in the world of an ahistorical desert and there is some antagonism toward considerations of what history is. What we talk about instead are the historical facts and narratives, but we are forbidden to talk about the *sense* of history. Sense of history is a taboo, a something akin to the soul of history, the direction of the historical processes, some mysterious religious spirit. However, we cannot reject the sense of history any more than we can reject the sense of life itself. As much as sense of our individual life has deep meaning in, and for, our own life, sense has also a deep meaning in history. In our blind and premature rejection of sense and meaning in history, we play games of "rationality" and reject these concepts as romantic and nonscientific. To say that history has no meaning is as meaningless as to say that life of individuals has no meaning. Religion has neither a patent on the meaning of life nor a patent on the ethics of life. If the life of individual has meaning, why should a life of society, or history, or evolution, be without it?

I think it was psychoanalysis that has forced upon us an unescapable conclusion that history explains our present condition. Thus history really defines modern humans, the *Homo sapiens historicus*. In this sense history has a meaning, just as psychoanalysis has meaning. This meaning is the explanation of the present human condition, its origins, and manifestations.

Are there deeper needs that historians satisfy? Surely the purpose of history is not only collecting of historical facts, a purpose a classical systematist would propose, and claim a legitimate and useful science. History, like evolutionary biology, must explain human life, must help in understanding human life, and by this process of understanding allow us to behave and act rationally, and to plan for the future. Planning for the future is not yet an entirely discredited idea – it is a necessity. To understand individual life we must dig into the previous experiences, to understand larger units of life we must do likewise. In spite of Popper we must try to shape and control future events – it is nonsense to think otherwise. Without planning for the future, history becomes only an intellectual game, of little importance outside the Academe. But history has two meanings, one the study of the past human life, the other that past life itself. But are there really any differences between these two concepts? I think not. The so-called past life is nothing else but our understanding of that life.

If we accept psychoanalysis as a valid method with which to dig into the past of an individual for the explanations of the meaning of human life then we must also accept history's "sense" for the same purpose of digging into the past of humanity. The basis of history, as the bases of all knowledge, is imagination that must not be restrained by any a priori rejections. After all history has an incredibly powerful influence on our present life. We are unable to make legal judgments without consulting the Constitution, which has the transcending power of history over the American lives. Should we, therefore, not attempt to see life through the glasses of history? Should we not concentrate on history more, and go in depth into our own historical past for strength, understanding, and guidance? Evolutionary theories come and go, historical fashions change, yet history will never go away, but instead will haunt us with offers of explanations and guidance.